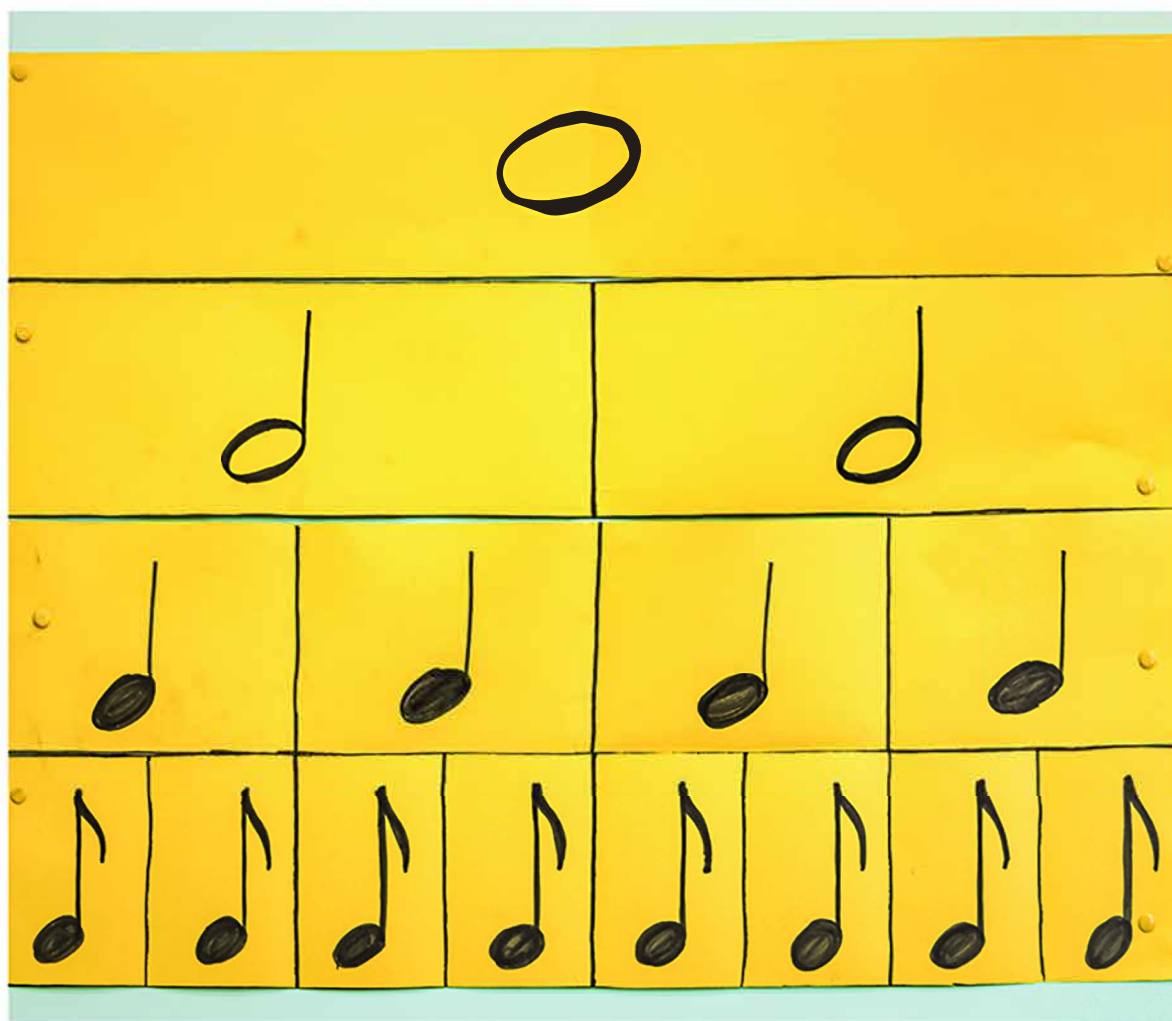


The Routledge Companion to Music Theory Pedagogy



Edited by Leigh VanHandel

THE ROUTLEDGE COMPANION TO MUSIC THEORY PEDAGOGY

Today's music theory instructors face a changing environment, one where the traditional lecture format is in decline. *The Routledge Companion to Music Theory Pedagogy* addresses this change head-on, featuring battle-tested lesson plans alongside theoretical discussions of music theory curriculum and course design. With the modern student in mind, scholars are developing creative new approaches to teaching music theory, encouraging active student participation within contemporary contexts such as flipped classrooms, music industry programs, and popular music studies.

This volume takes a unique approach to provide resources for both the conceptual and pragmatic sides of music theory pedagogy. Each section includes thematic “anchor” chapters that address key issues, accompanied by short “topics” chapters offering applied examples that instructors can readily adopt in their own teaching. In eight parts, leading pedagogues from across North America explore how to most effectively teach the core elements of the music theory curriculum:

- Fundamentals
- Rhythm and Meter
- Core Curriculum
- Aural Skills
- Post-Tonal Theory
- Form
- Popular Music
- Who, What, and How We Teach

A broad musical repertoire demonstrates formal principles that transcend the Western canon, catering to a diverse student body with diverse musical goals. Reflecting growing interest in the field, and with an emphasis on easy implementation, *The Routledge Companion to Music Theory Pedagogy* presents strategies and challenges to illustrate and inspire, in a comprehensive resource for all teachers of music theory.

Leigh VanHandel is Associate Professor of Music Theory at Michigan State University.

ROUTLEDGE MUSIC COMPANIONS

Routledge Music Companions offer thorough, high-quality surveys and assessments of major topics in the study of music. All entries in each companion are specially commissioned and written by leading scholars in the field. Clear, accessible, and cutting-edge, these companions are the ideal resource for advanced undergraduates, postgraduate students, and researchers alike.

THE ROUTLEDGE COMPANION TO MUSIC THEORY PEDAGOGY

Edited by Leigh VanHandel

THE ROUTLEDGE COMPANION TO THE CONTEMPORARY MUSICAL

Edited by Jessica Sternfeld and Elizabeth L. Wollman

THE ROUTLEDGE COMPANION TO POPULAR MUSIC AND HUMOR

Edited by Thomas M. Kitts and Nick Baxter-Moore

THE ROUTLEDGE COMPANION TO MUSIC, MIND, AND WELL-BEING

Edited by Penelope Gouk, James Kennaway, Jacomien Prins, and Wiebke Thormählen

THE ROUTLEDGE COMPANION TO JAZZ STUDIES

Edited by Nicholas Gebhardt, Nichole Rustin-Paschal, and Tony Whyton

THE ROUTLEDGE COMPANION TO POPULAR MUSIC ANALYSIS

Expanding Approaches

Edited by Ciro Scotto, Kenneth Smith, and John Brackett

THE ROUTLEDGE COMPANION TO THE STUDY OF LOCAL MUSICKING

Edited by Suzel A. Reily and Katherine Brucher

THE ROUTLEDGE COMPANION TO MUSIC COGNITION

Edited by Richard Ashley and Renee Timmers

THE ROUTLEDGE COMPANION TO SCREEN MUSIC AND SOUND

Edited by Miguel Mera, Ronald Sadoff, and Ben Winters

THE ROUTLEDGE COMPANION TO EMBODIED MUSIC INTERACTION

Edited by Micheline Lesaffre, Pieter-Jan Maes, and Marc Leman

THE ROUTLEDGE COMPANION TO MUSIC, TECHNOLOGY, AND EDUCATION

Edited by Andrew King, Evangelos Himonides, and S. Alex Ruthmann

THE ROUTLEDGE COMPANION TO MUSIC THEORY PEDAGOGY

Edited by Leigh VanHandel

First published 2020
by Routledge
52 Vanderbilt Avenue, New York, NY 10017

and by Routledge
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2020 Taylor & Francis

The right of Leigh VanHandel to be identified as the author of the editorial material, and of the authors for their individual chapters, has been asserted in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

Library of Congress Cataloging-in-Publication Data
A catalog record for this title has been requested

ISBN: 978-1-138-58501-0 (hbk)
ISBN: 978-0-429-50558-4 (ebk)

Typeset in Bembo
by codeMantra

Visit the eResource: www.routledge.com/9781138585010

CONTENTS

<i>Preface</i>	<i>xii</i>
<i>Acknowledgments</i>	<i>xiv</i>
<i>Supplemental Materials</i>	<i>xv</i>
PART I	
Fundamentals	1
1 Music Theory and Working Memory	3
<i>Leigh VanHandel</i>	
2 Putting the Music in “Music Fundamentals”	13
<i>Melissa Hoag</i>	
3 A Cornucopia of Accidentals	22
<i>Paula J. Télesco</i>	
4 Contouring as a Powerful Tool for Pitch Awareness	27
<i>Jan Miyake</i>	
5 Incorporating Melodicas into the Music Theory Classroom	32
<i>Chelsey L. Hamm</i>	
6 Music Fundamentals Games	37
<i>Stefanie Dickinson</i>	
PART II	
Rhythm and Meter	45
7 Introducing Musical Meter through Perception	47
<i>Stanley V. Kleppinger</i>	

8	Starting from Scratch: Representing Meter Using Simple Programming Tools <i>Daniel B. Stevens</i>	57
9	“Computer Programmed With Just One Finger”: Transcribing Rap Beats with the Roland TR-808 <i>Michael Berry</i>	63
10	Rebeaming Rhythms: Helping Students “Feel” the Need for Correct Beaming <i>Gene S. Trantham</i>	68
11	Clapping for Credit: A Pedagogical Application of Reich’s <i>Clapping Music</i> <i>Jon Kochavi</i>	72
12	Hindustani <i>Tāl</i> : Non-Western Explorations of Meter <i>Anjni H. Amin</i>	78
	PART III	
	Core Curriculum	85
	Diatonic harmony	
13	Small-Scale Improvisation in the Music Theory Classroom <i>Nancy Rogers</i>	87
14	The Cognitive and Communicative Constraints of Part-Writing <i>Daniel Shanahan</i>	96
15	Voice-Leading Detectives <i>Meghan Naxer</i>	107
16	Harmonic Sequences Simplified: The First Week of Instruction <i>Brent Auerbach</i>	110
17	Grading the Song <i>Michael Baker</i>	118
18	Finding the Implied Polyphony in the Minuet II from Bach’s Cello Suite No. 1 in G Major <i>Edward Klorman</i>	124

Chromatic harmony

- 19 Using Tendency Tones to Teach the Morphology and Syntax of Chromatic Harmony 131
Stacey Davis
- 20 Apply Yourself! An Active Learning Lesson Plan for Introducing Secondary Dominants 141
Patricia A. Burt
- 21 Plot Twists: Narrative Pivots and the Enharmonic Augmented-Sixth Chord 146
Jena Root
- 22 Chromatic Mediants through the Context of Film Music 152
Erik Heine
- 23 How to Analyze Chromatic Lament-Bass Harmonizations (Without Tears) 157
Jason Britton
- 24 Introduction to Common-Tone Diminished-Seventh Chords 162
Nicole Biamonte
- 25 “It’s an N, bro”: Teaching Enharmonic Reinterpretations of Fully Diminished Seventh Chords by Ear 167
David Heetderks

PART IV

Aural Skills 175

- 26 Defending the Straw Man: Modulation, Solmization, and What to Do with a Brain 177
Gary S. Karpinski
- 27 Speaking Music 187
Justin Mariner and Peter Schubert
- 28 Finding Your Way Home: Methods for Finding Tonic 200
Timothy Chenette
- 29 Error Detection in Aural Skills Classes 204
Alexandrea Jonker

30	In Search of Hidden Treasures: An Exercise in Symphonic Hearing <i>Daniel B. Stevens</i>	211
31	An Aural Skills Introduction to Twelve-Tone Music: Dallapiccola's "Vespro, Tutto Riporti" <i>David Geary</i>	217
PART V		
	Post-Tonal Theory	223
32	Setting Sets Aside: Prioritizing Motive, Text, and Diversity in Post-Tonal Analysis Courses <i>Michael Buchler</i>	225
33	Teaching and Learning Early Twentieth-Century Techniques at the Keyboard <i>Lynnsey J. Lambrecht</i>	233
34	Starting the Twentieth Century with a Bang!: A Lesson Plan for Whole-Tone Scales in <i>Tosca</i> <i>Christopher Doll</i>	239
35	Twentieth-Century Polymodality: Scalar Layering, Chromatic Mismatch, and Symmetry <i>José Oliveira Martins</i>	244
36	Twelve-Tone Study Using Symbols in Dallapiccola's "Fregi," from <i>Quaderno Musicale di Annalibera</i> <i>Joe Argentino</i>	250
37	Integral Serialism – Analysis of Gerhard, String Quartet No. 1, mvmt. 3 <i>Rachel Mann</i>	256
38	Mapping Symmetry and Form in George Crumb's "A Prophecy of Nostradamus" <i>Natalie Williams</i>	261
PART VI		
	Form	269
39	Principles of Form <i>Aine Heneghan</i>	271

Contents

40	Recomposing Phrase Structure <i>Eric Hogrefe</i>	279
41	Teaching Musical Structure through Disney Songs <i>Andrew Vagts and Douglas Donley</i>	284
42	From Theory to Practice: How to Compose a Sentence <i>Andrew Schartmann</i>	290
43	Incorporating Latin-American Popular Music in the Study of Musical Form <i>Gabriel Navia and Gabriel Ferrao Moreira</i>	295
44	Binary Form through the Music of Underrepresented Composers <i>Victoria Malawey</i>	301
45	A Form-Functional Approach to Binary Form Analysis <i>Andreas Metz</i>	305
46	Exploring Ternary Form through the Lens of Analysis-Performance in a Mozart Aria <i>Elizabeth West Marvin</i>	311
47	Sonata-Allegro Form: Understanding the Drama <i>Thomas Childs</i>	319
48	Concerto Form: Transforming a Sonata into a Concerto <i>Patrick Johnson</i>	324
PART VII		
	Popular Music	329
49	Popular Music in the Theory Classroom <i>John Covach</i>	331
50	The Beatles' "Day Tripper": A Tortured Stretching of the Twelve-Bar Blues <i>Walter Everett</i>	340
51	Making Borrowed Chords 'Pop': Teaching Modal Mixture through Popular Music <i>Joshua Albrecht</i>	345
52	Chromatic Mediants in Popular Music <i>Victoria Malawey</i>	350

PART VIII

Who, What, and How We Teach 355

53	Challenges and Opportunities of Teaching Music Theory at Community Colleges (and Elsewhere) <i>Nathan Baker</i>	357
54	More Than Just Four Chords: Teaching Music Theory/Aural Skills to Music Industry Majors <i>Jennifer Snodgrass</i>	366
55	Instructing a Range of Experiences within the Music Theory Classroom <i>Cora S. Palfy</i>	376
56	Music Theory Pedagogy and Public Music Theory <i>J. Daniel Jenkins</i>	382
57	Analytical Podcasting <i>William O'Hara</i>	390
58	Designing for Access in the Classroom and Beyond <i>Jennifer Iverson</i>	397
59	Music Analysis and Accessibility in the Music Theory Classroom <i>Shersten Johnson</i>	407
60	Accommodating Dyslexia in Aural Skills: A Case Study <i>Charlene Romano</i>	413
61	Writing Exams Cooperatively with Students <i>Jan Miyake</i>	420
62	What Should an Undergraduate Music Theory Curriculum Teach? (And, Alas, What Most of the Time We Don't) <i>Justin London</i>	424
63	Strategies for Revising Music Curricula for the Twenty-First Century: A Case Study <i>Deborah Rifkin</i>	433
64	Putting It Together: Rethinking the Theory Curriculum <i>Matthew Heap</i>	443

Contents

65	Adapting the Aural Skills Curriculum: A Move Away From “The” Right Answer <i>Susan M. Piagentini</i>	450
66	Cultivating Curiosity: Questions, Relevance, and Focus in the Theory Classroom <i>Philip Duker</i>	459
67	Using Video Technology in Music Theory Assignments <i>Marcelle Pierson</i>	469
68	Incorporating Improvisation in a Theory Class on Contemporary Music <i>Cynthia Folio</i>	475
	<i>Notes on Contributors</i>	481
	<i>Credits</i>	493
	<i>Index</i>	497

PREFACE

Think about your favorite lesson plans – the ones that you look forward to teaching every year. The ones that always work, and that are time- and battle-tested. The ones that use some creative teaching aspect to convey the information. Now imagine a volume *full* of immediately useful lesson plans like that – that’s what I’m hoping to put together!

That was the email I sent out to multiple lists of music theory teachers, asking for proposals on their favorite lesson plan. I received an overwhelming response of over 220 proposals, ranging from fundamentals topics all the way to post-tonal, from aural skills to curricular design, and everything in between.

The enthusiastic response to my call for proposals tells me several things about music theory pedagogy. First, music theory instructors take pride in their teaching and in developing lessons and materials that help students learn. Second, there’s a continuing growth in interest in music theory pedagogy – not only as a practical element of our teaching positions, but also as a research area. And third, contemporary discussions in music theory pedagogy – flipped classrooms, music industry programs, music cognition, keyboard-based studies, non-Western music in the classroom, public music theory – have had a dramatic effect on how many of us are teaching, and on what and how our students are learning.

Trends

Several trends emerged as I was reading through proposals and ultimately through the lessons selected for inclusion. First, it appears as though the traditional lecture format is dying in music theory, if not already dead; all of the lesson plans involve students participating actively in their learning. In many cases, the music drives the theory rather than the other way around; many instructors have found that allowing students to experience a concept in music and then discover the details is an engaging and effective pedagogical strategy. There also appears to be a movement away from relying on the score and towards understanding and analysis by ear, from individual chords all the way to large forms.

Quite a few chapters discuss providing students with practical skills – finding tonic, error detection, improvisation, assignments requiring creation and editing of video and podcasts, and performance and analysis. Many chapters provide suggestions for how to approach individual topics or chords in music theory using non-canon repertoire: chromatic mediant through film music,

enharmonic augmented sixth chords through Sondheim, and mode mixture through popular music all help instructors provide diverse examples that resonate with their students.

Diversity of repertoire is also present in other ways. A chapter on integral serialism in Roberto Gerhard's String Quartet No. 1 provides an opportunity to explore a piece from a Hispanic composer outside the usual serial canon, and a chapter on form in Latin American popular music illustrates that formal principles transcend the Western canon. A lesson on rhythm in Hindustani *Tāl* provides instructors with materials to discuss meter in non-Western music, and a project-based lesson on using the Roland TR-808 to replicate rap beats illustrates principles of rhythm and meter using rap songs from the 80s and 90s. And many chapters provide examples of music by women composers, ensuring their voices are heard in the theory classroom.

In addition to lesson plans, there are also chapters focusing on the diversity of our student body. How and what should we be teaching to students who are interested in the music industry more than a performing career? What are the strategies used by and curricular challenges faced by instructors who have recently revised their curricula? What are the unique challenges of teaching at a community college or small school where you may be the only theorist? How can we include students in their learning process by including them in designing assessments? How can we make music analysis and aural skills accessible to all of our students? And how can we encourage our students to develop the skills to communicate, whether about music in general or music theory in particular? It's exciting to see diversity becoming a critical component of instruction from individual lesson plans all the way to curricular considerations.

The authors themselves represent every career stage from graduate student all the way to senior faculty, and are from a wide variety of institutions – community colleges, conservatories, and small liberal arts schools, all the way to large research universities – North and South America, Europe, and Australia. Some are theory specialists, some are composers, and for some theory is just one of the many things they're responsible for. This multiplicity of viewpoints ensures that there is something in this book that will appeal and apply to everyone.

How to use this book

My goal was to provide a volume of practical, immediately useful resources for instructors of music theory – specialists and non-specialists, folks teaching at the high school, community college, college, and university level – to use in the classroom or adapt for their own purposes. Many of the lesson plans in this volume can be immediately used in the classroom for specific topics, and the online Supplemental Materials (available at www.rctmtp.com) provide links to scores and recordings, resources, excerpts, handouts, assignments, and answer keys for instructor use. My goal with the Supplemental Materials is to ensure that all materials needed for each lesson are available to the instructor, so that the lessons are as easy as possible for an instructor to implement.

In addition to lesson plans on specific topics, there are also chapters that discuss types of activities or exercises an instructor can include in a curriculum: one chapter discusses how to implement the melodica into the fundamentals classroom; another provides suggestions for incorporating keyboard skills into a post-tonal course; yet another encourages error detection exercises in the aural skills curriculum. These chapters provide broader curricular suggestions for instructors to consider, providing sample lesson plans as illustration and inspiration and encouraging the instructor to develop more materials for inclusion in their own classrooms.

There are also thought-provoking chapters on the larger questions of who, what and how we teach. Our students are curious digital natives who turn to YouTube for instruction as easily as they open a textbook (perhaps more easily!), and they are more diverse than ever, with equally as diverse interests and goals. Chapters on curricular design and revision can help as we consider our students' needs and goals and how that affects our contemporary instructional priorities.

ACKNOWLEDGMENTS

This book would not have been possible without the assistance of many people. First, I have to thank everyone who submitted a proposal; the enthusiastic response confirmed this was a project worth doing. To the authors who contributed their time, expertise, and materials to this volume, thank you for being willing to share your resources with the music theory pedagogy world.

Funding for copyright permissions was provided by a Humanities and Arts Research Program (HARP) Production Grant through Michigan State University, and by a Society for Music Theory subvention grant.

Genevieve Aoki at Routledge has been a gentle guide from the very beginning when I came to her with this crazy idea. I can't thank her enough for trusting me with this project.

James Yuhas, a Michigan State University dual-degree DMA trumpet/MM music theory graduate, provided dedicated assistance in every aspect of this project. His careful readings and insights helped me shape the volume throughout the process.

I also owe thanks to an amazing network of colleagues and friends. If I try to name everyone I'm going to forget people, so let me say that if I have ever talked to you about this project, or about pedagogy in general, or if you have ever written about music theory pedagogy, you have supported and influenced me, and I'm grateful. Thank you for inspiring me to keep thinking about music theory pedagogy.

Most of all, I have to thank my mother, Barbara, for being my first model of excellence in teaching, and my husband, Dan, for supporting me throughout this crazy project.

SUPPLEMENTAL MATERIALS

The Routledge Companion to Music Theory Pedagogy has extensive Supplemental Materials available online at: www.rctmtp.com.

On the website, you will find scores, examples, links to recordings, additional examples, hand-outs, assignments, instructor answer keys, slide presentations, and other materials that allow for easy implementation of the lesson plans.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

PART I

Fundamentals



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

1

MUSIC THEORY AND WORKING MEMORY

Leigh VanHandel

In 2012, I published an article in the *Journal of Music Theory Pedagogy*, “What can music theory pedagogy learn from mathematics pedagogy?”, in which I examined the relationship between achievement in written music theory fundamentals and mathematics ability. I discussed research showing that the best predictor of success in the music theory fundamentals classroom was performance in math-related areas, suggesting math and music may have similar underlying cognitive properties; I also provided some teaching strategies from mathematics pedagogy research for use in the music theory fundamentals classroom.

Since writing that article, I’ve become increasingly convinced of the critical role of memory, and specifically working memory, in education in general and in music theory learning in particular. In this chapter, I discuss how working memory works, why it is important, what happens when a student has a working memory deficit, and what we as instructors of music theory can do to minimize the working memory burden on our students to help them learn more effectively and efficiently.

Further Evidence for a Math/Music Connection

In my 2012 article, I investigated the relationship between the cognitive processes involved in learning mathematics and learning music theory fundamentals. This relationship is supported by research into factors contributing to student success in the music theory classroom; there is a strong correlation between student performance in mathematics, specifically the math portion of the Scholastic Aptitude Test (SAT) exam, and performance in first-year written music theory classrooms.

Additional evidence of the music theory–mathematics connection has been found in recent studies conducted by researchers at Florida State (Rogers and Clendinning 2015; Barroso et al., 2019), where they studied a wide spectrum of potential factors influencing performance in undergraduate music theory courses; their factors included high school grade point average, scores on standardized tests, prior theory knowledge and experience, measures of confidence and anxiety for both math and music theory, a measurement of spatial skills, and an music “aptitude test” designed to test recognition of music notation and ability to complete notation-based pattern-matching tasks. They found that the best predictor for performance in the first-year music theory curriculum was the American College Test (ACT) math score.¹ They also found that performance on the music aptitude test predicted performance in both semesters of first-year theory, while traditional placement tests measuring existing music theory knowledge only predicted performance in the first semester of music theory.

Working Memory, Math, and Music

There are different kinds of memory, each with different but related functions. Long-term memory is our stable, durable reference memory for information and skills. Short-term memory and working memory are similar to each other, but with one critical difference: short-term memory is our capacity for holding a small amount of information in our minds for a short period of time; working memory is our capacity for holding *and manipulating* a small amount of information for a short period of time. For example, immediate recall of a list of words uses short-term memory, while the ability to recall the list of words in reverse requires working memory.

While long-term memory is theoretically unlimited, working memory has limitations in both amount of information and the duration it can be held (Miller 1956). If those limits are exceeded, the higher the likelihood of forgetting information or making an error. Learning happens when there are enough mental resources available to process information in working memory *and* integrate it into pre-existing knowledge in long-term memory; in order to get information into long-term memory, it has to go through working memory first.

Baddeley and Hitch (1974) proposed a model of working memory with three components: the *central executive*, which controls the flow of information to the other components; the *visuospatial sketchpad*, which is responsible for visual and spatial information, and the *phonological loop*, which is responsible for verbal and other auditory information. Later, Baddeley (2000) updated the model to include the *episodic buffer*, which facilitates the communication between working memory and long-term memory.

Working memory ability is important for learning in a number of ways. It correlates with performance on higher-order cognitive tasks including reading comprehension, complex learning, and reasoning (Engle 2002). Deficits in working memory are considered to be a primary source of cognitive impairments, and students with working memory deficits are more likely to get distracted during a task or be labeled as disruptive or inattentive (Klingberg 2009). Working memory deficits may make learning new facts or skills more difficult; the burden on working memory is always the greatest at early stages of skill development because the material is unfamiliar (Kyllonen and Christal 1990, 427). Students with working memory deficits may have difficulties processing new information or skills, and may face challenges incorporating new knowledge into long-term memory.

There is a strong correlation between mathematics performance and working memory ability in general. Visuospatial skills are an important contributor to and predictor for mathematics ability, both in children and adults (Bull and Espy 2006; Peng et al. 2016); however, there is some indication that as mathematics expertise is developed, the role of visuospatial working memory appears to decrease (Dehn 2008, 112).

Reading, writing, and interpreting music notation also require visuospatial processing, which is not surprising given that music's symbolic notation system is fundamentally dependent on a two-dimensional space, with time represented on the x-axis and pitch on the y-axis. Studies have shown that music reading tasks activate the visuospatial network – areas of the brain active during spatial localization, visuospatial attention, spatial memory tasks, and attentionally demanding tasks (Gromko 2004; Sluming et al. 2007). Thus it appears as though visuospatial working memory is important for reading and interpreting musical notation; this is supported by the findings of Barroso et al. (2019), who found students with better performance on the spatial skills assessment and the pattern-matching music aptitude test tended to have higher grades in first-year written music theory. Students with low visuospatial processing and/or working memory in general may be at a disadvantage in the written music theory classroom.

Memory and Schema Development

The goal for learners is to create a *schema*, or a representation of information in long-term memory, which may contain a large amount of interconnected information. Having material available in a schema avoids the limitations of working memory by treating the schema as one single automated source of information (Paas and Ayres 2014, 192). A student with working memory deficits, however, may have difficulties forming a schema, instead relying on more inefficient or less accurate strategies for coming up with basic information.

Working Memory and Schema Illustration

In music theory, a schema might contain related fundamentals topics such as notes, scales, key signatures, intervals, chords, and chords in a key – information that must be available for immediate recall and manipulation.² Expert musicians may find it difficult to remember or understand what it's like to have your working memory taxed by something as simple as theory fundamentals. This is known as the “curse of expertise” (Hinds 1999), in which experts in a topic routinely underestimate the difficulty novices face in completing a complex task and the time it will take a novice to complete the task. This is due to *anchoring* and *adjusting*, in which experts anchor their difficulty estimates on their own abilities and fail to adjust for the novice. In the fundamentals classroom, this can take the form of instructors not allowing enough time on a timed test, not spending enough time on a topic, or assuming students will be able to figure something out on their own.

One of my favorite parts of a presentation I've given on this topic is when I ask the audience to engage in an activity illustrating what it's like to have your working memory challenged. Expert musicians have a fully formed schema, so there's very little working memory burden if you're asked to spell a D major chord; however, one small tweak can disrupt your schema.

Instead of the familiar note names, A B C D E F G, change those to:

H I J K L M N

Normal chord-spelling rules apply; use every other note name to create a triad, wrap around when you reach the end, and keep the concept of root, third, and fifth of the triad. Also, no cheating; cover up the letters above and do this just in your head.

How would you spell a triad if:

I is the root
H is the third
K is the fifth

When I've done this demonstration in presentations, there's usually a few people who are able to do this relatively quickly, but most people hesitate and count through the alphabet each time (“H I J K L M ... so it's I-K-M?”). For the second question, they often begin to spell the triad with H as the root, then realize that H is given as the third; they have to start over and eventually realize they need to wrap back around to the next to the last letter in the sequence to find the root. Most people find this task quite challenging; it places a burden on your working memory because you are unfamiliar with manipulating this collection of note names.

Next we try a more challenging task. I ask the audience to spell a triad in the same way, using our new note names, and provide them with a target word. If the target word has one letter in it that is also in the chord, they have to circle the middle note of the chord, even if it's

not the letter that was in the target word. If the target word has two letters that are also in the chord, they have to circle the first and last notes of the chord, even if those aren't the letters in the target word.

Consider an example back in our comfort zone: if the triad was spelled C-E-G, and the target word was *camel*, there are two letters in common between the target word and the chord (C and E), so you would circle the first and last notes of the chord – C and G.

Imagine this is a timed quiz; how long does it take you to come up with the answer to all three of these questions? Challenge yourself: don't look at the new note names, and only write down the answer!

<i>Chord</i>	<i>Target word</i>
I is the root	liked
H is the third	jails
K is the fifth	hijab

Again, there are a few people who can do this relatively quickly, but for many it's a very challenging task. After providing the answers, I ask the audience to think about their thought process and the steps they had to go through to complete this task. Some report that even though they noticed the requested chords were the same as the first task, they didn't remember the three groups of note names they came up with about a minute earlier. Frequently, someone will say they came up with the three note names they needed, looked at the target word, and immediately forgot what the three note names were and had to recalculate those again. There's always at least one person who forgot which notes they were supposed to circle under which circumstances.

This task places an even *larger* burden on your working memory, because you had to hold one piece of information in your memory (how to spell the chord) while considering new information (the target word) and then manipulate the original information based on the new.

The goal of this demonstration is for expert musicians to realize (or remember) how challenging it can be for students to complete a task like spelling a chord if they're relatively unfamiliar with the material – i.e. if their schema isn't fully formed yet. If they are asked to spell an F minor triad, for example, first they have to come up with the letters F, A, and C, and if they're still unfamiliar with chordal letter combinations it can take them a while just to come up with those three letters. Then they have to think about their strategy to solve the problem, and their inner narrative might go like this: should I think of the key signature of F major, or F minor? It said minor. Okay, does F minor have flats or sharps? And how many? Where is it on the circle of fifths? Let me think about the circle of fifths. Okay, F minor has four flats. What are they? Four flats mean B $\flat$, E $\flat$, A $\flat$, and D $\flat$. Do any of those apply to this chord? Wait, what were my letter names again?

That thought process might be an exaggeration – but then again, for a student who has a tenuous grasp on the topics, there are a lot of steps to go through to calculate the answer, which places a huge burden on working memory. If a student has a working memory deficit on top of that, it can be extremely challenging.

Identification and Intervention

Students with low working memory can be difficult to identify. According to Gathercole and Alloway (2008), students with low working memory often have difficulty processing multi-stage directions or activities; they'll forget critical pieces of information about what to do next. They often have trouble keeping track of progress in a complex activity, constantly losing their place. They also have difficulty in activities requiring the simultaneous processing of some information

and recall of other material. They may appear to have a short attention span, or be easily distracted, especially when an activity is challenging. They do not usually have behavioral problems, although they may be reserved in larger group activities or may not fully engage in classroom activities.

Working memory deficits are implicated in other cognitive disorders, including Attention Disorder Hyperactivity Deficit (ADHD), but there are some important differences between an ADHD student and a student with working memory deficits. Students with low working memory often perform well on the first few steps of a complex task, but then lose focus and begin making mistakes or forgetting important information; with ADHD, performance is much more variable. Students with low working memory typically exhibit reasonable social adjustment, whereas problems with social integration, hyperactivity, or impulsive behavior are often characteristic of ADHD. ADHD students may also change behavior based on medication level, time, amount of sleep, or mood, whereas working memory levels are more stable, so student behavior is more consistent over time (Gathercole and Alloway 2008).

There are brain training programs, such as Lumosity or Cogmed, that claim they can help improve working memory and cognitive function. The research surrounding these programs is controversial and conflicting. Studies funded by companies making brain training programs tout their effectiveness, but independently conducted research tends to find little to no support for the claims made by the companies (Shipstead, Hicks, and Engle 2012; Etherton et al. 2018).

Jaeggi et al. (2014) extensively reviewed interventions designed to improve working memory and found that results are inconsistent. Some studies have found an effect of working memory training on near transfer (similar) tasks; however, results are very mixed but generally negative when it comes to far transfer (unrelated) tasks. Gathercole et al. (2019) found specific performance tasks involving working memory – for example, memorizing a string of numbers – could be improved through training. However, improvement on individual tasks did not have any effect on any other type of working memory task, especially if it was in a different domain (verbal to visuospatial or vice versa). They concluded that working memory training would have little impact on skills required to improve educational achievement. Thus if a student does some general brain training in hopes of increasing their working memory, they may improve at specific working memory tasks, but that improvement will likely not transfer to other tasks necessary for learning, and almost definitely will not transfer to music theory.

Cognitive Load

Since working memory training is unlikely to improve a student's working memory capability, we as instructors can help reduce demands on their working memory by reducing *cognitive load*. Cognitive load refers to the amount of information your working memory is required to process in order to learn something or complete a task; it's divided into *intrinsic* load, the inherent difficulty of the task itself, and *extraneous* load, elements irrelevant to the task that demand working memory resources.³ Students with a strong working memory are better able to direct their attention to the intrinsic information and ignore extraneous information. Students with working memory deficits often have difficulty determining what information is important to the task and may allocate their working memory resources to the wrong information. Worse, the combination of intrinsic and extraneous load may overload their working memory entirely. This overload causes the symptoms instructors see in the classroom; students may complete part of a task and then lose focus, or may have difficulty completing complex tasks with multiple steps without forgetting required information. It also leads to students not being able to process the intrinsic information of the task itself, which means information does not make it into the memory system and will not become part of a schema.

Why Reduce Cognitive Load

Reducing cognitive load will help students who have lower working memory capabilities be able to focus their attention appropriately, which will help them process information and learn material more efficiently. However, well-designed adaptations reducing working memory burdens for assessments or presentation of material will help all students learn, not only those with working memory difficulties. This follows the principles of Universal Design for Learning (UDL), where making information more accessible to some ultimately benefits everyone.

Strategies for Reducing Cognitive Load

One of the best ways to reduce a student's individual cognitive load is to increase the amount of information they have available for immediate recall in their schema. The more information they are able to recall from their schema, the less of a burden placed on their working memory to complete a task.

In the fundamentals classroom, developing students' schemas may involve explicitly helping them develop strategies for practicing and learning the material. Students are notoriously poor judges of when they are learning and when they are not, and they may not know any study strategies other than "read it again," which is one of the least productive study methods (Brown, Roediger, and McDaniel 2014). As an example, when students are learning the circle of fifths, some of them may try to learn it by just staring at the diagram in the textbook; often, this strategy will leave them unable to reproduce it or recall specific information when asked. This is an error in familiarity versus fluency; the student may be familiar with the circle of fifths but is not fluent with it. Instead of telling students to *memorize* the circle of fifths by rote, encourage students to figure out strategies for *generating* the circle. If they develop a deeper understanding of how the circle of fifths relates to scales and key signatures, it will become part of their schema, and it will be much easier for them to recall the information from the circle or generate it if they can't recall it. Students may need to be shown a variety of strategies using information they already know: for some, it may help them if they recognize that each key on the circle is based on the fifth scale degree of the one counterclockwise to it (B♭-F-C-G-D-A-E, etc.); for others, it may help them to recognize that the order in which sharps appear in the major scales (FCGDAEB) is reproduced in the circle of fifths (starting at one flat and moving clockwise for the major circle), as is the order of flats (B♭E♭A♭D♭G♭C♭F♭) starting at two flats and moving counterclockwise.

Some students will naturally gravitate toward mnemonic devices to help them recall and process information. They may write note names next to every notehead, draw a piano keyboard or the circle of fifths on every assessment, or write out the inversion symbols for triads and seventh chords as a phone number (664-765-4342). These are all ways students are *offloading* their cognitive load; if they have a written reference, it theoretically lessens the burden on their working memory. These strategies work for a while, but eventually these tricks become a crutch that the student may become dependent on, slowing down their thought process. If students don't consciously learn the material and incorporate it into their schema, they won't have the information immediately available for use, and they will still have to go through the steps of checking their reference. There are two types of students who may do this: one is the student trying to lighten their cognitive load because they are struggling with the material, their schema, or their working memory; the other is the perfectionist, who may know the material but is so scared of getting something wrong that they rely on multiple ways of double- and triple-checking their work. With both types of students, I've found it helpful to talk with them, find out why they're using that device, and offer them strategies for the material if they need them. I then ask them

to practice *not* using their crutch on a few very low-stakes assessments, promising them that if they do poorly, they'll have the opportunity to re-do those assessments. Usually after a couple of successful assessments without using the mnemonic device, they realize they don't need to use it, and by that point they may have had enough practice that the material has been incorporated into their schema.

Instructors can also help students develop chunking strategies. As the chord-spelling activity illustrated earlier, not having chunks of information in your schema means that the information must be generated anew each time. For example, if a student can create chunks for A–C–E, B–D–F and so on, that is less to hold in working memory as they're spelling chords. There may be an element of rote rehearsal for developing chunks like this; what is critically important is that an explicit connection is made to other knowledge so it gets added to the schema. When encouraging students to learn triad chunks, one strategy is to have them sing triad arpeggios up and down a major scale on the letter names (E–G#–B–G#–E; F#–A–C#–A–F#; etc.), and doing it in several different keys, highlighting that the basic groups of letters (CEG, DFA, EGB, etc.) are always the same. In addition to creating chunks, this activity can help reinforce scales if you start on different tonics, aurally reinforce different triad qualities, and set the groundwork for introducing chords in a key.

An important way an instructor can reduce cognitive load for everyone is to be aware of how information or instructions are presented to students. A frequent scene in a music theory classroom may go like this: the instructor provides verbal instructions for an activity by saying, "Turn to page 218; focus on measures 5–15, identifying passing tones – both diatonic and chromatic, and accented and unaccented – and appoggiaturas. Oh, and neighbor tones." Seven seconds later come the student reactions – "Wait, what page? What measures? What are we looking for?" – and the instructor has to repeat the instructions again. And probably again.

Instructions or information presented aurally cease to exist after sounding; this is known as the *transient information effect*, because the only thing to refer to is what was successfully stored in working memory. What difficulties could the earlier instructions present to students?

- Because the instructions are relatively long, a student could forget the information presented first – the page number and/or the measure numbers. That information could be pushed out of working memory or forgotten because of the amount of information coming afterward.
- If a student was deliberately rehearsing the page number and measure numbers in their head in order to *not* forget that information, they may miss the following instructions of what specifically to look for, and they may not be able to successfully complete the task.
- The list of items is presented inefficiently. The student may remember they're supposed to identify passing tones, but they may not remember all of the different *types* of passing tones specified. Given the instructor's afterthought of "Oh, and neighbor tones" at the end, the student may not make the connection that the different types of passing tones also apply to neighbor tones. Or they may forget everything when they hear "appoggiatura," as they try to recall what that word means.
- Even if the student does initially remember the page number, the measure numbers, and the list of items, the intrinsic load of studying the example will place a burden on working memory as they're completing the task, and they may forget the instructions after beginning the task and have to ask for guidance partway through.
- If a student is attempting to remember the instructions by rehearsing it mentally and the instructor begins speaking again, the student now has to remember the information, process the task at hand, *and* attempt to process the information the instructor is providing all at the same time.

Instructors can avoid the transient information effect by ensuring that the information is presented in a way that facilitates retention:

- When presenting information or instructions aurally, divide the information into smaller chunks.
- Keep similar material together; in the earlier example, it would be better to group passing tones and neighbor tones together, and then provide the different options that apply to both.
- When possible, provide written instructions, or at least written reminders. In the earlier example, the instructor could write the page number and measure numbers on the board, and either provide the list of non-chord tones on the board for the students or have the students generate the list themselves, which could happen in different ways:
 - Ask students, “What non-chord tones have we studied?” and list student responses on the board. Having students list the non-chord tones requires them to recall the types of non-chord tones they’ve learned; writing them on the board provides a reference list that students can refer to during the activity. It also provides an opportunity for a quick review by asking the student who suggested each answer to define it quickly.
 - Instead of giving the students a long list of things to look for, ask them to study the example and generate a list of what non-chord tones are present, and then discuss their findings. This is a more cognitively demanding and open-ended version of the task, and requires enough familiarity with the material for the students to recall the types on their own, but it can generate useful class discussions.
- When possible, avoid talking or playing unrelated music while students are working. The intrinsic load of the task combined with the phonological loop being engaged by hearing and interpreting additional auditory stimuli may result in an overload.

I have found talking during activities to be especially problematic when playing analysis examples during a test; if a student is deeply engaged in a thought process and the instructor says, “Okay, I’m going to play Example 1, so please turn to that page and here’s the excerpt,” the student has now lost all of the mental work that went into what they were working on. Instead, I quietly give my students a pre-warning, asking them to finish up the thought they’re currently working on and make note of where they are, and I give them about 15 seconds to do so before I play an audio example.

Other ways to reduce the extraneous cognitive burden of instructional materials are to consider the level of reading comprehension required, the length of the instructions, and the clarity of the terminology used. A study on written instructions for mathematics questions determined that complex sentences in instructions decreased accuracy, questions with longer instructions were perceived as being more difficult even if they were not, and questions with words with multiple or ambiguous meanings were answered incorrectly more frequently (Walkington et al., 2015). This last finding can be especially challenging in music theory, as we use the same or similar terms to mean different things; for example, the word *compound* can refer to the division of a beat unit or to an interval larger than an octave. One potentially problematic issue is the difference between $\hat{7}$, vii° , V^7 , and “seventh”; especially when spoken, the similarities can be very confusing for a student.⁴ It is much better for the instructor to explicitly say “scale degree seven,” “the seven chord,” “the five–seven chord,” and “the chordal seventh,” every time they are referring to one of those items in spoken communication, to be equally as clear in written instructions, and to reinforce that students do the same. If a student says or writes, “It’s the seven,” it’s not clear if they are referring to $\hat{7}$, the vii° chord, or a chordal seventh, and they may not be sure either.

When to Minimize Cognitive Load

Because the working memory burden is greatest when material is unfamiliar, it is most important to minimize cognitive load when introducing new ideas. At this stage, students should be concentrating on the material itself and on making connections to knowledge they already have, not on the language used for instructions. It may also be desirable to reduce intrinsic load when introducing material; this is the basis of scaffolding difficulty by starting instruction with simpler tasks (for example, generic intervals) before moving to more complex tasks (interval quality). As fluency with material increases, the intrinsic difficulty of the tasks can be increased. As this happens, the instructor should still be aware of the extraneous load on students because added task complexity reduces the amount of extraneous information students can process, and reduces opportunities for incorporating new information into their schema.

Conclusion

Evidence of a link between cognitive processes important to both music theory and mathematics continues to grow; recent research linking spatial processing skills and pattern matching to success in written music theory courses indicates that music theory and mathematics share cognitive resources. Working memory is important to education in general; it allows information to be retained and manipulated, and it facilitates the transfer of information to long-term memory. Working memory is important in mathematics education, because it allows for the storage and manipulation of information; evidence suggests that it may be important in music theory as well. Without a strong working memory, music theory students may have difficulty creating a schema to provide them with the necessary fluency with fundamentals materials. Research into best practices in mathematics pedagogy, grounded in cognitive science, may be able to help music theory instructors ensure all students are able to learn with or without a strong working memory. Future research should more specifically explore the relationship between working memory and success in the music theory classroom.

Notes

- 1 Both the SAT and ACT are standardized tests given nationwide to high school students and are often considered in college admission applications. The tests cover similar material, though the scoring scales differ.
- 2 In my 2012 article, I suggested strategies that can help students develop their schema from the beginning, to help them create their network of information for music theory fundamentals.
- 3 There is also *germane* load, which are the cognitive resources students use for learning or problem solving.
- 4 This can be especially challenging for someone for whom English is a second language.

Bibliography

- Baddeley, Alan. 2000. "The episodic buffer: a new component of working memory?" *Trends in Cognitive Sciences* 4, no. 11: 417–423.
- Baddeley, Alan, and Graham Hitch. 1974. "Working memory." In *Psychology of learning and motivation*, vol. 8: 47–89. New York, NY: Academic Press.
- Barroso, Connie, Colleen M. Ganley, Sara A. Hart, Nancy Rogers, and Jane P. Clendinning. 2019. "The relative importance of math- and music-related cognitive and affective factors in predicting undergraduate music theory achievement." *Applied Cognitive Psychology*: 1–13. doi: 10.1002/acp.3518
- Brown, Peter C., Henry L. Roediger III, and Mark A. McDaniel. 2014. *Make it stick: the science of successful learning*. Cambridge, MA: Harvard University Press.
- Bull, Rebecca, and Kimberly A. Espy. 2006. "Working memory, executive functioning, and children's mathematics." *Developmental Cognitive Neuroscience Laboratory – Faculty and Staff Publications*. Paper 30.

- Dehn, Milton J. 2008. *Working Memory and Academic Learning: Assessment and Intervention*. Hoboken, NJ: John Wiley & Sons, Inc.
- Engle, Randall W. 2002. "Working memory capacity as executive attention." *Current Directions in Psychological Science* 11, no. 1: 19–23.
- Etherton, Joseph L., Crystal D. Oberle, Jayson Rhoton, and Ashley Ney. 2018. "Effects of Cogmed working memory training on cognitive performance." *Psychological Research*: 1–13.
- Gathercole, Susan E., and Tracy Packiam Alloway. 2008. *Working memory and learning: a practical guide for teachers*. London: Sage Publications.
- Gathercole, Susan E., Darren L. Dunning, Joni Holmes, and Dennis Norris. 2019. "Working memory training involves learning new skills." *Journal of Memory and Language* 105: 19–42.
- Gillmor, Susan C., John Poggio, and Susan Embretson. 2015. "Effects of reducing the cognitive load of mathematics test items on student performance." *Numeracy* 8, no. 1: 4–22.
- Gromko, Joyce Eastlund. 2004. "Predictors of music sight-reading ability in high school wind players." *Journal of Research in Music Education* 52, no. 1: 6–15.
- Hinds, Pamela J. 1999. "The curse of expertise: the effects of expertise and debiasing methods on predictions of novice performance." *Journal of Experimental Psychology: Applied* 5, no. 2: 205–221.
- Jaeggi, Susanne M., Martin Buschkuhl, Priti Shah, and John Jonides. 2014. "The role of individual differences in cognitive training and transfer." *Memory & Cognition* 42, no. 3: 464–480.
- Klingberg, T. 2009. *The overflowing brain: information overload and the limits of working memory*. Oxford: Oxford University Press.
- Kyllonen, Patrick C., and Raymond E. Christal. 1990. "Reasoning ability is (little more than) working-memory capacity?!" *Intelligence* 14, no. 4: 389–433.
- Miller, George A. 1956. "The magical number seven, plus or minus two: some limits on our capacity for processing information." *Psychological Review* 63, no. 2: 81–97.
- Paas, Fred, and Paul Ayres. 2014. "Cognitive load theory: a broader view on the role of memory in learning and education." *Educational Psychology Review* 26: 191–195.
- Peng, Peng, Jessica Namkung, Marcia Barnes, and Congying Sun. 2016. "A meta-analysis of mathematics and working memory: moderating effects of working memory domain, type of mathematics skill, and sample characteristics." *Journal of Educational Psychology* 108, no. 4: 455–473.
- Rogers, Nancy M., and Jane P. Clendinning. 2015. "Music theory ability correlates with mathematical ability." Paper presented at the meeting of the Society for Music Theory and Cognition, Nashville, TN.
- Shipstead, Zach, Kenny L. Hicks, and Randall W. Engle. 2012. "Cogmed working memory training: does the evidence support the claims?" *Journal of Applied Research in Memory and Cognition*, 1, no. 3: 185–193. doi:10.1016/j.jarmac.2012.06.003
- Sluming, Vanessa, Jonathan Brooks, Matthew Howard, John J. Downes, and Neil Roberts. 2007. "Broca's area supports enhanced visuospatial cognition in orchestral musicians." *Journal of Neuroscience* 27, no. 14: 3799–3806.
- Sweller, John, Paul Ayres, and Slava Kalyuga. 2011. *Cognitive load theory*. New York: Springer.
- VanHandel, Leigh. 2012. "What can music theory pedagogy learn from mathematics pedagogy?" *Journal of Music Theory Pedagogy* 26: 191–213.
- Walkington, Candace, Virginia Clinton, Steven N. Ritter, and Mitchell J. Nathan. 2015. "How readability and topic incidence relate to performance on mathematics story problems in computer-based curricula." *Journal of Educational Psychology* 107, no. 4: 1051–1074.

2

PUTTING THE MUSIC IN “MUSIC FUNDAMENTALS”¹

Melissa Hoag

Introduction

Readers of this volume will doubtlessly agree that music fundamentals are of paramount importance to all music students. It is also, in my view, the most difficult of topics to teach well, and the easiest to teach badly (and, perhaps the most damaging topic to teach badly). Without careful thought about the pedagogy underlying their teaching (ordering, presentation, scaffolding of difficulty), an instructor might unintentionally present this essential material in a confusing or contradictory fashion. Or, an instructor’s approach might lack rigor; they may give too few graded assignments, return them too slowly, grade too leniently, or grade without specificity, so that students never master the material. An instructor might rush through fundamentals in order to get to the “good stuff,” like counterpoint and analysis, likewise resulting in students who get lost, and are left to build the rest of their knowledge on shaky footing. An instructor might themselves be bored with the material, and rely solely on isolated spelling and recognition drills to get students to learn key signatures, intervals, and chords.

At worst, these scenarios can damage students’ confidence and success throughout their musical careers. At best, they result in bored, uninspired students, who, in their disillusionment, think of music theory as a chore, rather than a magical set of keys, capable of unlocking thrilling musical mysteries. As someone who teaches music theory to graduate students, I encounter students lugging what I call “theory baggage” every semester, and I consider it my calling to ensure that these students exit my course not only with sharper skills but also newfound appreciation for the subject. It is imperative that instructors of music fundamentals grasp their solemn duty: they are entrusted with offering instruction that balances rigor and practice with musical engagement and inspiration, so that students not only gain a solid fluency with music fundamentals but also understand why they are learning this material and how it applies to real music.

Contrary to the earlier examples, effective music fundamentals instruction should invite students on a journey filled with musical discovery by placing real musical examples and experiences at the center of their learning. Effective music fundamentals instruction must meet students where they are, not only in needing to gain fluency with this material but also in needing to understand how vital this material is to everything else they will do as musicians. Effective music fundamentals instruction should summon students to share their experiences and knowledge, both by enlisting students to help choose repertoire for the course and in respecting their intellect by posing open-ended questions on assignments whenever possible. Finally, effective music fundamentals

instruction should model a genuine sense of wonder regarding the machinery of music fundamentals, because if students witness authentic intellectual curiosity in their instructor, they are more likely to develop authentic intellectual curiosity for the subject.

Two Approaches for Success

Generally, two approaches govern how I teach all music theory, but especially music fundamentals. I have found that these dicta rarely lead me astray.

Connect Everything with Sound, Constantly

I have a conviction that all music theory courses are really aural skills courses, even when written and aural courses are taught and graded separately. Students in my written theory classes sing as often and as musically as possible, beginning on the first day of class. Singing not only brings what might otherwise be abstract concepts to life but also engages and encourages those for whom voice is their primary instrument, who perhaps most frequently have little music theory background and who may be most at risk to lack confidence in written skills. I also invite students to use their burgeoning skills to figure things out by ear as much as possible, and to begin to apply names and terminology to what they hear.

Integrate Repertoire as Much as Possible

The second prong of my approach centers on repertoire. A music fundamentals course has the potential to shape a student's perception of what music theory is, what kinds of music can be addressed by music theory, and, concomitantly, how broadly applicable and relevant the study of music theory is. Therefore, the use of diverse examples is perhaps nowhere more important than in music fundamentals. By "diverse," I mean not only popular music, jazz, and musical theater examples, but also Western art music, which – depending on the institution – can be the style with which students are the least familiar. I also refer to diversity of underrepresented groups. My own philosophy is that I will use any music that exemplifies the topic at hand, and I make a concerted effort to use a wide variety of music.

One example of my focus on repertoire can be demonstrated by the manner in which I begin every class. As do many other instructors, I find that students respond well to playing music before class that is directly germane to the topic of the day. I display thought-provoking questions that will get students thinking about the piece, and begin class with a brief discussion that ideally segues into the day's topic. Sometimes we perform a brief aural skills exercise with this music – we might attempt to notate part of it, describe the meter, or figure out part of it on solfège.² We also discuss possible composer/genre, style characteristics, and other details.

Another aspect of my focus on repertoire has to do with how I use texted music. Whenever I use music with text, I always provide the text in its original poetic format along with a translation, and I usually ask students to describe some concrete ways in which the musical setting reflects or adds interpretation to the text. I don't expect publication-level descriptions; after all, their analytical language is in its formative stages. But, asking such questions gives students the chance to be creative, and to flex their nascent interpretive muscles. Perhaps most importantly, asking students to think interpretively about the music they are studying demonstrates that music theory can lead to meaningful insights rather than just labels.

Essentially, while I acknowledge that drilling isolated scales, chords, and intervals can sometimes be the most efficient way for students to practice and for instructors to assess understanding,

I find that students are more motivated to learn if I make the effort to place music – both the musical experience and actual musical compositions – at the center of their learning. For me, any assignment that includes drill will also include meaningful engagement with a piece of music, preferably an entire movement.

The remainder of this chapter will provide examples of how I incorporate these mindsets into my teaching to make music fundamentals engaging for students. It is loosely structured by the order in which I teach various items. (Note: meter is placed at the end, not because I teach it last, but because it is somewhat more flexibly moved around than scales/intervals/chords.)

Practical Applications

Scales

When I first introduce the major scale, I have students sing it on solfège, and accompany the scales with lush, chromatic accompaniment. I specify crescendos and decrescendos, and different rhythms and articulations. My goal is for students to experience the basic architectural componentry of music as inherently musical. As they gain confidence, students sing scales on note names as well as solfège, and later, they sing scales in canon without accompaniment. Finally, once they’ve learned all of the minor scale types, we will sing them all in canon together along with major, which results in some delicious dissonances – and even if they find this dissonance off-putting, I make a show of rapturously enjoying it. These are quick activities that make students happy and engaged.

I have several repertoire-focused activities for scales, but this one is perhaps the student favorite. After the class has learned major and minor scales, we study the first five measures of Vivaldi’s Concerto for Two Violins in A minor, RV. 522 (see the Supplemental Materials for a link to the score and two recordings). The ritornello features ample variance of $\hat{6}$ and $\hat{7}$, and therefore provides an ideal way for students to understand how these varied scale degrees function in a piece of music. Before playing the segment several times in its entirety without the score, I direct students’ listening toward the scales in the solo violin part, because we are going to be figuring this out by ear and then singing it. After playing the segment several times, I stop every few seconds of the recording (roughly, at each measure boundary), and encourage students to hear the solfège in their heads before we sing it aloud together. As we sing each bit, we discover the various minor scale segments that appear in the example, and why Vivaldi used various versions of $\hat{6}$ and $\hat{7}$. For instance, in measure 1, raised $\hat{7}$ is used because G# is headed back up to $\hat{8}$; on beat 3 of measure 1, however, lowered $\hat{7}$ and $\hat{6}$ are used because the scale proceeds downward from tonic. In measures 2 and 3, raised $\hat{6}$ and $\hat{7}$ are used because the scale is moving toward $\hat{8}$ again. In measures 4 and 5, lowered $\hat{6}$ is featured because $\hat{6}$ continually falls back to $\hat{5}$. Gradually, we figure out the whole passage, and then sing it on solfège while I realize the continuo from the keyboard. (Of course, I instruct them to do their best impersonations of violins.) Finally, I reveal the score, and we examine the other parts. In particular, we look for other appearances of $\hat{6}$ and $\hat{7}$, which leads to a discussion of the cello part’s repeated use of raised $\hat{6}$ and $\hat{7}$ in measures 2 and 3, despite its descending scalar passages. I ask students why they think Vivaldi might have chosen to go against the typical melodic minor tendencies at this point. To demonstrate what it might have sounded like otherwise, we slowly sing the bass line – first, as written, with raised $\hat{6}$ and $\hat{7}$, and then with the lowered $\hat{6}$ and $\hat{7}$, while I play the upper parts. Of course, it is immediately clear that raised $\hat{6}$ and $\hat{7}$ sound much better than the lowered versions, and I try to lead them to verbalize why raised $\hat{6}$ and $\hat{7}$ work here. (Ultimately, I try to help them hear that it is all about the harmony – that it needs to be a major dominant leading to a tonic – and demonstrate both progressions.) We sing it once more, now with the score.³

Intervals

I begin by introducing the numerical aspect of interval labeling, and provide students with some identification practice. Fanny Hensel's brief vocal duet "Der Strauss" is a compact piece with which students can practice all levels of interval identification, both melodically and harmonically. On a first encounter with the piece, students identify the numerical labels only; then, which intervals are perfect and/or major; and, finally, all of the intervals. Throughout the process, students also consider broader issues surrounding the work. If this piece is used in class, it is simple enough for students to sing, with some guidance about the chromatic solfège.⁴ Then, I introduce interval quality, using the major scale as a starting point, and ensuring that students sing as much as possible. First, I differentiate among intervals that can be perfect (1, 4, 5, and 8), and those that cannot (2, 3, 6, and 7). Then, I ask students to sing a given major scale on note names, which I notate on the board as they sing. I explain that all intervals above the tonic pitch of a major scale are either major or perfect. We then sing each interval ascending from the tonic, starting with the perfect intervals, and then moving on to the major intervals. Identifying major and perfect intervals is an important step that must be allowed to percolate thoroughly before moving on to minor, augmented, and diminished intervals. At this stage, the instructor might also wish to introduce how to deal with intervals built above pitches that are not tonics of major scales (i.e. G#, A#, D#, E#, and F#), before matters are complicated by the other interval qualities.

Please see the online Supplemental Materials for a worksheet that asks students not only to label intervals but also to make some observations about what kinds of melodic and harmonic intervals occur the most, and why they think that might be the case. I have also included isolated interval recognition and spelling drills to ensure ample examples in different clefs, as well as intervals built above pitches that are not tonics of major scales. In addition, the Supplemental Materials include links to biographical information, a score, and a recording.

Once students are secure in their abilities to identify major and perfect intervals, they can learn to recognize and write the other qualities. Students can return to the Hensel duet and analyze all of the intervals.⁵ Please see the Supplemental Materials for a worksheet addressing all of the interval qualities, along with some open-ended, big-picture questions regarding the piece and its setting of Goethe's text.

Triads

After I initially introduce the four triad types, students sing them, first as notated in Figure 2.1, and then as blocked chords. (For blocked-chord singing, I devise groups and instruct each to sing the root, third, or fifth.) As with scales, I also provide piano accompaniment the first few times the class sings this exercise. As with the scale singing, singing triads in this way can be more than just an exercise: it allows students to *experience* these triad qualities firsthand.

When learning such foundational material as triads, it is important that students confront the material in a variety of ways: different clefs, performing forces, voicings, and textures. There is

M + M m d

do mi sol mi do do mi si mi do do mi sol mi do do me sol me do ti re fa re ti do

Figure 2.1 Chord singing exercise.

a window of time during fundamentals when chromatic music (at least that which is primarily composed of triads) is more accessible than it will be once Roman numerals have been introduced. This presents an unusual opportunity to dig into some of the juiciest music that the sixteenth and seventeenth centuries have to offer. I have found that homophonic late-Renaissance and early Baroque music of composers like Orlando di Lasso, Maddalena Casulana, and Carlo Gesualdo offers many options for identification of triad types using lead-sheet symbols. Students also happen to really love this music, and few have had any exposure to it.⁶

Orlando di Lasso’s motet “Christe Dei soboles” offers good practice for triad analysis; a link to the score and recording as well as a worksheet are available on the Supplemental Materials website. Although most of its harmonies are in root position, it features many chromatic chords in addition to a key signature, so students must pay careful attention to the accidentals. There are also few embellishing tones; the only embellishment on the first page is a suspension in measure 30, and it is simple enough to mark it as something for students to disregard. The instructor should be aware that there are occasionally incomplete triads. Again, these can easily be marked. Because it is so long, I have sometimes assigned segments of this motet for group work, and then had students present their analyzed segments to the class.

This version is excellent for practice because it is on four staves, thus offering students an opportunity to develop their score-reading abilities. The instructor might wish to prod students’ imaginations regarding the text, which was originally secular – so secular, in fact, that the original version was censored and the text was changed after Lasso’s death.⁷ The worksheet provides the texts and translations of both versions. Slightly less chromatic, but featuring more inverted triads, is the beginning of Maddalena Casulana’s madrigal “Amor per qual cagion” (please refer to the Supplemental Materials website for an assignment using this piece). Though few today know her name, Casulana (ca. 1544–ca. 1591) was the first woman to have her music printed and published, and was renowned during her lifetime as a composer of madrigals.⁸ As in the Lasso example, there are occasional instances of incomplete harmonies and embellishing tones, which have been marked. Instructors can choose to discuss the incomplete harmonies with their students or ignore them altogether. Aside from labeling chords, the assignment also asks students to consider some questions related to the madrigal’s text, which is included with the assignment. The first few chords of Carlo Gesualdo’s madrigal “Moro, lasso, al mio duolo,” and similar passages throughout the piece, also offer great practice for triad analysis. If identifying textural types is part of the fundamentals curriculum, this piece works well as an example of alternation between homophony and imitative polyphony. See the Supplemental Materials for a link to the score, recording, biography, and text translation.

Meter

When introducing basic meter types (simple versus compound, duple/triple/quadruple) I initially avoid any discussion of notation and meter signatures. Instead, I introduce basic conducting gestures for duple, triple, and quadruple meter. I then play a plethora of examples of simple meter while students conduct to determine whether the meter is duple, triple, or quadruple. Table 2.1 has been carefully curated to include only examples that are clearly emblematic of each meter type; please see the Supplemental Materials for links to specific recordings. By conducting, students are already determining two levels of meter: beats and beat groupings.

By beginning with sound and inviting students to share their observations about what they are hearing, I aim to lead them along a path of discovery, instead of introducing the topic with a pedantic lecture about meter signatures. The discovery method takes longer, but the end goal is worth it: students learn to approach the study of meter full of fascination, not obsessing about the mechanics of meter signatures.

Table 2.1 Simple Meter Examples

Simple duple

William Schwenck Gilbert and Arthur Sullivan, “I Am the Very Model of a Modern Major General,”
from *Pirates of Penzance*
Janelle Monáe, “Tightrope”
John Philips Sousa, *The Stars and Stripes Forever*

Simple triple

Johannes Brahms, “Finstere Schatten der Nacht,” no. 2 from *Neue Liebeslieder-Walzer*, op. 65
Wolfgang Amadeus Mozart, “Meine Liebsten schöne Wangen” (from Mozart’s first opera, *Bastien und Bastienne*, K. 50)
Richard Rodgers and Oscar Hammerstein (performed by Sarah Vaughan), “My Favorite Things”

Simple quadruple

Paul McCartney, “Hey Jude”
Wolfgang Amadeus Mozart, “La Vendetta,” *Le nozze di Figaro*
Otis Redding (performed by Aretha Franklin), “Respect”
Kurt Weill, “My Ship,” from *Lady in the Dark*

I use listening to introduce compound meter as well. I first play a clear simple meter example (“The Stars and Stripes forever”), and then a clear compound meter example in roughly the same tempo (“Seventy-Six Trombones”), and ask students how the meters in these examples differ. It is fascinating to hear how students articulate the differences between simple and compound meter before they have the terminology to do so.⁹

It is only after this process of guided discovery that I introduce terminology: beat (e.g. “the ‘beat’ constitutes each point [each *ictus*] of the conducting gestures you’ve been performing all this time!”), beat groupings (duple/triple/quadruple meter), and beat divisions (whether each beat is divided into halves or thirds, and is therefore simple or compound). After listening to some compound meter examples from Table 2.2 (and determining whether each is duple, simple, or quadruple), I begin to mix up simple and compound examples, and students try to figure out meter types by ear.

Only after we spend ample time listening do I broach meter signatures. Even in a fundamentals course, some students will have absorbed the maxim that the top number indicates the number of beats in the measure, and the bottom number indicates the note that gets the beat. This axiom works well for simple meters, but some reprogramming must take place for compound meter signatures, in which the top number communicates the number of *beat divisions* in a measure, and the bottom number designates the note value that receives the *beat division*. Because students have experienced these concepts through listening and conducting, they have rudimentary terminology in place to understand these ideas. If they forget, we can always go back to listening and conducting some examples.

The takeaway is that the actual introduction to meter signatures, which can seem far removed from the music, goes much more smoothly when I put the musical experience first. After listening to such a diverse array of compelling examples, students are excited about and invested in learning about meter. Beginning with listening can also lead to productive conversations about the effect of tempo and performance on perception; at slower tempos, compound meter can sound like several measures of simple triple, and simple triple meters performed quickly can sound like compound meters. (I usually demonstrate this at the piano with “Amazing Grace,” “My Bonny Lies Over

Table 2.2 Compound Meter Examples

Compound duple

The Beatles, “Norwegian Wood”
 Kelly Clarkson, “Breakaway”
 Franz Joseph Haydn, String Quartet in E $\flat$ major, Op. 33/2, “The Joke,” finale
 Meredith Wilson, “Seventy-Six Trombones,” from *The Music Man*
 Richard Rodgers and Oscar Hammerstein (performed by John Coltrane), “My Favorite Things”

Compound triple

Johannes Brahms, “Denn alles Fleisch es ist wie Gras,” *Ein deutsches Requiem*, ii
 Ronnie Shannon (performed by Aretha Franklin), “I Have Never Loved a Man”

Compound quadruple

John Lennon and Paul McCartney, “Oh! Darling”
 John Lennon and Paul McCartney, “You’ve Got to Hide Your Love Away”
 Fanny Hensel, “Nach Süden,” from *Fünf Lieder*, op. 10, no. 1
 Alicia Keys, “Fallin”
 Queen, “We Are the Champions”

the Ocean,” or something similar.) I also admit that *there are times when a single performance can be heard in more than one way*. Rather than opening a can of worms, I have found that it’s important to let students know that the answers in music theory are not always black and white, that we are dealing with a fluid art form that does not always neatly fit a single label, and that there is room for disagreement and debate.¹⁰

Best Practices

In addition to connecting concepts with sound and repertoire integration, I keep several other best practices in mind.

Repetition Counts

Keep including fundamentals questions on assessments even after the fundamentals section of the course or fundamentals course has concluded. For instance, when sight-singing or performing rhythms in aural skills, students might be required to describe the meter type before they perform. In written theory, students should expect fundamentals on every assessment during the first year. These should not be basic questions that should be memorized by now (e.g. C-E-G=major triad), but rather questions that require more thought, like descending augmented or diminished intervals from notes that are not the tonics of major keys.¹¹ These questions are adjusted depending on upcoming topics. For instance, as I prepare to introduce secondary-dominant and leading-tone chords at the end of Theory II, I emphasize spelling isolated chords so that students don’t become complacent by spelling diatonic harmonies within keys.

Consistency and Rigor Matter

Grade extremely consistently and embrace rigor. Allow little leeway for sloppiness in notation, such as accidentals on the wrong line or space, or note heads so large that it is impossible to determine the pitch, etc.

More Assessment Opportunities Are Better Than Fewer

Provide many assessment opportunities (approximately one graded assignment per week, plus quizzes and other assessments), both so that students have access to frequent feedback and so that students' grades are not decimated by a single assignment, exam, or quiz. I am also a fan of dropping the lowest quiz or assignment grade(s).

Prompt Grading and Specific Feedback Are Important for Learning

Return graded work quickly so that students have a chance of remembering their thought processes when they were completing the assignment, and so that they can use this feedback to succeed on the next assignment. Go over common errors when assignments are returned. If a student makes the same type of error throughout an assignment, summarize the issue on the assignment in addition to marking the errors.

Involve Students in Finding Examples of Various Techniques

Ask students to go on treasure hunts for specific techniques. I always have students on the lookout for examples of various things, from minor-mode pop songs in compound triple meter to musical theater pieces that use a particular sequence type. I use their contributions in class whenever possible, and they know that it makes my day when they find something really good.

Most Importantly: Have Fun!

Make it fun, even silly! For instance, as we approach the end of fundamentals, I put students in groups of two or three students, and give them somewhat more difficult questions. Please see the Supplemental Materials for a handout of "theory twisters" – for every groan, I hear at least three giggles.

Instructors of music fundamentals courses bear a serious responsibility: they are tasked with helping students develop important skills and thought processes that will stay with them for a lifetime. But instructors of music fundamentals also enjoy a unique opportunity. It is up to them to set the tone for the study of music theory by making the experience as enriching and inspiring as possible for the student, while still offering ample rigor and drill.

Notes

- 1 I use the phrase "music fundamentals" – not "music *theory* fundamentals" – because I want to communicate to students and other music faculty that concepts taught in music fundamentals are foundational to all music study. I reiterate the broad applicability of these skills to students throughout the course.
- 2 Throughout this chapter, I refer to solfège because that is what I use (specifically, moveable-*do* solfège), but any system of solmization will do – singing on numbers, fixed *do*, or la-minor *do*.
- 3 This example is particularly useful because I can return to it many times during the first year of music theory. The ritornello is immediately followed by a descending-fifths sequence using seventh chords, so when seventh chords are introduced, we label each harmony with lead-sheet symbols. When sequences are introduced in the second semester of study, we sing the bass line and observe the typical voice-leading that appears in this example. (I compare this sequence to Gloria Gaynor's performance of Freddie Perren and Dino Fekaris's "I Will Survive," which features a minor-mode descending-fifths sequence in the same key.)
- 4 I am of the mind that there is no need to hide slightly more advanced concepts from students, especially when it comes to the occasional chromatic pitch in singing. One cannot go into secondary dominants at this point, of course, but I briefly explain the chromatic pitches and their solfège, and tell them to do their best. It may help to sing it in sections, perhaps with the piano playing along.

- 5 The second movement of Kaija Saariaho’s *Duft* for solo clarinet (“Blühend”) also offers ample practice for identifying melodic intervals. Some of these are compound, which the instructor could opt to exclude for the fundamentals course. There are also a couple of doubly diminished intervals, which could either be fodder for discussion or extra credit. (Example: B $\sharp$ to F $\natural$ in measure 27 is a doubly diminished fifth.)
- 6 Some might dispute the practice of framing Renaissance and early Baroque music as being composed of triads, because composers in these eras did not think of music as bass line oriented or, indeed, as triadically oriented at all. While I acknowledge this point of view, I think there is much to be gained by exposing students to this music before they study it in a history course, and I am not willing to let the perfect (=waiting until they understand Renaissance modal and contrapuntal mindsets to use this music in a theory course) be the enemy of the good (=exposing students to this music and fostering their interest in it). In addition, I maintain that, even for those who are intellectually aware of the conceptual constraints within which these composers were operating, the shockingly distant harmonic progressions are still most likely to capture the ears of twenty-first century listeners.

For a good source of triad analysis from the twentieth century, the polychordal music of William Schuman offers similar benefits, in particular the second movement of the *Three-Score Set*.
- 7 See David Crook, “A Sixteenth-Century Catalogue of Prohibited Music,” *Journal of the American Musicological Society* 62/1 (2009), pp. 24–27, which includes a translation of both the original text and the religious replacement text; and William Mahrt, “Lasso as Mannerist: Adoramus Te, Christe,” *Sacred Music* 134/1 (2007), p. 41.
- 8 More information about Casulana’s life can be found on Wikipedia and in various print sources. Of particular interest is the inscription in her first book of madrigals: “[...]not only to give witness to my devotion to Your Excellency, but also to show to the world (to the degree that it is granted to me in this profession of music) the foolish error of men who so greatly believe themselves to be the masters of high intellectual gifts that [these gifts] cannot, it seems to them, be equally common among women” (Thomas W. Bridges, “Casulana [Mezari], Maddalena,” *Oxford Music Online*, 20 January 2001).
- 9 Inevitably, a student will tell me that “Seventy-Six Trombones” is “in $\frac{6}{8}$.” I simply remind such students that I did not ask about the meter signature label – I asked for a description.
- 10 Of course, if students will be expected to aurally identify meters for a grade, instructors should not only be careful to choose the clearest examples, but should also reassure students that they will be flexible in considering their answers.
- 11 Essentially, I choose questions that require something like what Leigh VanHandel dubs a “decomposition” strategy, in which students must rely on memorized information to help them extrapolate the solutions to more difficult questions (“What Music Theory Pedagogy Can Learn from Math Pedagogy,” *Journal of Music Theory Pedagogy* 26 [2012], pp. 199–202).

Bibliography

- Bridges, Thomas W. “Casulana [Mezari], Maddalena.” *Oxford Music Online*, 20 January 2001.
- Crook, David. “A Sixteenth-Century Catalogue of Prohibited Music.” *Journal of the American Musicological Society* 62/1 (2009): 1–78.
- Mahrt, William. “Lasso as Mannerist: Adoramus Te, Christe.” *Sacred Music* 134/1 (2007): 41.
- VanHandel, Leigh. “What Music Theory Pedagogy Can Learn from Math Pedagogy.” *Journal of Music Theory Pedagogy* 26 (2012): 191–213.

3

A CORNUCOPIA OF ACCIDENTALS

Paula J. Telesco

Topic: Accidentals and enharmonic notation.

Goal: Students will be able to understand and notate accidentals in various contexts, and learn about enharmonic notation.

Background: The ability to read music in bass and treble clefs; some familiarity with triads helpful.

Teaching Accidentals

Most music theory instructors likely know the frustration of searching for just the right musical example to illustrate a point, and not being able to find one quickly. During a class period, it is always easier and more efficient to explain topics with the fewest number of musical works possible, both to save class time, and to keep students focused on a single composition. This also allows for more extended playing of a composition or section thereof.

One source that is truly a compendium of accidental usage is the first movement of Beethoven's Piano Sonata in C major, Op. 53, the "Waldstein," which provides examples of almost every type of accidental usage one would ever encounter or wish to teach their students; most make their first appearance within the exposition. Since the sonata is in C major, no accidental is used to cancel a sharp or flat from the key signature. For the few examples not found in the Waldstein, I turn to Chopin's Nocturne in D $\flat$ major, Op. 27 No. 2.

Part and parcel of teaching accidentals is teaching the concept of enharmonic notes. This is not usually difficult for students when it involves the dual nature of the black notes on the piano (e.g. G $\sharp$ /A $\flat$), but grasping the concept and purpose of B $\sharp$, E $\sharp$, C $\flat$, and F $\flat$ and double sharps and flats can be considerably more difficult. The pitches B $\sharp$, E $\sharp$, C $\flat$, C*, and F* are all found in the "Waldstein" sonata, while those pitches plus F $\flat$, E $\flat\flat$, A $\flat\flat$, and B $\flat\flat$ are all in the Nocturne. Thus, these works provide a great opportunity to let the music lead the discussion of a topic with which most students think they are already familiar, though often they are not.

This close examination of accidentals can also serve as a brief introduction to topics typically covered later in the theory sequence such as leading tones, triad spelling, secondary dominants, borrowed chords, Neapolitan chords, and augmented-sixth chords. One can then return to these compositions for more in-depth study as those topics arise.

Once the basic information about accidentals has been presented, students can be shown examples in the Beethoven Sonata and Chopin Nocturne, and then be directed to further examples, giving them an opportunity to examine and discuss how and why the composer notated them as such.

Beethoven's "Waldstein" Sonata

Below are 11 principles or categories of examples of accidentals present in the sonata. These can be taken in any order; often, the students' comments or questions determine the order of presentation. And, I always ask the students for their observations before I explain what something is. A link to a score of the Waldstein is provided in the online Supplemental Materials.

1. **Accidentals remain in force throughout a measure, notated only on their first appearance.** There are numerous examples throughout the movement, but early instances appear in mm. 2 (RH), and 5–6 (RH and LH). Measure 2 affords an opportunity to introduce the concept of a leading tone. I perform the first three measures with both an F $\sharp$ and an F $\natural$ in the soprano. As students listen to both versions, we compare the effect of each. They can hear that the F $\sharp$, a half step below G, propels or *leads* the music up to G in the following measure, unlike the F $\natural$, a whole step below. The same is true of the C $\sharp$ s in mm. 4 and 17, and the F $\sharp$ in m. 15.
2. **Rewriting an accidental in the following measure if it is to remain in effect.** Measures 5–6 illustrate this, as do mm. 9–10 (RH and LH). I play through the first seven measures so students can experience the palpable lowering of the music by a whole step through the use of the B $\flat$ s, which create a chord that does not belong in C major – a borrowed chord, or a non-diatonic chord.¹ Even though students likely have not yet learned about diatonic versus borrowed chords, they can experience and recognize the effect of such a chord.
3. **Writing an accidental in all clefs and registers within a measure to alter a single pitch on all occurrences within that measure.** Students sometimes mistakenly believe that a single accidental applies to all like pitch classes in that measure. Measures 8, 12, and 22–23 demonstrate this principle. Measure 22 has an added benefit: the A $\sharp$ creates an Italian augmented sixth chord, so playing through mm. 19–23 can sensitize students to the colorful sound of this chromatic chord, and thereby spark their curiosity and anticipation of its later study.
4. **Canceling a single sharp or flat within a measure** (mm. 4, 17). Here again, one can point out the effect of the C $\sharp$ leading tones. I play these measures with and without the C $\sharp$, both in the ascending and descending passages so students can hear the different effects and discuss them.
5. **Changing an accidental within a measure:** (a) from a natural to a sharp and back to a natural (m. 4); (b) alternating between sharps and naturals (m. 24). The second half of m. 24 also presents a chromatic scale segment.
6. **Cautionary (or courtesy) accidentals** (m. 8, B $\sharp$; m. 10, B $\sharp$; m. 11, A $\sharp$; m. 14, E $\sharp$; m. 18, F $\sharp$). As non-diatonic accidentals accumulate in a work, it becomes ever more necessary to include cautionary accidentals.
7. **Accidentals tied across a barline:** Measures 122–23, 124–25, 126–27, and 128–29 illustrate that such accidentals are not rewritten, contrary to those that must otherwise be written when crossing a barline, as in mm. 5–6 and 9–10. I ask the students why they think that is. These measures also contain examples of accidentals being applied to pitches in multiple registers.
8. **Enharmonic pitches, not including double sharps or flats:** B $\sharp$, E $\sharp$, and C $\flat$ all appear as chord tones, not merely embellishing tones or in a chromatic scale passage (although E $\sharp$ does appear in the chromatic scale passage in m. 42). Focusing on these pitches allows for a preview of chord tones versus non-chord tones (or embellishing tones), and even secondary dominants if the instructor wishes. At its simplest, all triads contain three notes of every other letter name (or three successive line or space notes) and must be spelled that way. The B $\sharp$ in mm. 36, 40, and 48 is part of a G $\sharp$ major harmony on beats 1–2. I point out that if Beethoven notated the B $\sharp$ as a C $\flat$, it would violate the triad-spelling rule and make notation and

harmonic comprehension confusing – triad spelling must be consistent. The E[#] occurs in m. 197 in the parallel passage of the recapitulation, part of a C[#] major triad. Similarly, if the E[#] were spelled as an F[♮], it would violate the triad-spelling rule.²

The C^b in m. 105, within the development section, is part of a C^b major harmony, tonicized by the preceding G^b dominant $\frac{4}{2}$, both a Neapolitan sixth chord in the fleeting key of f minor, and a secondary dominant of C^b. Discussion of the colorful Neapolitan chord and the harmonic flux of a development section is well beyond the topic of accidentals, but these passages can serve as tantalizing examples of topics to come. And while students may not yet know what a development section is, it is of heuristic value to ask them for their observations.

9. **Double sharps** (F^{**}, mm. 42–43, F^{**} and C^{**}, mm. 45–47). Double sharps once again raise the specter of enharmonic notes, and students invariably ask why Beethoven would use them. These passages provide another opportunity to discuss enharmonicism and preview both leading tones, and chord tones versus non-chord tones. The F^{**} in m. 42 is part of a chromatic scale passage; it is not too difficult for students to accept that when ascending, chromatic scales use sharped notes. I then point out that beats 1–2 of mm. 42–43 present an E major triad, which contains a G[#]; by notating an F^{**} rather than a G[♮], Beethoven clarifies the pitch's function as an embellishing tone and a leading tone to the following G[#] in m. 43. The F^{**} in m. 43 is similarly a leading tone to G[#]. If Beethoven had notated the F^{**}s in mm. 42–43 as G[♮]s, it would make notation and harmonic comprehension confusing. Similarly, m. 45 contains a B dominant seventh chord; to notate the C^{**} (a leading tone to D[#]) as a D[♮], against the B dominant seventh chord, would be confusing.
10. **Canceling a double sharp, returning to a single sharp** (mm. 43, 45–47). This notation, a natural sign followed by a single sharp, is likely unfamiliar to many students, but it appears three times in the span of four measures.³ I explain there is a B major triad on beat 3 of m. 43, and it contains an F[#]. Students can now articulate why the F^{**} must be lowered to a single sharp. I also ask students if all the Gs in mm. 43 and 46–47 remain sharped, and reinforce that the sharps must appear in all registers. The same situation occurs in m. 46, and a similar one in m. 45.
11. **Accidentals renoted enharmonically across a barline** (G^b is renoted as F[#], mm. 125–126). While this passage involves a topic far more advanced than accidentals, the simple answer is that G^b fits in the chord in m. 125 (E^b minor), while F[#] fits in the chord in m. 126 (F[#] dominant seventh).⁴ Students are always curious, so I explain that this is covered in the later topic of enharmonicism – something to look forward to!

After discussing all the earlier passages, I play a YouTube performance (Pletnev) of the exposition, sections of the development (starting at 4:33), including the retransition (m. 142, 5:54) and the beginning of the recapitulation (6:16). Please see the Supplemental Materials for a link to this video, which scrolls the score so students can see what they are hearing.

This composition always piques the interest of my students, often eliciting interesting comments and discussions, particularly when seeing all the double sharps, and then listening to the passages as they fly by at lightning speed. It is ideal for illustrating all these categories of accidental usage, previewing more advanced topics, and providing students an opportunity to find similar examples.

For further in-class work, or for an assignment, the instructor could isolate passages not studied in class and ask students to identify and explain the various kinds of accidental usage. Given the movement is in sonata form, the recapitulation contains many of the same passages found in the exposition (where most of my examples are drawn from), some in different keys; the development, too, contains many examples. For example, one could ask students why there is a D[♮] in m. 60 or m. 74, or why there are so many natural signs in m. 106. One might also ask students why Beethoven wrote so many D^bs in m. 249, or perhaps ask them to find more instances of what appear

to be leading tone accidentals. Many of these activities will depend on the level of students in the class. For many, having taken such a careful and exciting stroll through this exhilarating movement will be sufficient.

Chopin, Nocturne in D $\flat$ major, Op. 27 No. 2

Chopin's Nocturne contains almost every accidental usage found in the Beethoven movement, with the exception of tying a non-diatonic accidental across a barline, and canceling a double sharp; rather, there are cancelations of double flats. There are also accidental usages not found in the Beethoven movement, which drive home the point of some of the principles listed earlier.

As the Nocturne is a much more complicated work, it is not ideal for the initial presentation of the topic, and I don't spend a lot of time on it. I use it primarily to illustrate F $\flat$ and double flats, to compare the cancelation of a double sharp to that of a double flat, to have students find cautionary accidentals, and to look at a few of the more complex usages. Nevertheless, I list below some of the many measures where each of the earlier categorized usages occur. Instructors may wish to use these with more advanced students or as additional assignments or extra credit work.

1. **Accidentals remaining in force throughout a measure:** m. 5, A $\sharp$; m. 16, C $\flat$; m. 37, C $\sharp$; m. 39, G $\sharp$.
2. **Rewriting an accidental in the following measure:** mm. 22–23 C $\flat$; mm. 49–52, C $\flat$.
3. **Writing an accidental in all clefs and registers:** m. 5, A $\sharp$; m. 19, B $\flat\flat$ and F $\flat$; m. 37, C $\sharp$, A $\sharp$; m. 39, C $\sharp$ and G $\sharp$.
4. **Canceling an accidental from the key signature:** m. 5, A $\sharp$. I start by asking if anyone can see a relationship between the accidentals in mm. 4 and 5. I then point out that this is part of a modified sequence of leading-tone relationships. The E $\sharp$ cancels out the flat in the key signature, and acts as a leading tone to the following F $\sharp$; the C $\sharp$ is a leading tone to D $\flat$, and the A $\sharp$ in m. 5 (canceling the key signature's A $\flat$) is a leading tone to B $\flat$ in m. 6. This passage can also be used as an assignment, since it is relatively easy for students to grasp.
5. **Changing an accidental within a measure:** m. 17, D $\sharp$ cancels out the key signature's D $\flat$, then returns to D $\flat$; m. 44, C $\sharp$ changes to C $\flat$; m. 50, F $\sharp$ changes to F $\sharp$.
6. **Cautionary accidentals:** m. 10, G $\flat$; m. 44, A $\sharp$.
7. **Enharmonic pitches, not including double sharps or flats:**
 - a) chromatic passing tones: B $\sharp$, m. 35, m. 39; E $\sharp$, m. 39;
 - b) chord tones: F $\flat$, mm. 19, 21; C $\flat$, mm. 22–23, 41; B $\sharp$, m. 38. The simplest explanation is again that they fit in the chord. To spell F $\flat$, C $\flat$, or B $\sharp$ as E $\sharp$, B $\sharp$, or C $\sharp$, respectively, would violate the triad-spelling rule.
8. **Double sharps:** C $\sharp\sharp$, m. 39 (part of an inner-voice chromatic scale segment starting on G $\sharp$ and ending on F $\sharp$ in m. 40).
9. **Double flats:** B $\flat\flat$, mm. 8, 17–18 (LH), mm. 21–22. I point out that B $\flat\flat$ fits the chord; to spell it as A $\sharp$ would violate the triad-spelling rule.⁵
10. **Cancelation of double flats:** m. 32, B $\flat\flat$ to B $\flat$ to B $\sharp$; m. 72, B $\flat\flat$ to B $\flat$; m. 52, E $\sharp$ to E $\flat$ to E $\flat\flat$ to E $\flat$. Here I emphasize that while double sharps go from the double sharp to a natural followed by a single sharp (* to $\sharp$), double flats go directly from the double flat to a single flat ($\flat\flat$ to $\flat$).
11. **Accidentals renotated enharmonically:** m. 23, C $\flat$ rewritten as B $\sharp$; m. 24, C $\sharp$ rewritten as D $\flat$, A $\sharp$ rewritten as B $\flat\flat$. The simple explanation is that the pitches, as spelled, fit the given chords. However, mm. 18–26 involve both notational and actual enharmonicism, so the instructor may wish to return to this later.⁶

Finally, a usage not encountered in the Beethoven involves two versions of a pitch sounding against each other. These examples reinforce the point that accidentals must be notated in every register. In m. 15, there is a B $\flat$ in one octave against a B $\sharp$ in another; in m. 13, an A $\flat$ abuts an A $\sharp$ in the same register. My students rarely have seen this type of notation, so it generally astonishes them, and they immediately want to hear these passages played. They always expect them to sound crazy and are surprised that they do not!

I finish the discussion by playing sections of the Nocturne from a YouTube recording (Rubenstein) that scrolls the score as the music plays; please see the Supplemental Materials for a link to the video.

For extra in-class discussion or out-of-class work that is not too difficult, the instructor can ask students why Chopin wrote a C $\flat$ in m. 63, or a B $\flat\flat$ in m. 64, or a G $\sharp$ in m. 73.

This is always a favorite lesson plan of mine and seemingly of the students as well. It helps them understand the various roles of accidentals in context, and gets them excited about the topic and the music, which is what I always strive to accomplish.

Notes

- 1 This is actually a IV/IV(iv), and part of a descending tetrachord progression from mm. 1 to 9.
- 2 The G $\sharp$ and C $\sharp$ major harmonies are secondary dominants tonicizing vi in the temporary keys of E major and A major, respectively. These are also both instances of a V⁷/vi moving to a IV chord, which in actuality should be viewed as a V⁷/vi moving to a VI/vi, a deceptive resolution. One can preview the concepts of tonicization and modulation here, or return to these passages when those topics arise.
- 3 Some variation does exist on the cancelation of a double sharp; some editorial practices exist where a double sharp is canceled through the use of a single sharp by itself. (See the section on cancelation of double flats later in this lesson.)
- 4 This is a great example to return to when discussing actual enharmonicism. These measures occur at the end of the development section. Preceding m. 125 the music has been cycling through a harmonic sequence, arriving at E $\flat$ minor in m. 124. The switch to an F $\sharp$ dominant seventh chord in m. 126 (where one might have expected a G $\flat$ dominant seventh) sets up the retransition back to C major for the recapitulation.
- 5 I do not discuss the B $\flat\flat$ in m. 18 or 20 (RH) in this lesson.
- 6 These measures are in D $\flat$ minor, including a circle of fifths in mm. 21–26, cadencing in D $\flat$ major in m. 26. In actuality, the E⁷ in m. 23 is F $\flat$, $\flat$ III/D $\flat$, and the A major chord in m. 24 is B $\flat\flat$, $\flat$ VI/D $\flat$. These are instances of notational enharmonicism – enharmonic respelling for ease of reading. However, the c^{o7} in m. 22 is exploited for its enharmonic possibilities: it functions both as a vii^{o7} of D $\flat$ and a vii^{o7} of F $\flat$.

4

CONTOURING AS A POWERFUL TOOL FOR PITCH AWARENESS

Jan Miyake

Topic: Contouring and minor scales (natural, harmonic, melodic).

Goals: Introduce the skill of contouring to develop mastery of the whole- and half-step patterns in melodic, natural, and harmonic minor scales.

Background: Knowledge of whole and half steps.

Singing different kinds of minor scales can be difficult for some new aural skills students; it can also be tortuously easy for others. This activity provides an effective twist that will engage a wide range of skill levels in addition to developing a tool that is easily transferred to other aural skills assignments. Specifically, this set of lesson plans teaches minor scales by embodying pitch space, a technique called contouring.

About Contouring

Contouring is a pedagogical strategy that allows a student to physically model something that is subtle and difficult to see: the physical process for changing pitches.¹ Vocal folds control the sound's frequency (pitch), but this part of our anatomy is tiny (1.25–2.5 cm) and its physiology is observable only with technology. Contouring takes the subtle, hidden physical process of controlling pitch and embodies it. Here is how I use it: start by imagining a ladder of half steps in front of your body. Then, face your palm toward the floor, making its plane parallel to the floors. Finally, move your hand up and down the rungs of your imagined ladder to mimic moving through pitch space. Without words, we can now demonstrate our understanding of two key pitch-related questions: did the pitch ascend or descend? By how much (relative to the pitches around it)? This strategy has many payoffs. For students, it helps them with memorization, transcription, and silently rehearsing a melody. For instructors, it helps diagnose problems in a student's processing of sound. Additional benefits include an entry point for kinesthetic learners and a tool of unlimited nuance.

Contouring reminds me of other systems involving connections between pitch and the hand, specifically the Guidonian hand and Kodály method. One great benefit of contouring, however, is that there is no need for specialized training on the instructor's part. Furthermore, it is a classroom technique simple enough that it can be taught almost solely through demonstration.

One of the earliest opportunities to use contouring occurs in the teaching of minor scales. It works well with this content because scales occur early in a curriculum, move only by step, tend to be familiar to students, and can be explored without relying on traditional Western notation.

While I describe the use of this technique in the aural skills classroom, it can also be effective in the music theory classroom. The setup for aural skills classes where I have used this lesson plan is 12–15 students from a wide variety of musical backgrounds, with seats arranged in a horseshoe shape, one keyboard, and enough room for everyone to conduct without bumping into one another, but not enough room to do most eurhythmics exercises.

Description of the Activities

The activities for the first class (of two) take 25–30 minutes. In class, I start by investigating the major scale and confirming where the half steps occur. I use several activities to solidify this knowledge. We sing slowly, snapping or clapping right before the completion of every half step: “ $\hat{1}$, $\hat{2}$, $\hat{3}$, <snap>, $\hat{4}$, $\hat{5}$, $\hat{6}$, $\hat{7}$, <snap>, $\hat{1}$, <snap>, $\hat{7}$, $\hat{6}$, $\hat{5}$, $\hat{4}$, <snap>, $\hat{3}$, $\hat{2}$, $\hat{1}$.” I visually reinforce the location of half steps by pointing them out within a C major scale on a picture of a piano keyboard projected onto the overhead. Students assist in modeling the pattern of whole and half steps by linking half and whole steps together on the classroom piano in keys of my choosing while their colleagues sing. And, a favorite activity is to space eight bodies across the room to show the pattern of whole and half steps, leaving gaps big enough to hold another person between the whole steps and standing close together for the half steps.

Next, I have all able-bodied students stand because this provides them more access to the vertical space in front of their body. I model, using a call-and-response format, simultaneously contouring and singing segments of a major scale to show how the vertical space in front of us can be used to differentiate between half and whole steps. I start with $\hat{1}$, $\hat{2}$, $\hat{3}$ to establish a distance for a whole step. Then, I extend this to $\hat{1}$, $\hat{2}$, $\hat{3}$, $\hat{4}$ in order to highlight the smaller space of the half step between $\hat{3}$ and $\hat{4}$. I also spend time on the top tetrachord and descending segments of the scale. A particularly challenging segment to sing is the one bookended by $\hat{4}$ and $\hat{7}$ because it contains only whole steps. We build up the length of these segments until the class is singing complete major scales (ascending and descending) while contouring in front of them.

During this process, students will learn to start low in the vertical space in front of them and will work out how much of that vertical space a whole and a half step should take. In my experience, they will adjust their space in order to avoid bending their knees to reach the low pitches and raising their arms past their forehead to represent the high pitches. I watch students to see who I can assist in adding clarity to their contouring; typically, they need to use more of the vertical space in front of them. With their permission, I take their hand and move it up and down in a way that I find clearer. Alternatively, pairing students up to mirror each other while singing and contouring quickly cleans up their representation of whole and half steps.

Once the major scale is clearly represented in their contouring, students sit down to work with a handout; a sample copy is available in the online Supplemental Materials. The purpose of the handout is to compare the whole and half steps of a major scale with the natural minor scale by aligning the scale steps with accuracy. For example, the following could be provided as a handout (adjusted to use your curriculum’s system for singing scale steps):²

Major scale:	$\hat{1}$	$\hat{2}$	$\hat{3}$	$\hat{4}$	$\hat{5}$	$\hat{6}$	$\hat{7}$	$\hat{1}$
Natural minor scale:	$\hat{1}$	$\hat{2}$	$\hat{3}$	$\hat{4}$	$\hat{5}$	$\hat{6}$	$\hat{7}$	$\hat{1}$

Ask students to take note of where the half steps are in a natural minor scale, perhaps by circling them, and also take note of which scale steps do not move. A particularly visceral way to notice which pitches move and which are anchors is to have students stubbornly sing a major scale while I play a natural minor scale on the piano.

After students have experienced and intellectualized this change in placement of half steps, I ask them to stand up again, if possible. We review the major scale by contouring it while singing, and I specifically ask them to direct some attention to where the anchor pitches $\hat{1}$, $\hat{2}$, $\hat{4}$, and $\hat{5}$ lie in their contouring because this will add clarity to their contouring of a minor scale. When we transfer the contouring to a natural minor scale, I remind students to hold invariant the major-mode positions of $\hat{1}$, $\hat{2}$, $\hat{4}$, and $\hat{5}$ and only shift $\hat{3}$, $\hat{6}$, and $\hat{7}$.

Finally, we transfer this skill to harmonic and (ascending) melodic minor. I start by returning to a handout to help students envision the intervals by having them complete two new rows on their handout. This part of their handout might look like this:

Major scale:	$\hat{1}$	$\hat{2}$	$\hat{3}$	$\hat{4}$	$\hat{5}$	$\hat{6}$	$\hat{7}$	$\hat{1}$
Natural minor scale:	$\hat{1}$	$\hat{2}$	$\hat{3}$	$\hat{4}$	$\hat{5}$	$\hat{6}$	$\hat{7}$	$\hat{1}$
Harmonic minor scale:	$\hat{1}$							$\hat{1}$
Ascending melodic minor:	$\hat{1}$							$\hat{1}$

At the end of working through the handout, it would look like this:

Major scale:	$\hat{1}$	$\hat{2}$	$\hat{3}$	$\hat{4}$	$\hat{5}$	$\hat{6}$	$\hat{7}$	$\hat{1}$
Natural minor scale:	$\hat{1}$	$\hat{2}$	$\hat{3}$	$\hat{4}$	$\hat{5}$	$\hat{6}$	$\hat{7}$	$\hat{1}$
Harmonic minor scale:	$\hat{1}$	$\hat{2}$	$\hat{3}$	$\hat{4}$	$\hat{5}$	$\hat{6}$	$\hat{7}$	$\hat{1}$
Ascending melodic minor:	$\hat{1}$	$\hat{2}$	$\hat{3}$	$\hat{4}$	$\hat{5}$	$\hat{6}$	$\hat{7}$	$\hat{1}$

I like to take a moment with the students to point out something that they cannot see as easily in musical notation: the different patterns of whole and half steps created by $\hat{6}$ and $\hat{7}$'s placement in each scale. Since notation on a five-line staff makes all steps equally far apart in the vertical dimension, it can obfuscate just how big that augmented second is, or how the top tetrachord of an ascending melodic minor scale is the same as that of the major scale. Pointing out what the layout of the handout reveals is another way to make the differences between the scales more salient.

For the final part of the lesson plan, I ask the able-bodied students to stand again and explore the vertical space in front of them as they navigate each type of minor scale. I continue to stress holding invariant the pitch and vertical space for $\hat{1}$, $\hat{2}$, $\hat{4}$, and $\hat{5}$. In my experience, it is efficient to spend some time targeting just the top tetrachord of each scale.

For homework, students practice contouring the three “flavors” of minor scales, in addition to working through intonation problems with the piano or a piano app. The stated goal of their individual contour practice is to develop enough nuance in their contouring that they can coax their classmates into perfectly singing a scale, or a scale fragment, without them knowing ahead of time which scale or which fragment it would be.

Before the next class, I prepare multiple slips of paper with the name of one of the four scale types (major, natural minor, harmonic minor, and melodic minor) written on them and place the slips of paper into a container. I also prepare a second container with slips of paper that involve a higher degree of difficulty. These slips of paper take the form of *scale type ascending/descending from scale step* (e.g. “harmonic minor ascending from $\hat{4}$ ”). In these cases, the class will sing on a neutral syllable instead of scale steps, and the silent leader will guide the class to $\hat{1}$ and then switch directions to complete a full octave of the scale. In my experience, one of the most difficult slips of paper requests “melodic minor ascending from $\hat{3}$.” It is likely that this particular scale fragment is a train wreck because it creates four consecutive whole steps, which is challenging when out of context.

During this second class, students take turns picking a scale type out of the container with easier requests. After I play a tonic pitch, the student leader stands *silently* in front of the class and has their colleagues mirror their hand position while they sing the pattern of half, whole, and augmented steps necessary to produce the scale on the slip of paper. At the beginning, I explain why the student leader needs to be silent; if they sing when they lead, their colleagues will simply match their pitch instead of processing their contouring. Finally, as students get used to the exercise, I start changing the tonic note with each new student leader, and eventually invite students to explore the contents of the second, more challenging container. I allow students to “opt out” of choosing from the more difficult container, providing them the opportunity to self-differentiate.

Common Pitfalls

Students vocally make their half steps too small. This situation typically occurs because they are paying close attention to the difference between whole and half steps and overcompensate on the half steps. To combat this problem, remind them that in each of these four scales, the vocal and spatial placement of $\hat{1}$, $\hat{2}$, $\hat{4}$, and $\hat{5}$ remains the same.

Students can sing the scales in common keys, but not in less common keys. Students have far more practice singing notes represented by white piano keys than they do notes on black piano keys. This fact becomes even clearer when working in minor keys because the chromatic alterations guarantee that every minor key will engage black piano keys. Be sure to practice in a wide range of keys and to scaffold the keys from most common to least common.

Students suddenly cannot sing the whole step from $\hat{1}$ to $\hat{2}$. This situation happens because they are thinking ahead to $\hat{3}$ being lower than its major-mode counterpart and it impacts their pitch on $\hat{2}$. I take them back to contouring and singing the first three notes of a major scale, paying particular attention to how their muscles in their throat feel on $\hat{2}$. When we flip to the minor scale, I ask them to recreate the feeling their muscles had on $\hat{2}$ in addition to keeping the contouring identical from $\hat{1}$ to $\hat{2}$.

Final Thoughts

There is great benefit to putting students in a position of leading their colleagues because they reflect differently on the quality of their work when they need to elicit specific responses. Nuances of hand position evolve throughout this exercise because students are desperate to get their classmates to sing correctly in the least amount of time possible. These nuances greatly enhance the understanding of the intervals in the top tetrachord of minor scales. Most commonly, students show $\hat{6}$ and $\hat{7}$ with a hand angled down or up at an almost 45-degree angle to the floor, depending on which version of $\hat{6}$ and $\hat{7}$ is needed. I allow these nuances to evolve because it embodies students’ understanding of the positions for $\hat{6}$ and $\hat{7}$.

Students who are typically reluctant or shy to perform in front of their colleagues usually do well with this exercise. The combination of being able to practice ahead of time with being instructed *not* to sing helps. In addition, I sometimes invite students to just stand where they are instead of coming forward and facing the class. Even the most bored of students seem to enjoy the exercise and learn about clarity of representation.

The nuance available in contouring can be transferred to some voice-leading issues. Angling the hand upward for leading tones and downward for chordal sevenths mimics the resolution of those tones. An effective way of working with this idea is to take the note C and have students sing on note names (or fixed *do solfège*) and contour a C scale. Then contour C’s resolution within these contexts: as $\hat{4}$ in a G scale, harmonizing C within the V^7 chord, D^7 ; and as $\hat{7}$ in a $D\flat$ major scale, harmonizing C within the V^7 chord, $A\flat^7$.

Contouring as a Powerful Tool

This lesson plan is easily transferable to later aural skills classes for modes (Dorian, Phrygian, Lydian, Mixolydian, and Locrian) as well as collections (whole tone, octatonic, hexatonic, double harmonic).

Consistent use of contouring in a variety of settings builds a connection between silent recall and hand position. Students who invest care into the process do better in dictation because they memorize tunes quicker and with greater accuracy as they contour silently during dictation.

Notes

- 1 I learned this technique from Arnie Cox, who describes it as an outgrowth of his interest in mimetic processes. Specifically, it is a “deliberate, overt, cross-modal imitation, producing a visual-spatial-motor representation of pitch relations.” Arnie Cox, email to author, October 23, 2018. For more background, see Cox, “Embodying Music: Principles of the Mimetic Hypothesis,” *Music Theory Online* 17, no. 2 (July 2011), www.mtosmt.org/issues/mto.11.17.2/mto.11.17.2.cox.html and *Music and Embodied Cognition: Listening, Moving, Feeling, and Thinking* (Bloomington: Indiana University Press, 2016).
- 2 A monospaced font like Courier, in which every character takes up the same amount of horizontal space, is essential to the handout because columns of characters must be consistently aligned. Alternatively, you could handwrite this handout.

5

INCORPORATING MELODICAS INTO THE MUSIC THEORY CLASSROOM

Chelsey L. Hamm

Topic: Melodica usage in music theory classes.

Goal: Students will be able to better conceptualize pitch space via kinesthetic engagement with melodicas.

Background: Basic Keyboarding and Music Literacy Skills

First-year undergraduate music majors often enter college with a subpar conception of pitch space. Such students will have difficulty in music theory classes, beginning with music fundamentals. Topics such as enharmonic equivalence and qualities of intervals, triads, and seventh chords frequently prove difficult for these students, resulting both in an inordinate amount of time spent on homework and feelings of frustration. Even after passing beginning theory courses such students are prone to repeating mistakes related to poor conceptions of pitch space such as forgetting to raise the leading tone in minor, neglecting to add proper accidentals to chromatic harmonies and modulating passages, and not fully comprehending enharmonic reinterpretation of advanced chromatic harmonies.

One way that this problem can be addressed is to engage music theory students kinesthetically with a keyboard-centric curriculum. Since it is not typically feasible for students to have access to pianos or electronic keyboards during music theory classes, both because of cost and space, one solution is to employ melodicas – small, pitched, wind-operated keyboards that have a timbre similar to an accordion (Figure 5.1).

Melodicas are typically made of plastic and are consequently low cost, averaging around \$30 each online; they could therefore be considered reasonably accessible for a variety of populations, including private students, high schoolers, and undergraduates at liberal arts colleges, public universities, or music conservatories. They also have the advantage of providing tactile engagement, containing raised keys like an acoustic piano, and are consequently easier to play than piano keyboard applications on cellular devices. Furthermore, melodicas allow users to play multiple notes at once, whereas some keyboard applications only allow for one note at a time.

I have utilized melodicas in my music theory classrooms for over five years in multiple institutions, including private liberal arts colleges and four-year public universities. In this chapter, I will consider a variety of topics related to my experiences with melodica usage in the music theory classroom. First, I will discuss several options for obtaining a classroom set of melodicas, including the details of a grant proposal with which I experienced success. Second, I will explore a few



Figure 5.1 The author playing a melodica.

different usages of melodicas in an undergraduate music theory curriculum, and I will provide samples of exercises and activities for beginning and more advanced students. Finally, I will discuss the primary benefits of melodica usage for students, especially an increased interdependence between students' written work and their audiation abilities.

There are several different ways to procure a set of melodicas in a music theory classroom. Perhaps easiest for an instructor is to simply assign melodicas as a required supply and have each student purchase their own. I have worked with two bookstores at different private liberal arts institutions to achieve this, and each bookstore was able to stock the melodicas in their on-site locations with fairly minimal effort on my part. Likewise, one could instruct students to purchase melodicas from an online vendor such as Amazon.com. As of the time of this chapter's publication, several different brands of melodicas could be purchased online for under \$30, with a guaranteed arrival date of three business days or less.

I have also taught at a four-year state university where it would have been financially challenging for many students to purchase a melodica in addition to their textbook. Due to this situation, I applied for a competitive grant for teachers from a local philanthropical arts society. I detailed my rationale, a description of the melodicas (including a photograph), a breakdown of the costs, and discussed the anticipated impact of the purchase on students. Please see the Supplemental Materials website for additional details of this grant proposal such as specifics about wording. I was awarded the full cost of a set of 32 melodicas, as well as storage containers – about \$700 total. Students were each assigned one of the melodicas and were asked to purchase their own mouthpiece, which cost less than \$5. I kept the original mouthpieces that came with the melodicas, and distributed a few of them to the students for whom even \$5 proved prohibitive. I chose to store the melodicas in the music theory classroom (in agreement with my colleagues who also used the room), instead of allowing the students to bring them home. I felt this was the surest way

to know the location of each instrument at all times. However, written student agreements could be employed to allow students to bring melodicas home, in order to play homework assignments. At the end of each semester I cleaned the melodicas with antibacterial wipes; however, especially dirty instruments (or the tubing that connects the mouthpiece to the instrument) could be submerged in a soapy bath with no damage.

Many universities and colleges have grants or funds for instructional faculty who wish to improve their classroom teaching. These funds are often called “Development Grants” and are primarily used for the purchasing of equipment, the expansion of undergraduate research, or for pedagogically oriented professional development activities. Furthermore, such funds are not typically limited to full-time and/or tenure track faculty, meaning that adjunct instructors and sometimes even graduate students can apply for them. I would encourage interested instructional faculty to discuss the possibilities of funding with their department chairs or Provost. If no internal funding is available, outside funding sources can be found via local or national arts societies, government institutions such as the National Endowment for the Arts (NEA), and private companies; in addition, crowd sourcing from websites such as www.donorschoose.org or www.gofundme.com could also prove fruitful.

Melodicas can be used throughout an undergraduate music theory curriculum, from the simplest music fundamentals lesson to advanced courses on counterpoint, post-tonal theories, or even form and analysis. In music fundamentals courses, melodicas are especially useful for aiding students in clef reading, major and minor scale construction, and the identification of qualities of several different harmonic structures, amongst other topics.

Melodicas are also invaluable for constructing a kinesthetically based conception of enharmonicism and pitch space. At the beginning of a fundamentals course, an instructor could introduce melodica usage by teaching students to label “white keys” on blank paper keyboards. Students could immediately reinforce this visual by playing the same notes on their melodicas, using their labeled paper keyboards (or one projected on a document camera) for reference. As a follow-up (after students have learned about the staff and clefs), an instructor could project various “white keys” in different clefs; the instructor could then point at the notes and the students would play them. A variation on this activity would be to have a simple and well-known melody (such as “Mary Had a Little Lamb”) projected arrhythmically on a staff and to point to the notes in a rhythmic fashion (presuming the students have not yet learned to “read” rhythms). For students struggling with this lesson, the instructor could point to letter names displayed without a staff; taking out the burden of initially reading different clefs and staff notation can make the exercise easier. A more difficult variation could add in “black keys” after accidentals have been learned. After all notes are mastered, an instructor could ask questions phrased to test enharmonic equivalence (e.g. “now play an E $\sharp$; now a G $\flat$ ”).

I have taught all additional pitch topics in music fundamentals – scales, intervals, and triad/dominant seventh chord construction – with the usage of melodicas. In general, I find that teaching these topics with the addition of melodicas is more effective than without. This is especially true for students who lack music literacy when they enter college, either because they are non-music majors or because they have simply not encountered much written notation in their previous musical experiences. For non-music majors or students who lack music literacy, I tend to teach scales, intervals, and primary triads (I, IV, V, and V⁷) in certain keys only, favoring major and minor keys up to two or three sharps or flats (depending on the institution). Students who first learn like this become very familiar with these keys, first mastering these major scales and then their corresponding relative minor scales. Students next study major, minor, and perfect intervals in these same keys, before learning primary triads. It should be noted that such an approach is very different from that of most group keyboarding classes, which usually introduce scales based

upon similarity of fingerings. In my music fundamentals classes, I do not strive to teach proper fingerings for scales, nor do I focus on playing them “hands together.” My goal is to have students conceptualize pitch space in the most effective and quickest manner possible; I leave the teaching of proper piano technique to the more qualified keyboarding faculty. Although I have not attempted to teach music fundamentals with a focus on playing in all of the major and minor keys, I do think this could be done at an institution with a student population who had a more advanced understanding of musical literacy upon entering college, or perhaps at the beginning of a Theory 1 course.

In a more advanced music theoretical course, such as one primarily pertaining to diatonic or chromatic harmony, melodicas can be used to teach voice-leading, to practice figured bass realization, and to illustrate the need for accidentals in chromatic constructions. I find that there is a disconnect for most music undergraduates between connecting chords with proper voice-leading and with performance. This may be the result of many music undergraduates entering college with less formal piano training than students of the past, or perhaps because current students simply learn voice-leading less frequently in middle and high school. Either way, teaching students to connect chords kinesthetically results in a greater understanding of voice-leading connections. I begin this practice at the earliest stages of part-writing, by having students connect first I and V and then I and V⁷ on their melodicas. By feeling how to play these connections students are less likely to make leaps between harmonies, avoiding a plethora of voice-leading problems in the process.

An added benefit of this exercise is that the students instantly hear the harmonies that they are producing, resulting in fewer missed accidentals (if one is forcing the student to play the harmonies before notating them). This means that students are also more likely to raise the leading tone in the dominant harmony in minor, since they will instantly hear that the harmony sounds incorrect when the leading tone is unraised. In addition, the need for an incomplete harmony when connecting the tonic and dominant seventh chords also becomes more readily apparent when approaching this topic kinesthetically. Students can physically feel the parallel fifths that result from playing both of these harmonies in a complete fashion, providing a much clearer illustration than staff notation, in which parallel fifths – especially between non-adjacent voices – are often quite difficult for students to see.

There are numerous benefits of melodica usage for students. First and foremost is that students are better able to conceptualize pitch space when they engage kinesthetically with melodica keyboards. Most students enrolled in a collegiate music class are both familiar with and competent at kinesthetic engagement. After all, almost all music students will have had previous experience with playing an instrument or with singing – highly physical pursuits. This previous experience translates well with the kinesthetic engagement of musical instruments in a classroom. Second, there is an increased interdependence between students’ written work and their audition abilities. Students are much more likely to correct wrong accidentals or part-writing errors when they are able to immediately hear an audible result. I would argue that this is a much more musical method of teaching part-writing than the often dry, hearing-free (or hearing-limited) technique that is sometimes currently taught. Third, playing melodicas is an engaging activity for students. Making music is our students’ passion, and we should celebrate that passion in the theory classroom. In addition, melodicas have another built-in benefit: because they are breath powered, students cannot talk while playing them, making them less likely to engage with one another and more likely to remain absorbed by the lesson. At the end of the day, melodicas provide a cost-effective option for our students to make music, engage kinesthetically, and hear the results of their written work quickly in the theory classroom – worthy goals that we as music educators value.

Bibliography

- Griss, Susan. "Creative Movement: A Language for Learning." *Educational Leadership* 51, no. 55 (February, 1994): 78–80.
- Mobley, Kayce and Sarah Fisher. "Ditching the Desks: Kinesthetic Learning in College Classrooms." *The Social Studies* 105, no. 6 (August, 2014): 301–9.
- Shams, Ladan and Aaron R. Seitz. "Benefits of Multisensory Learning." *Trends in Cognitive Sciences* 12, no. 11 (November, 2008): 411–17.

6

MUSIC FUNDAMENTALS GAMES

Stefanie Dickinson

Topic: Review of Music Fundamentals.

Goal: Students will develop speed and confidence in identifying and writing fundamentals.

Background: Ability to write and identify key signatures (major and minor), intervals, and triad qualities; ability to write major and minor scales; ability to generate specific scale degrees in any key; understanding of note and rest values in simple and compound meters, note beaming, and rhythmic transposition; ability to identify notational errors.

Teaching music theory fundamentals involves not only presenting the course material but also providing students with opportunities for drill and practice to develop mastery. Students may not realize that their recall of topics such as key signatures must become automatic unless encouraged. The need for creative drills that emphasize mastery of fundamentals material led me to develop a “Game Day” for my students. This series of games need not occur on a single day, but I have found it a good option when I need to be away, as teaching assistants or music service organization members can serve as “officiators.” These games are also suitable for younger students.

This group of fast-paced games can be as high- or low-tech as you wish. It was conceived for a classroom with enough board space for two to four people (chalk board, white board or Smart Board) and chalk or markers. The games require some movement but can be adapted for students with disabilities. Boards can be replaced with iPads or paper tablets with teams seated while they rotate the iPad/tablet among themselves. Depending on class size and space, the games may be played with two to four teams.

I recommend teachers announce a game day in advance to encourage students to study or focus on improving their speed prior to the day. Announcing an enticing prize will incentivize students, especially if it will benefit their final grade. Game day works well as a review session before an exam. Students with slower recall may be inspired by classmates who exhibit a complete command of the material.

These games take some preparation for their first use, but very little after. Preparation mainly includes finding or writing melodies and rhythms and arranging intervals and triads on cards. Sample materials for each activity are available on the Supplemental Materials website for your use. I hope these activities serve as a springboard for developing customized activities for your classes.

Topic: Key Signatures

Key Signature Quick Draw

Teams stand in a line facing the board, behind a line parallel to the board. The teacher calls out a key and clef, then says, “go!” The student at the front of each team’s line runs to the board and writes the given clef and key signature. The first team to correctly write the clef and key signature is awarded one point. The student at the board returns to the end of the line, and the next key and clef are announced.

Key Words

Each team is given one set of 15 index cards with each major/minor key signature on one side. (Key signatures could be written using the same clef or mixed for an added challenge.) The teacher provides a word as a prompt, and students must “spell” the answer with key signatures. The first team to correctly spell a word on their first try receives one point. (Teams have only one chance per word.) The teacher will specify whether to use major or minor key signatures. Students may use either sharp or flat key signatures for a letter (e.g. A or A $\flat$ major can be used for “A”), and if words with duplicate letters are included, students will need to use *both* sharp and flat keys (e.g. B $\flat$ and B major for “BB”). To avoid confusion as to key names, the teacher may ask students to spell their answer aloud, specifying between natural and sharp/flat key names in the case of duplicate letters. Figure 6.1 illustrates a more challenging answer found in Round three below.



Figure 6.1 “Key words” sample solution.

Round one: a word is given, students “spell” the word using key signature cards.

Sample words: fed, cad, beg, fad

Round two: a sentence is given and students must identify the only word in the sentence that can be spelled using key signature cards.

Sample sentences:

- After studying for several weeks, she aced the test.
- Enjoy the summer because it will soon fade away.
- She enjoyed playing in the band although she was tone deaf.
- John Cage was an American composer.

Round three: a clue is provided; students must come up with a related word and spell that answer using key signature cards.

Sample clues:

- Taxi (cab)
- Father (dad)
- Paper or plastic? (bag)
- It’s what’s for dinner (beef)
- It’s what sauerkraut or cole slaw is made of (cabbage)
- Ten years (decade)

Topic: Scales and Scale Degrees

360 Degrees

Teams stand in rotating lines facing the board behind an imaginary line. The teacher calls out a clef, key, and scale degree number (e.g. “bass clef, G major, scale degree 4”), and says, “go!” The student at the front of each line runs to the board and writes the clef and note. The first team to correctly write the note in the given clef is awarded one point. The student at the board returns to the end of the line. Samples below assume a focus on mastering treble and bass clefs, but C clefs could easily be added for a more comprehensive drill.

Sample prompts:

- a. Bass clef – C major – scale degree 5 (G)
- b. Treble clef – B major – scale degree 6 (G#)
- c. Bass clef – E $\flat$ major – scale degree 4 (A $\flat$)
- d. Treble clef – F# major – scale degree 2 (G#)
- e. Bass clef – A major – scale degree 3 (C#)
- f. Treble clef – D $\flat$ major – scale degree 7 (C)

Major Scale Quick Draw

Same as earlier, but the teacher calls out the clef and major scale and says, “go!” The student at the front of the line runs to the board and writes out the major scale in the given clef with accidentals (no key signatures).

Minor Scale Quick Draw

Same as earlier, but the teacher calls out the clef and a *specific type* of minor scale; students should notate the requested minor scale with accidentals.

Topic: Rhythmic Values and Meter

Balance Beam

Teams go to the board and number 1–14. The teacher calls out rhythmic values for each number and one student writes each note under its corresponding number (see Figure 6.2a for an example).

Round one: The first team to beam the rhythm correctly in $\frac{8}{8}$ receives one point (only one try per team) (see Figure 6.2b).

Round two: The first team to beam the same notes correctly in $\frac{3}{4}$ receives one point (only one try per team) (see Figure 6.2c).

Round three: The first team to beam the same notes correctly in $\frac{9}{8}$ receives one point (only one try per team) (see Figure 6.2d).

Round four: “I rest my case” (based on results from Round three)

The first team to accurately change each note value to a rest value in $\frac{9}{8}$ (without combining rests) receives one point (only one try per team) (see Figure 6.2e).

Round five: “Twice as nice” (based on “I rest my case,” Round four)

The first team to correctly change rest values in $\frac{9}{8}$ to note values in $\frac{3}{4}$ receives one point (only one try per team) (see Figure 6.2f).



Figure 6.2 “Balance beam” sample exercises.

Meter Cards

This game requires two sets of cards. Each card in the first set has a rhythmic pattern worth one beat in either simple or compound meter (e.g. two eighth notes or a quarter note and eighth note). There are three cards in the second set, representing the number of beats per measure with “2,” “3,” and “4” written on the cards.

The teacher (or a neutral student) draws a single card from each stack and writes the information from the cards on the board. The first team to correctly identify the meter receives one point. If students draw a card from the first set that requires a compound meter, they will need to calculate the top number of their response using a multiple of three rather than a number corresponding to the second set of cards; for example, if a student draws a rhythm card with a dotted quarter note, and a card representing three beats per measure, their answer will be $\frac{9}{8}$.

Sample card combinations:

♩	$\times 4$	answer: $\frac{12}{8}$
♩.	$\times 2$	answer: $\frac{3}{2}$

Slip into the Time Signature

Each team is given a slip of paper face down with a short melody *without* a time signature. The teacher tells the teams to turn over their slip and identify the best time signature for the given melody. The first team to correctly identify the best time signature receives one point. A good source for melodies might be sight-singing books or any literature (Figure 6.3).



Figure 6.3 “Slip into the time signature” sample melody.

Best response: $\frac{6}{16}$

Topic: Notation

Notation Bloopers

Each team is given a slip of paper face down with a brief melody on it. The teacher tells the teams to turn over their slip and study the notation to identify the error. The first team to correctly identify the error in the notation receives one point (Figure 6.4).



Figure 6.4 “Notation bloopers” sample card.

Error: key and time signatures are reversed.

Other possible errors:

- Bass clef dots are around the D line, not F.
- Incorrect time signature.
- Wrong stem direction.
- Upbeat and last measure do not equal the value of a measure.

Topic: Intervals

Interval Bingo

All students are given the same bingo card with intervals in five columns (Figure 6.5). The teacher calls out column letter and interval quality (e.g. B, P4), and students circle the appropriate interval in the column, if it is present. Students yell “BINGO” after a straight or diagonal is completed; the first student to find BINGO receives a point. Students who yell “BINGO” before a straight or diagonal is completed are eliminated from the round. (Students in smaller classes can each receive different bingo cards, but I recommend multiple copies of the same card for medium to large classes in order to cut down on time spent verifying intervals.)

Interval Train

Students are given a beginning pitch to write on the board. The teacher then calls out 5–12 intervals and the direction for each one at a time, giving students time to write each note on the board. The first team to provide the correct ending pitch wins one point. This is especially effective in teaching students not to rely on enharmonic equivalents when calculating intervals.

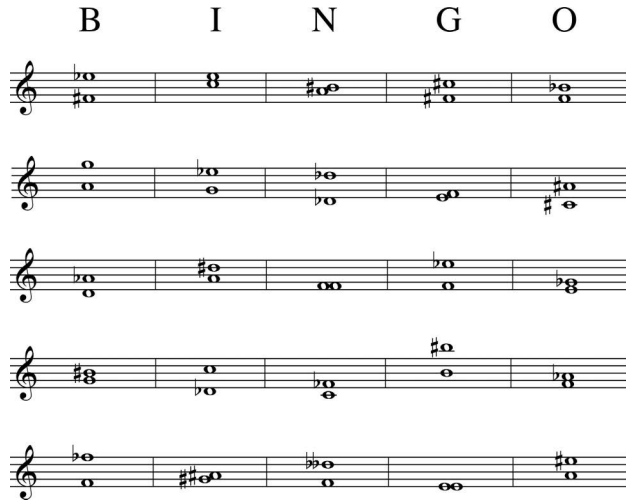


Figure 6.5 “Interval bingo” sample card.

E.g.: beginning note = A.

Interval train: $\uparrow$ m2, $\downarrow$ P5, $\uparrow$ M7, $\downarrow$ m3, $\downarrow$ P4, $\downarrow$ m6, $\uparrow$ P8, $\downarrow$ A4.

Ending note = E (not Fb!)

Topic: Triads

Triad Bingo

All students are given the same bingo card with triads in five columns (Figure 6.6). The teacher calls out column letter and triad quality (e.g. N, minor), and students circle the appropriate triad in the column. Students yell “BINGO” after a straight or diagonal is completed (note that with four rows, “diagonal” will need to be defined differently). The first student to find BINGO receives a

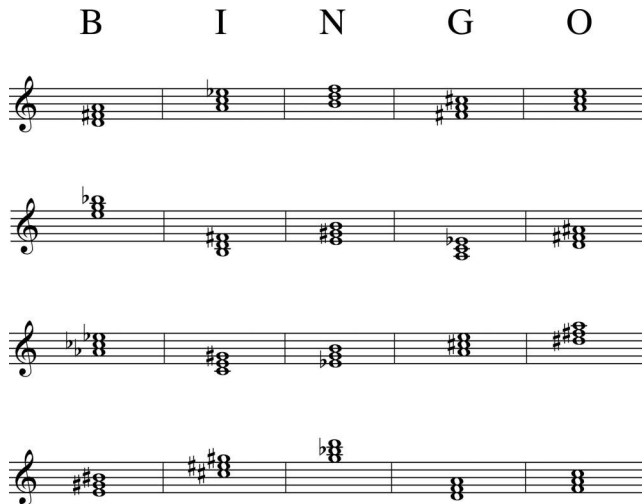


Figure 6.6 “Triad bingo” sample card.

point; students who yell “BINGO” before a straight or diagonal is completed are eliminated from the round. Again, cards with different arrangements may be used for smaller classes, but for larger classes using one card can help reduce verification time.

This activity may be adapted for seventh chord qualities, or you could add more rows so that students may have to circle more than one chord in a column.

I hope your students enjoy playing these games as much as mine have. The variety of games keeps students engaged and they enjoy the friendly competition. Without realizing it, they are reviewing and reinforcing skills in reading and writing fundamentals while improving their recall time. Teachers can easily add or subtract games and can make them as fast-paced as they wish. The games can be played on a single class day for a comprehensive review or one per class meeting to reinforce the previous lesson. Be prepared, however, as your students may ask for another “Game Day” later in the semester. The promise of a rematch just may encourage them to spend time polishing their skills.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

PART II

Rhythm and Meter



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

7

INTRODUCING MUSICAL METER THROUGH PERCEPTION

Stanley V. Kleppinger

The pedagogical approach described here proceeds from a simple premise that is well-known but often overlooked in introductions to students: musical meter is not consistently represented by time signatures.

This premise implies that meter, like so many aspects of music, is not a product of musical notation. In point of fact, we don't need notation to experience it. We all can hear the triple meter of a waltz or the duple meter of a march without access to the notational system its performers might be using, much less to the score itself. It is this perceptual aspect of meter with which I want music students to engage when thinking about the rhythmic aspects of music. By framing meter in this way, I hope to get them thinking about their own perceptual experiences as well as those they create in their listeners when performing.

This is not to say that time signatures cannot offer clues to the meter of a given passage. Like countless other teachers, I'm quick to point out how well-suited time-signature numerators of 6, 9, and 12 are to compound meters; that when they're used in this way, the numerator can be divided by three to identify the number of beats per bar; and that smaller numerators (2, 3, and 4) very often imply simple meters in which those numerators directly indicate the number of beats per bar. But just as key signatures can point to specific tonalities only with a degree of ambiguity, time signatures often function only as indirect representatives of metrical structure, which arises from interaction between tempo and the rhythms in the music itself. We warn students not to neglect the possibility that two sharps might imply B minor as easily as D major (to say nothing of modal possibilities), and to study the music itself before identifying the key. Certainly competent musicians can and should be similarly equipped to confront the vagaries of time signatures. To take one example, $\frac{6}{8}$ does not "mean" compound duple meter unless the rhythmic structure of the music following that time signature successfully erects that metrical structure in listeners' minds. There are too many common exceptions to this case (and similar exceptions for other signature/meter combinations) for us to pretend otherwise when discussing meter with our students.

In order to nurture this perspective of meter as a product of listening, independent from time signatures and from music notation more generally, I introduce it to students through the metrical "grid" representation of Fred Lerdahl and Ray Jackendoff's *A Generative Theory of Tonal Music* (Lerdahl and Jackendoff 1983, hereafter *GTTM*). This theory explicitly views music (and thus meter) as a "mentally constructed entity" that comes from actively processing an aural signal – that is, the listener's sorting of what she hears (Lerdahl and Jackendoff 1983, 2). I find that this perspective of meter is more relevant and interesting for musicians than equating it to notated time signatures. As I will show, it also provides an early seam in an undergraduate curriculum, even

before mounting the relative complexities of pitch-related fundamentals, for getting students to think analytically and phenomenologically about music.

Introduction to the Metrical Grid

Inspired by *GTTM*'s own extensive citation of the opening of Mozart's Symphony No. 40, I begin by playing a recording of this music and instruct students to "tap a steady beat" with a finger or a pencil on a desk. (A link to this recording and to those of other pieces mentioned throughout is available in the Supplemental Materials.) This simple task leads to several crucial outcomes:

- First, I point out that most students are tapping along with the music at the same rate. Most pick what later turns out to be the notated half note, about 96 beats per minute in many performances. Following *GTTM*, I define this rate – "the rate at which most people tap" – as the *tactus*. This rate also corresponds to a comfortable speed at which to conduct the music (I encourage students to test this as we discuss it), and usually lies between 60 and 120 beats a minute.¹ Some students are interested to learn that the term *tactus* applied to tempo has its roots in certain Renaissance musical practices wherein tempo was determined by performers' heartbeats, even if today the correlation between typical resting heart rates and listeners' preferences for the *tactus*'s tempo is merely coincidental (Houle 1987, 3–4; Lerdahl and Jackendoff 1983, 73).
- Though the *tactus* seems to represent the rate at which most people tend easily to tap along, it's not the only way to "tap a steady beat." Oftentimes, a handful of students will respond to my initial instruction by tapping a finger at twice the speed of the *tactus*, or at half its speed. (If not, I encourage students to try this.) In so doing, they demonstrate that there are actually multiple "tempos" co-existing in this music. Again following *GTTM*, I call these "tempos" *pulse streams*. As I define it for students, a pulse stream is any series of steady (*periodic*) beats that corresponds naturally to events in the music.² The *tactus* is simply the pulse stream that most listeners gravitate toward first.
- Finally, once several pulse streams are identified, it becomes clear that they share specific relationships with one another. In this case, each successively slower pulse stream is exactly twice as slow as the faster one. Illustrating this fact with series of dots representing each stream is helpful. To do so, I'll tap out the *tactus* as a series of dots across the chalkboard from left to right in time with the recording, then repeat for the immediately faster pulse stream just below and for the immediately slower pulse stream just above, as shown in Figure 7.1.³



Figure 7.1 Synopsis of the opening of Mozart's Symphony No. 40 and metrical grid.

After constructing this metrical grid, I ask students whether they think we'd find the same kinds of relationships among pulse streams in other music. Do "higher" pulse streams (referring to my placement of the slower moving streams toward the top of the grid) always go twice as slow as "lower" ones?

Most students know that the answer to this question is "no"; to demonstrate, I play a recording of Journey's "Lovin', Touchin', Squeezin'" and work with the class to build a similar metrical grid. Most students tend toward a tactus at about 71 beats per minute, and can easily find at least one other pulse stream above and below the tactus, as shown in Figure 7.2.

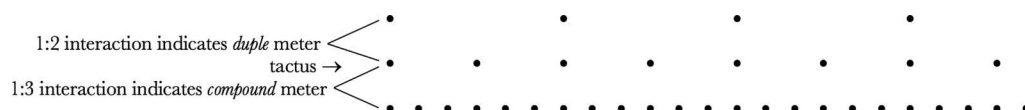


Figure 7.2 Metrical grid for Journey's "Lovin', Touchin', Squeezin'."

The crucial difference between this grid and that of the Mozart symphony movement is the relationship between the tactus and the immediately faster stream: in the Mozart, every *other* pulse of this lower stream is also a pulse of the tactus; in the Journey tune, every *third* pulse of the lower stream is also a pulse of the tactus. These observations allow me to define for students *simple* and *compound* meter: when the relationship between the pulses of the tactus and those of the pulse stream just below is 1:2 (as in the Mozart), the music exhibits simple meter; when this relationship is 1:3 (as in the Journey tune), compound.

Using the metrical grids, it is similarly straightforward to label the meter according to the relations between the tactus and the immediately slower (higher) level. In both the cases explored thus far, that slower stream corresponds to every second pulse of the tactus, resulting in *duple* meter. When the slower stream corresponds to every third tactus pulse, we call it *triple* meter. The Mozart's metrical structure is thus an example of simple duple meter (or duple simple meter – I don't fret about the ordering of the adjectives), and the Journey song demonstrates compound duple meter. In this context, the simple/compound dichotomy describes the tactus's splitting into a faster pulse stream, and the duple/triple dichotomy describes the grouping of tactus pulses to create a slower pulse stream.

I cannot stress enough – to students or in this chapter – the fact that the metrical analysis leading to these labelings is entirely perceptual. We are able to parse and identify the metrical structures of music without any recourse or reference to musical notation, as are non-musicians (and musicians!) who have never learned notation. Of course, any given time signature might be better or worse equipped to represent a particular metrical structure (an issue taken up below). But it is essential that students understand that time signatures aren't themselves "meters." Any metrical structure can be notated in any time signature, and while in practice particular meters are indeed frequently welded to particular signatures, the connection between them is fraught enough that such a distinction is crucial to students' mastery of meter as a perceptual product. Students sometimes make casual reference to note values, or to time signatures, when participating in this discussion – calling the pulses of the tactus "quarter notes," for instance. If that happens, I encourage them instead to refer to pulse streams and the relationships between them, thus emphasizing the distinction between rhythmic notation and meter.

To drive home the variability of connection between notated time signatures and metrical structures, I ask students to suggest time signatures to represent both the Mozart and Journey. Class members invariably suggest $\frac{3}{4}$, $\frac{2}{2}$, and $\frac{4}{4}$ for the symphony movement (I will take up the issue of "quadruple meter" in a moment). By contrast, "Lovin', Touchin', Squeezin'" opens up the issue somewhat. Astute students will suggest $\frac{6}{8}$ as a possible time signature, and I will bring up the

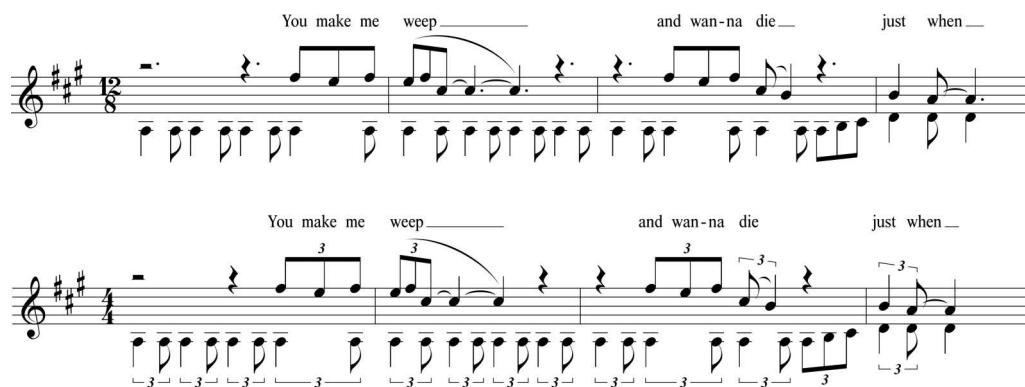


Figure 7.3 Two plausible ways to notate “Lovin’, Touchin’, Squeezin’.”

possibility of $\frac{12}{8}$ if no one recommends it, as shown in the top of Figure 7.3. (This is not a familiar signature to some students, but they understand it quickly as “ $\frac{6}{8}$ with half as many bar lines.”) As we discuss each of these notational possibilities, I draw sample measures of each signature on the board and talk through the arithmetic that each implies: in $\frac{2}{4}$, the quarter note is typically the tactus, and there are two per measure; in $\frac{6}{8}$, the dotted eighth is typically the tactus, which divides neatly into three eighth notes that we might beam together, and so on. The requisite pedagogy of time-signature numerators – “2, 3, and 4 often imply simple meters; 6, 9, 12 compound meters” – and the rhythmic math they imply fits here nicely. Understanding these conventions, and the principles underlying them, is naturally essential to interpreting and representing meter in much notated music.

If I’m fortunate, though, someone will ask whether it’s possible (or “ok”) to notate the Journey tune using $\frac{4}{4}$ (less commonly, $\frac{2}{4}$), representing the tactus with quarter notes and the level below using eighth-note triplets. This might look something like the bottom of Figure 7.3.

This figure demonstrates that the answer to the student’s question is a resounding “yes.” We might argue about whether the borrowed rhythms of this $\frac{4}{4}$ are unnecessarily clumsy (or, from another perspective, easier to sight-read than $\frac{12}{8}$ for some musicians!). But this notation makes clear that compound duple (or “quadruple”) meter can easily be notated in the “typically” simple-meter time signature of $\frac{4}{4}$. Using this rock tune as the starter for this conversation conveniently skirts the question “But how did the composer write it down?” Many published arrangements use $\frac{12}{8}$, but it’s impossible to know with the same certainty of a Mozart symphony how the band members conceived of the meter’s notation, or if they did so at all. This discussion thus underscores the identity of meter as a perceptual phenomenon rather than a notational object.

To further this discussion, I ask students to perform metrical analyses of other music (together in class and then independently) that pushes against the common associations of meter and signature. Such analysis consists of building metrical grids without recourse to notation, then comparison of those grids with the score. Some works I’ve found useful for this exercise include the following (notational synopses are provided in Figure 7.4, and links to recordings are included in the Supplemental Materials):

- Haydn, Trumpet Concerto in E $\flat$, II. This movement is notated in $\frac{6}{8}$, but in performance the tempo is slow enough (near an actual eighth note = 80) that the notated eighth note is the tactus. The resulting impression is one of simple triple meter rather than compound duple.
- Schubert, Impromptu Op. 90, No. 2. The metrical analysis of this music might vary from person to person (and performance to performance) depending upon which pulse stream is selected as the tactus – whether the notated measure, in which case the result is a simple

Haydn, theme from Concerto for Trumpet in E^b, II



Schubert, Impromptu Op. 90, No. 2, opening



Beethoven, excerpts from Symphony No. 9, II



Beethoven, Piano Sonata in C# Minor, Op. 27, No. 2 (“Moonlight”), opening



Figure 7.4 Synopses for four works that contradict default associations of meter and time signature.

triple meter with another pulse stream *two* levels below the tactus being hammered out by the eighth-note triplets; or the quarter note, which results in a compound triple metrical perception. Note that neither case manifests the simple triple with a quarter-note tactus that the notated $\frac{3}{4}$ is “supposed” to imply.

- Beethoven, Symphony No. 9, II. This is a fun movement for metrical exploration. The *molto vivace* tempo turns the notated *measure* into a single tactus pulse, meaning that the notated $\frac{3}{4}$ does not function as simple triple meter. Instead, this pulse stream interacts with phrase lengths to create compound duple meter at the movement’s opening. Later, Beethoven deploys the ubiquitous dropping-octave motive every *third* measure, transforming the compound duple into compound triple without changing the time signature! A full discussion of this movement might include attention to the composer’s instructions to the conductor (*Ritmo in quattro battute*, *Ritmo in tre battute*) and consideration of what effect is created by asking performers to read quarter notes that go by so quickly.
- Beethoven, Piano Sonata in C# Minor (“Moonlight”), Op. 27, No. 2, I (opening). This famous passage is certainly perceived in duple (or quadruple) compound meter. The *alla breve* time signature is thus confounding in two ways: it implies, to our modern sensibilities, that the notated half note serves as the tactus (suggesting a tempo in the low 20s for many performances!), and it purports a simple meter (here obliterated by the eighth-note-triplet accompaniment).⁴

In summary, these kinds of meter/notation dissonances usually take one of two forms: either borrowed rhythms are used consistently enough in a “simple time signature” to generate the impression of compound meter (sustained use of borrowed rhythms to transform a “compound time signature” into perceived simple meter seems much rarer), or the music’s tempo moves the tactus to a note value not typically associated with the tactus in that time signature.

Multiple Levels above the Tactus: Quadruple Meter and Hypermeter

During our class discussions about the excerpts mentioned earlier, a student almost inevitably asks, “What about quadruple meter? Why only duple and triple?” No doubt this question often stems from exposure to taxonomies of meter found in countless textbooks, instrumental method books, and primary and secondary music curricula. Our favorite time signature in Western music (known as “common time!”) most typically contains four quarter-note tactus pulses in every measure. Why *not* include quadruple in our labeling system?

Put simply, there’s no reason to exclude it, but we have to recognize that its structure requires a complexity not necessary to duple or triple meter. When asked, students usually have little trouble turning a duple-meter grid into one implied by $\frac{4}{4}$ at a moderate tempo – see Figure 7.5.

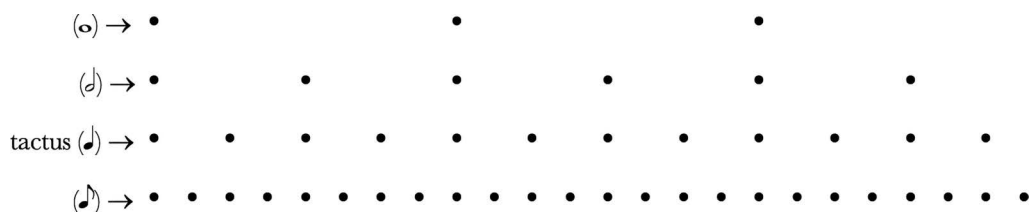


Figure 7.5 Simple duple meter extended to account for “common time.”

GTTM's metrical well-formedness rules allow for the pulses of a given stream to be broken into either two or three pulses at the next-faster level, but not fours. This rule reflects the intuition that musicians familiar with common time already share: beat 3 is stronger than beat 2 or 4, but beat 1 is stronger still. The fourth pulse stream added to the top of Figure 7.5 corresponds to these downbeats. The level above the tactus (the half note in moderate $\frac{4}{4}$) continues to represent the metrical strength at the onset of each half measure. Put another way, quadruple meter *is* duple meter with another, slower-moving pulse stream that assembles pairs of tactus beats *into* pairs.

This revelation should also be compared against notational practice. Playing the Journey excerpt again shows that it supports the perception of two duple pulse streams above the tactus – compound “quadruple” meter. Certainly this doesn't mean that it would be “wrong” to notate this music in $\frac{8}{4}$; to do so only underscores this distinction between meter and time signature. The Mozart excerpt, on the other hand, has a more subtle metrical issue. I encourage students to conduct a quadruple pattern along with the music's tactus to show that it also seems to support a quadruple meter – at first. But around the repeated cadences on D major in mm. 16–20 (which I simply indicate verbally in a second or third listening; see Figure 7.1), something goes “wrong.” This phrase isn't the right length for our regular downbeats to come at the right time when the main theme starts up again (at the pickup to m. 21).

After this experiment, it's no surprise when I show students that Mozart has notated this music in a duple meter. But certainly that doesn't mean that the slower-moving stream that we were conducting, two levels above the tactus, doesn't exist. We experienced it together, and then we experienced its disruption! Answering this seemingly simple question about quadruple meter has allowed for a little exploration of the interaction of phrase rhythm and hypermeter. Though I don't use these terms right away when introducing the basics of meter to undergraduate students, this survey of the upper levels of meter enhances their perspective of meter as an enriching factor in the ebb and flow of much traditional tonal music, and highlights the dependence of these upper levels not upon time signatures and bar lines, but on phrase lengths and other *heard* products of the musical experience.

Special Cases

The following excerpts, to varying degrees, press against the norms provided by metrical structures of typical common-practice music. Discussing them in class (again, without recourse to notation, at least at first) provides opportunities to test students' understandings of those norms, to probe the limits of what constitutes meter in our perception, and – most broadly – to demonstrate the value of analytical introspection about the rhythmic parameter of music. Score excerpts and links to recordings are available in the Supplemental Materials online.

Giuseppe Verdi, *La Traviata*, “Sempre libera” (Violetta's cabaletta) (1853): Tapping along with the tactus of the short orchestral introduction is not difficult, and students will probably come to a quick consensus about the compound duple nature of the meter (reflected in Verdi's $\frac{6}{8}$ time signature). But draw students' attention to the pause just before Violetta enters. Certainly we recognize this moment *as* an interruption of the music's flow. As a result, our mentally constructed metrical grid doesn't blithely march on at the pace established by the preceding music – *it also stops* once the pause is recognized. This moment demonstrates our capacity to deal perceptually with fermatas and rubato (up to a point – see the Beach excerpt below). There seem to be contexts wherein the periodicity of the meter's pulse streams is bent, and as listeners we are able to follow that bending, rather than giving up on the perception of meter altogether. This is how *rallentandos* and *accelerandos* can be perceived as such, and how fermatas like this one come off as a *suspension* of the grid's progress through time rather than an abandonment of meter.

Amy Beach, Piano Quintet in F# Minor, Op. 67, I (1907): This movement's introduction, marked "Adagio," pushes the experience of meter to the breaking point, despite its notation in $\frac{3}{4}$. The slow tempo, the rubato of any tasteful performance of the piano's arpeggios, and the long spans of time separating any other attack points in the first seven measures make locating a tactus well-nigh impossible. The strings' melody that begins just before m. 8 finally makes a quarter-note tactus plausible, and an implied eighth-note pulse stream might even be identified from the dotted-quarter/eighth motive as it slithers downward. But selecting a duple or triple grouping of tactus beats is elusive, and any such decision is likely contradicted by the descending scales traded between strings and piano in mm. 13–17. All this metrical uncertainty reflects the music's tonal uncertainty, both of which are reconciled as the movement's Allegro begins at m. 24. After surveying this musical landscape, students might be asked to draw some conclusions about the aesthetic effect of all this ambiguity – what adjectives would they use to describe it?

Gustav Holst, *The Planets*, I ("Mars, the Bringer of War") (1918): The famous ostinato that permeates this movement challenges both our simple/compound and duple/triple dichotomies. Some students may already know that this music is notated in $\frac{5}{4}$, but ask them to consider it from the listener's perspective by constructing a metrical grid. If the tactus is the quarter note, then the ostinato consistently contradicts the level below no matter whether it is conceived at twice or thrice the tactus's speed. The ostinato similarly prevents the tactus from coalescing into either steady pairs or threes to create a periodic pulse stream above. However cliché these disruptions of typical metrical expectations have become in the last century (high school marching bands perform arrangements of "Mars" with frequency!), the programmatic impact they impart here should not be overlooked. Regular meter, which was such a fundamental component of the musical tradition of which Holst was part, is here distorted at multiple levels, reflecting the depiction of grotesque, martial violence.⁵

Leonard Bernstein, *West Side Story*, "America" (1957): This infectious song pushes against the expectations of periodic pulse streams at the level of the tactus itself. Is this music in duple compound meter with heavy syncopation exactly half of the time? Or is it possible for a tactus to oscillate between two different speeds, creating an alternation of duple compound and simple triple meter? (Ask students to conduct this music in both ways, and remind them once again that however the composer may have notated the time signatures, meter is a product of perception.) Certainly it's significant that both the pulse streams above and below the irregular tactus are perfectly steady – in a way, this song inverts the irregularities observed in Holst's "Mars," wherein those neighboring levels were distorted but the tactus was periodic. For what it may be worth, *GTTM* insists that, for the meter to be well-formed, "the tactus and immediately larger levels must consist of beats equally spaced throughout the piece" (Lerdahl and Jackendoff 1983, 72), but also notes that this rule is "idiom-specific" (Lerdahl and Jackendoff 1983, 347) for traditional tonal music. To what extent, students might be asked, does "America" represent a different "idiom?"

Karlheinz Stockhausen, *Klavierstück IX* (1955, rev. 1961): The opening of this piece, which consists of 142 repetitions of a single (0167) tetrachord at a tempo of 160 beats per minute, constitutes a nice test of students' comprehension of meter as a hierarchy of interrelated pulse streams. The unique issue here is that the music erects only one such pulse stream – there is no musical evidence to support either grouping or splitting the beats of this stream into either twos or threes. In my experience, some students naturally group these pulses into twos and find themselves tapping a tactus at half the speed of the music's attack points, implying a simple meter. This is cause for a discussion: why might we naturally do this? (Some students insist that they can hear phenomenal accents on every other re-striking of the chord; I have to assure them that looking at the recording in an audio sequencer shows that this is not the case.) Does tapping along with every *third* attack point feel any less natural than tapping along with every *other* attack point? The largest question, of course, is whether this is truly *metrical* music or not. *Can* music that puts forth only one pulse stream be metrical?

Conclusion

In his indictment of current typical pedagogical practice, Richard Cohn argues that

we teach almost nothing about meter. What little we do teach is customized to the compositional practices of 250 years ago, in a pre-hypermetric era of tempo giusto, when it could be reasonably said that “the meter” of a composition was co-extensive with its meter signature. More than two centuries of changes in musical style and compositional technique, a sustained encounter with musics of the Eastern and Southern hemispheres, and forty years of intensive research in the field of musical meter by music theorists and music psychologists have made little impact on the way that musical meter is taught in institutions of higher education, to the extent that it is taught at all.

(Cohn 2015, 10)

There are, perhaps, several reasons for this state of affairs: the inertia of prevailing teaching practices and of institutional expectations, the growing pressures on an already-compact space for music theory in the undergraduate music curriculum, a dearth of creative energy about this subject among the leaders and teachers of music theory pedagogy, and/or the sense that musical time is in some ways ineffable and thus beyond (or even “beneath”) academic study (Cohn 2015, 12–14). Whatever the causes, our students miss out on a chance to engage crucial aspects of musical time when our teaching about this dimension boils down to a few days on time signatures.

The ideas I’ve promulgated earlier do not rise to the level of curricular revolution imagined by Cohn. It may well be that rhythm and meter need to be better integrated and more deeply considered throughout the undergraduate theory program. In contrast, the approach to introducing meter described here can slip easily into the short window typically given to rhythm and meter at the front end of a music fundamentals or first-semester music theory course. But perhaps this is an important start: it can get students thinking analytically and phenomenologically about music right away, without needing to worry about (or even being familiar with) the intricacies of pitch notation. Approaching meter as a listener’s response to musical sounds, rather than as a notational device, allows students an immediate introduction to theory as a method, and our classrooms as the laboratories, for investigating the ways we hear music.

In addition, pressing into the kinds of metrical adventures described under the “Special Cases” heading can set the stage for the ways that music theory “rules” operate throughout the entire curriculum. The “rules” of pulse-stream interaction that give rise to simple and compound meter, much like the “rules” governing common-practice voice-leading or harmonic function, are not rules at all. They’re all sets of norms and expectations to be mastered, but that are also violated to create novel aesthetic effects. Acclimating students to this give-and-take between norm and exception early in the theory sequence sharpens their understanding and appreciation of what this part of their music studies contributes to their musicianship – and, perhaps, their enthusiasm for it.

Even in the context of the current standard curricular model, teaching students to think analytically about music as a perceptual phenomenon experienced in time, rather than as a fixed object pinned down onto a page with points of ink, can breathe a bit of welcome revolution into our teaching.

Notes

- 1 According to Lerdahl and Jackendoff, “[T]he tactus is invariably between 40 and 160 beats per minute, and often close to the traditional Renaissance tactus of 70.” Lerdahl and Jackendoff 1983, 73. See also Houle 1987, 3–5.
- 2 Of course, the *ways* in which musical events generate pulse streams are a central focus of the first part of *GTTM*. While perhaps beyond the scope of an undergraduate introduction to meter, eager students

might be challenged to identify typical ways in which moments in time are marked by music to generate pulse streams (e.g., attack points of [long] notes, phenomenal accents, changes in harmony). *GTMM's* Metrical Preference Rules are a distillation of this issue.

- 3 To reinforce the independence of metrical perception from musical notation, I have chosen here not to present metrical grids in alignment with the scores they reflect. More-detailed study of meter naturally benefits from drawing the dots directly under the notated pulses they represent, but in this *introduction* to meter as a perceptual construct, I find it helpful (even crucial) to suppress the score from class discussion until we've analyzed that perceptual product using *GTMM's* grids.
- 4 The metrical, tempo, and affective affiliations of *alla breve* are especially fraught. Grant (2014) outlines the history of these affiliations through the eighteenth century in light of the *tempo giusto* tradition in which time signatures and the music's character are meant to imply particular tempos. This tradition contrasts with modern practice in which time signature and tempo are conceived independently, so that any signature may be combined with any tempo. The pedagogy advocated in this essay emphasizes that independence, but awareness of the *tempo giusto* practice is also essential to understanding how tempos are selected for music in (and, in the case of the "Moonlight," surrounding) that tradition.
- 5 Howard Shore uses similar techniques to create similar associations in his scores for the Peter Jackson *Lord of the Rings* films. Depictions of armies of orcs – evil, horrifying creatures – are accompanied with both diegetic and non-diegetic music in quintuple meter, suggesting that this association has become a component of a "grotesque martial" topic.

Bibliography

- Cohn, Richard. 2015. "Why We Don't Teach Meter, and Why We Should." *Journal of Music Theory Pedagogy* 29: 5–23.
- Grant, Roger Matthew. 2014. *Beating Time and Measuring Music in the Early Modern Era*. Oxford: Oxford University Press.
- Houle, George. 1987. *Meter in Music, 1600–1800: Performance, Perception, and Notation*. Bloomington: Indiana University Press.
- Lerdahl, Fred, and Ray Jackendoff. 1983. *A Generative Theory of Tonal Music*. Cambridge, MA: The MIT Press.

8

STARTING FROM SCRATCH

Representing Meter Using Simple Programming Tools

Daniel B. Stevens

Topic: Introduction to beat and meter types

Goal: Students will produce the metrical effects of duple, triple, and quadruple meters with simple and compound beat divisions using changes in pitch, duration, and emphasis. Having completed a set of creative challenges using simple programming tools, students discuss how other compositions create their unique metrical effects.

Background: Students should possess a basic understanding of musical meter, including the concept that meter involves repeating patterns of strong and weak pulses.

Musical meter, defined here as a repeating pattern of strong and weak pulses, is underemphasized in music theory pedagogy.¹ Although most music studied in theory classes is metered, most textbooks devote only one or two rudimentary chapters to the subject. Richard Cohn rightly laments, “We teach almost nothing about meter” (Cohn 2015, 10). One problem may be that musical meter is a phenomenon at once *too familiar* and *too abstract* for beginning students to grasp. Most high-school and college-age musicians possess a practical competency with rhythmic and metric notation; their daily interactions with metric symbols seem to require hardly a second thought. And yet, how frequently do students struggle to accurately define the symbols used to convey metric and rhythmic structure? Such students seem caught between unfamiliar abstractions, all-too-familiar time signatures, and an experiential knowledge of musical time that does not fit with either.

In this lesson plan, students create metrical effects using an instrument that is unfamiliar to most: a simple programming platform. Using such a platform helps defamiliarize the topic of musical meter by challenging students to create metric structures in an environment void of common metric and durational symbols. In order to successfully complete the challenges in Stage I of this lesson, students must deconstruct their understandings of what meter is and how listeners perceive it. Problems they encounter along the way help students to remedy misconceptions and develop an understanding of the techniques commonly used by composers to create metrical effects. As a result of the hands-on nature of this activity, students develop their conceptual understanding of meter based on examples that they compose. Because the initial stage of the lesson involves creative response and problem-solving, students of all ability levels are able to explore solutions that challenge their intellectual limits. Once the students complete the challenges in Stage I, they are ready to explore in Stage II how other composers use the elements of pitch, duration, and emphasis to create congruent or conflicting metrical layers. Only after completing these two stages are students asked to abstract from their creative and analytical work the symbolic lexicon used

by many Western composers to represent and notate musical rhythm and meter. The approach outlined in the following three sections turns traditional pedagogies of musical meter on their head by starting with creative exercises, progressing through critical analysis, and concluding with traditional nomenclature.

Stage I: Creating Metrical Effects in Scratch

Before introducing Stage I of this lesson, I provide students the basic language used by musicians to describe beat and meter types. Students listen to musical examples in duple, triple, and quadruple meters with simple and compound beat divisions while conducting and tapping beat divisions on their chest or knees.² At this stage, I add that meter usually involves repeating patterns of strong and weak pulses, and that these pulses can occur at different levels above (hypermeter) and below (beat divisions) the primary pulse level.

Next, students are introduced to Scratch (<https://scratch.mit.edu/>), an introductory, block-based programming platform developed at MIT and used widely in primary educational contexts.³ All the Scratch projects referenced in this chapter can easily be copied (“remixed”) and modified by instructors for use in their own classes.

To introduce Scratch, I provide teams of two to three students with a warm-up challenge: fix an incorrect rendition of *Twinkle, Twinkle, Little Star* by adjusting the code with respect to pitch, duration, and emphasis (i.e. intensity or loudness). Most students feel comfortable modifying code within five minutes of playing with Scratch and can quickly get to work. The first team to produce a corrected rendition gets to explain their solution to class while others finish modifying the code. The instructions for this introductory activity and a link to the example Scratch project I use are provided in the “Introductory Challenge” and “Teacher Materials,” included in the on-line Supplemental Materials for this chapter.⁴ Through this exercise, students learn the basics of Scratch, including which commands are used to create sounds and how to modify pitch, duration, and emphasis.

Then the real fun begins. The student teams are challenged to create metrical effects (any of the six permutations of beat and meter types) using *only* changes in pitch, duration, or emphasis. (The “Challenge sheet” is also found in the Supplemental Materials. See the “Teacher Materials” for additional commentary and sample solutions.) Importantly, a challenge is considered complete only when the team’s musical example *unambiguously* represents only one beat and meter type. I typically allow students most of a single class (30–35 min) to solve as many challenges as possible; incomplete challenges are assigned for homework. While teams may choose to divide the work, each student is responsible for the work of the team as a whole and should review peer contributions before submission.⁵

As students tackle each challenge, they often discover that some metrical effects require different numbers of distinct musical objects. For example, consider the challenge to create metrical effects using only changes in pitch. While the effect of a simple triple meter can be created using only two notes (e.g. D–A–A–D–A–A), compound duple requires at least three (e.g. D–A–A–F–A–A).⁶ Of course, instructors should not share these facts; their role is to challenge students to create unambiguous representations of beat and meter types. Compound quadruple meter presents the greatest challenge of all. Students often produce examples that could be interpreted as compound duple or simple quadruple before discovering how to create a true compound quadruple metrical effect. At this point, some students may conclude that representing compound quadruple meter using only changes in pitch requires at least four different pitches: one each for the strong first beat, weak second and fourth beats, and semi-strong third beat, along with a fourth pitch for the beat divisions.

Having successfully represented various metric effects, students are encouraged to explore how variations in pitch and register can make the desired effect more or less pronounced. Finally, I challenge the most advanced students to find ways to unambiguously create the desired effect using *fewer* different pitches, where possible (e.g. it is possible to create a compound quadruple effect using only three pitches, not four). In addition, students who are inclined to use the fewest numbers of pitches should also be challenged to create more interesting musical figures using a variety of pitch patterns. As students develop their code, they can explore the extent to which metrical effects are stabilized through repetition. Furthermore, they should be challenged to create metric repetitions in the most efficient way possible by using a particular control block (the “forever” block).

The next two sets of challenges are similar to the first: students must create metrical effects using only changes in duration or emphasis. As with the pitch-based challenges, many students will employ at least four distinct levels of emphasis to represent simple and compound quadruple meters, and at least two or three levels of emphasis for other beat and meter types. Because differences of emphasis are less salient in Scratch than those of pitch and duration, students may find it challenging to produce metric effects within Scratch using only this parameter. This struggle can lead to interesting discussions about the important role of performers in conveying metric structure through stress accents.

Students usually have the easiest time creating metric effects using changes in duration. When working on these challenges, it is important to remind students that the rhythms they create should unambiguously create the desired metric effect and should explore a variety of durations. In my experience, students often require nudging to explore durational proportions other than 1:2 or 1:3. Rather than introduce even more requirements in the project guidelines, I prefer to challenge students verbally to be as creative with their rhythms as possible when creating the requested metrical effects. Fostering a game-like atmosphere helps students become more receptive to other inventive solutions created by their peers.

While this challenge may be the most straightforward to complete, thinking about durations in terms of their relative lengths can help students tremendously when they begin learning durational symbols in the context of meter types. Further, the challenge students experience when attempting to express triple durational proportions helps them later as they consider the meaning of conventional durational symbols.

Stage II: From Creating to Analyzing Metric Effects

In Stage II, students shift their focus from creation to analysis. I continue to minimize the use of conventional notation symbols by engaging students in aural analysis of recorded or performed examples. Students are guided by four overarching questions that are projected on the screen throughout this stage:

1. How does the composer use pitch, duration, and/or emphasis to create a metrical effect?
2. What pulse level do you interpret as primary?
3. What metrical effect (beat and meter type) is created at the primary pulse level?
4. At what point in the musical experience is the metric organization clear?

The examples below provide some possible starting points for discussion. I begin with examples that use only one element to create the effect. Finding suitable examples sometimes requires isolating one part in the texture (see Figure 8.1). Later, we consider examples from across the repertoire as suggested by the students.



Figure 8.1 J.S. Bach, Sinfonia in B Minor, mm. 1–6.

I start our discussion by playing (at the piano) only the right hand of the first two measures (ending on beat 1 of measure 3) of Figure 8.1, being careful to play each note with equal emphasis, and without showing the score. Students are generally quick to point out that the metrical effect is being created only by changes in pitch. To address question 2, I ask the students to clap the primary pulse stream, and to switch to conducting the beat once they have determined the meter type. Depending on the tempo, the proportion of students who choose to clap the dotted-eighth and sixteenth-note levels may vary. I like to start at a slower tempo, and gradually increase the tempo over several playings to find the tipping point at which a majority of students shift their interpretation to the dotted-eighth note pulse stream. Three important insights can emerge at this point in the discussion. First, students discover together that there exists a range of tempos within which they are comfortable clapping a primary pulse level. Second, students find that while they may prefer clapping a fast sixteenth-note pulse stream, the tempo seems uncomfortably fast when they are asked to conduct a triple meter. Last, I encourage students to be flexible when interpreting metrical levels. In this case, they could experiment thinking of the surface-level durations (the sixteenth notes) as beat divisions rather than primary beats. Throughout this process, I encourage the students not to look for the “right” answer but rather to consider what evidence supports either interpretation.

Once students have reached a conclusion about the primary pulse level, they are asked to articulate the beat and meter type. By this point, many students are already conducting a particular meter. Those who conduct a fast triple meter are not yet able to determine beat divisions, whereas those who conduct the slower triple meter should be able to identify the compound beat divisions.

Finally, I ask students to consider *when* in their listening experience they arrived at their metric interpretation. Students who favor a simple triple reading often claim to have arrived at their reading much earlier than those who favor a compound triple reading. As the discussion progresses, the instructor should guide students to understand the recursive quality of metric interpretation. For instance, for those students who identify the primary beat level as the dotted-eighth note, a different interpretive stance is available at each successive beat. At beat 1, the meter is not yet clear (a normative condition at this point in most pieces). At beat 2, the meter is still not clear, but the initial impression of a compound beat type gains support. The return to B4 at beat 3 suggests that this beat is of equal weight to beat 1, pointing to a compound duple interpretation. And yet, the subsequent attainment of C#5 on the following beat (the downbeat of m. 2 on the score), and the three-beat contour pattern that is then established, ultimately creates the effect of a compound triple meter. Next, I play the complete first two measures (both hands), and the students are quick to appreciate the metric clarity that results from the changes in pitch and duration in the left-hand

part. Finally, I play mm. 1–6, allowing the students to hear the three-bar hypermeter at work in this example. Students enjoy finding all the patterns of three at work in this short excerpt, including the measure grouping, beat groupings, beat division, and various instances of intervallic thirds, whether in the arpeggiations, left-hand motive, or right- and left-hand melodic structures.

Excerpts that create metrical effects only through changes in duration or emphasis are less common. In performances of real music, duration and emphasis often work together, as performers create agogic accents on longer notes and downbeats. One fun example is the first two measures of the trumpet fanfare that signals the conclusion of the Overture to Rossini's *William Tell*. The notation, provided in the supplemental "Musical Examples" file online, shows only changes in duration, but performances invariably feature agogic accents on the downbeats.

Once students are proficient at identifying the use of one or two elements to create a metrical effect, they can study more complex examples and discuss the interaction of pitch, duration, and emphasis to create metrical effects, including examples where the music avoids metric effects entirely. For example, the famous $\frac{11}{4}$ measure that precedes the "The Naming and Honoring of the Chosen One" in Stravinsky's *Rite of Spring* features *no* changes in pitch, duration, or emphasis, a fact that intensifies its aggressive and jarring quality (this and all further examples are included in the "Musical Examples" file in the Supplemental Materials). This music leaves no room for listeners to engage through metric entrainment; its pounding regularity and lack of metric pattern set up the irregular metric changes that follow. Further examples could be used to explore compositional devices such as tuplets, hemiola, and syncopation. Once students have mastered the challenge of creating unambiguous representations of different beat and meter types, they can better appreciate the ways in which rhythm and meter can be placed in conflict.

Because this process of learning meter is based on recognizing the interplay of compositional elements to produce patterns of stress rather than on definitions and symbolic nomenclature, students are well prepared to advance into studying hypermeter. Recognizing patterns of strong and weak *measures* (hypermeter) involves a process similar to recognizing meter, one in which students interpret a number of variables (e.g. rhythm, melodic contour, motive, harmony) to infer the relative strength of consecutive measures. When students encounter pieces with unusual measure groupings, such as those found at the openings of the first movements of Mozart's Symphony No. 35 in D Major (*Haffner*), K. 385, or Beethoven's Symphony No. 8 in F Major, Op. 93 (see Supplemental Materials), they can abstract and apply principles from their study of meter to evaluate and interpret the hypermetric ambiguity (Mozart) and conflict/elision (Beethoven) found in these works. In the case of Mozart's *Haffner* symphony, the radical contrast in register in mm. 1–2 might suggest that these measures have different hypermetrical weights, and yet the descending scale and compressed leaps that follow invite recursive reinterpretation as the music progresses.

Conclusion

Having explored metrical effects through experiential play and analytical engagement with sounds, students are ready to learn about the ways in which notational symbols are used to represent rhythm and meter. Instructors may challenge students to think about the notational problems for which our Western system provides solutions and to map conventional symbols onto elements of their Scratch programs. For example, students might be asked to reflect on what aspect of their Scratch project relates to the bar line, the numbers of a time signature, or a particular durational symbol. Later, students could be asked to transcribe one or more of their Scratch projects into conventional notation. Ultimately, the goal is that students learn to build their abstract understanding of meter on numerous concrete experiences that they have created and analyzed.

Starting from Scratch also invokes the pedagogical values of meeting students where they are. The activities in this chapter are accessible and challenging to students of any level and

background. Further, the creative exercises raise questions that lead to meaningful discussions about real pieces of music. By defamiliarizing a topic of which students possess incomplete or inadequate understanding, the Scratch challenges described in this chapter enable students to deconstruct their prior knowledge of meter and see these concepts through new eyes.

Notes

- 1 Several of the terms used in this chapter (metric levels, pulse stream, metric structure) have been defined and developed by John Buccheri (n.d.) in his website, which I recommend to anyone looking for a thorough summary of rhythm and meter. I thank Richard Cohn for introducing me to this excellent pedagogical resource.
- 2 See articles by Melissa Hoag and Stan Kleppinger in this volume.
- 3 For more engaging project ideas, see Greher and Heines 2014.
- 4 The student handouts and Scratch files are titled differently than this chapter in order to minimize the number of returns made by this chapter on Internet searches.
- 5 For more strategies for facilitating team learning, see Michaelsen et al. 2004.
- 6 I generally allow students to assume a simple beat division and will accept solutions such as the one provided above. Achieving truly unambiguous representations of simple meters requires that beat divisions be included (e.g. D–F–A–F–A–F– D–F–A–F–A–F).

Bibliography

- Buccheri, John. n.d. "Introduction to Rhythm, Meter, and Form." Accessed January 15, 2018. www.john-buccheriteachingmusictheory.com/rmf-toc.
- Cohn, Richard. 2015. "Why We Don't Teach Meter, and Why We Should." *Journal of Music Theory Pedagogy* 29: 5–22.
- Greher, Gena R., and Jesse M. Heines. 2014. *Computational Thinking in Sound: Teaching the Art and Science of Music & Technology*. New York: Oxford University Press.
- Michaelsen, Larry K., Arletta Bauman Knight, and L. Dee Fink. 2004. *Team-Based Learning: A Transformative Use of Small Groups in College Teaching*. Sterling: Stylus Publishing.

9

“COMPUTER PROGRAMMED WITH JUST ONE FINGER”

Transcribing Rap Beats with the Roland TR-808

Michael Berry

Topic: Using the Roland TR-808 as a tool for transcribing beat-based music in the aural skills classroom.

Goal: This lesson involves converting sound – predominantly rhythm – into notation, and also engages fundamental aural skills not typically addressed in ear-training classes, such as tempo matching and adjusting balance, through the medium of the TR-808.

Background: This lesson plan is suitable for music majors or for students with little or no musical training; no knowledge of music notation is assumed or required, though some prior experience identifying the beat and counting measures is suggested. Throughout the lesson plan, I indicate some ways to adjust the skill level of these activities to better challenge those with trained ears. Typically, I give the students a playlist of the songs to listen to before class: a playlist with Spotify and YouTube links to the songs appears as part of the Supplemental Materials.

In the aural skills classroom, dictation exercises have traditionally been presented by the instructor from the piano. Occasionally students might be asked to play sample melodies on their instruments for their classmates. Even though digital audio and streaming technology have become commonplace, and popular music has made great inroads into academic study, aural skills pedagogy remains rooted in the nineteenth-century conservatory paradigm. This lesson plan represents a step toward rethinking some of these outdated paradigms: it begins with the question “what would an aural skills curriculum that grew organically from rap music look like?” While these exercises do address some topics that are often taught in aural skills classes, it also calls attention to skills that are important to all musicians – not just rap or pop artists – but that tend to be sidestepped in our focus on rhythm, meter, harmony, and melody, namely adjusting balance, tempo matching, and timbre matching.

While the applications of this lesson plan for music majors might appear fairly obvious, this work was largely developed in a rap music class that was designed with non-musicians in mind. This impetus for this lesson plan came from the “instrument petting zoo” concept that is a hallmark of much classical music education: I wanted students to have hands-on opportunities to experience how this music is produced. In this context, the activity serves several functions: first, it encourages those students that are primarily lyric listeners to focus on aspects of the musical texture that they may have previously ignored. Second, it highlights the range of instruments and sounds that comprise hip hop. A discussion of production technologies can easily be historicized (from turntables to drum machines, samplers, and software programs) to talk about how the sound

of rap music has evolved. Finally, students recognize the amount of *work* that goes into creating a beat, even if it is only a measure long, and the kinds of skills required to manipulate and transcend the limitations of the drum machine.

A sequencer is an electronic instrument used to arrange different sounds – sampled and synthesized – into a particular order, and then to repeat that pattern. A drum machine is a specific kind of sequencer that allows artists to choose from a palette of synthesized or sampled drum sounds. Typically, these sequences are about a bar (four beats) long, much like the breakbeats they attempt to replicate. The Oberheim DMX (which sold for about \$3,000) and the much more affordable Roland TR-808 (which sold for about \$1,200) were the most popular drum machines in hip hop during the 1980s.

Roland now sells a replica – the TR-8 – for about \$400, which also emulates some of their other drum machines, like the TR-909. However, if you don’t have access to a TR-8 or an actual TR-808 there are several free online emulators; I like the one at <https://html5drummachine.com/virtual-drum-machine/>. This lesson plan could easily be adapted for use with other drum machines as well, as many have a functionality that is similar to the TR-808. The important thing is finding songs that were composed using that particular drum machine; a few suggestions appear at the end of this chapter.

The TR-808 has a series of 16 numbered buttons along the bottom, and they are grouped by color in sets of four: 1–4 are red; 5–8 are orange; 9–12 are yellow; and 13–16 are white.¹ Each color corresponds to a beat (we can assume a quarter note), and each button represents a subdivision of that beat (a sixteenth note). Figure 9.1 represents this visually as a table. The table represents one bar of 4/4, and a few instruments are listed in the first column in “score order”: bottom to top on the chart corresponds to left to right on the drum machine. I will represent buttons on the emulator using all capital letters. In some cases, the correspondence is clear (i.e. KICK = kick drum); in others, it’s less obvious (i.e. PERC1 = cowbell).

According to the diagram, the kick drum sounds on beats 1, 3, and the “&” of 3; the snare sounds on beats 2 and 4; and the closed hi-hat articulates a simple meter, dividing each beat evenly in half. The TR-808 includes two hi-hat sounds, an open and a closed sound: the instrument buttons that correspond to each are labeled CLOSED and OPEN on the emulator. We could use this diagram to program a TR-808 by assigning the kick drum to buttons 1, 9, and 11; the snare to buttons 5 and 13, and the hi-hat to all of the odd-numbered buttons. To do this, select the instrument that you want to program by pushing the corresponding button, then push the corresponding number keys (i.e. KICK; “1, 9, 11” then SNARE; “5, 13”). You can then have students perform these patterns by stomping for the bass drum and clapping for the snare (or something similar). In keeping with the spirit of the exercises, rhythmic solmization could be “boom-BAP-boom-boom-BAP.”²

Hi-hat (CLOSED)	X		X		X		X		X		X		X		X	
SNARE drum					X								X			
KICK drum	X								X		X					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Figure 9.1 TR-808 layout with example beat.

In the Supplemental Materials, I have included a handout that allows students to diagram their beats on a table similar to that in Figure 9.1; the first table on that handout corresponds to Figure 9.1.

Each instrument has several parameters that can be adjusted. All of the instruments can be “tuned,” albeit not to a specific pitch, but according to some continuum from low-pitched to high-pitched. On the hardware version, each has a decay setting as well, although the online emulator lacks decay controls. The kick and snare drums also have compression and attack knobs on the TR-8; this varies on the emulators.

Sir Mix-A-Lot’s “Posse on Broadway” (1988) uses the pattern from Figure 9.1 almost exactly, except the hi-hat is assigned to every button. The song is a good point of entry because it uses *only* the TR-808; there are very few additional instruments to “listen through,” and he even mentions “The 808 kick drum” in the first verse. Typically, I start with the previous pattern to demonstrate the correspondence between the notation and the drum machine and then I play Mix-A-Lot’s song so they can hear how what they’ve notated reflects what they hear in the song. There are a few additional instruments in the song that we need to add to the current pattern: a cowbell (PERC1), a cymbal crash (CRASH), and a hand-clap (CLAP). I ask students to listen for them in that order, figure out where they belong, and add them to our diagram. My answer key for this first exercise appears in Figure 9.2.

Tempo matching is another aspect of this exercise, and one that isn’t typically addressed in more traditional aural skills classrooms. Students should be able to match the tempo of the drum machine to the tempo of the song, which is about 88 beats per minute. A more sophisticated exercise would also have students trying to match other parameters of the sounds they hear such as pitch and decay. Pitch matching with the TR-808 is unique in that we are not trying to match, say, an F# with an F#; rather, we’re trying to match the somewhat indefinite pitch of a drum by adjusting the position of a knob (TUNE). In many ways, it’s more of a *timbre*-matching exercise than a pitch-matching exercise.

Ride Cymbal (CRASH)	X															
Hand CLAP															X	
Cowbell (PERC1)					X	X	X	X	X		X		X			
CLOSED Hi-hat	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SNARE drum					X								X			
KICK drum	X								X		X					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Figure 9.2 TR-808 layout with CRASH, CLAP, and PERC1 added.

The pattern's texture doesn't stay constant throughout the song: instruments drop out and come back in. At this point, I show how the faders (volume controls) can be used to manipulate the texture. For instance, the opening of the song uses only the top four instruments of the pattern: there is no snare or kick drum. These instruments can be "removed" by lowering each instrument's volume (VOL) all the way.

This lesson plan also addresses balance, which is another skill often overlooked in aural skills pedagogy. The question of balance in the Mix-A-Lot song tends to center on the hand-clap: either students have a hard time hearing it, or when they do add it to the pattern, it sounds too loud. Adjusting the faders or the volume control knobs allows students to experiment with balance, to adjust not only the intensity of the cowbell – do we need more or less cowbell? – but also the other instruments.

The second song I use in this lesson is "It Takes Two" by D. J. E-Z Rock and Rob Base (1988). The song adds a few layers of complexity to the previous song: it is faster (about 110 beats per minute), the beat is denser, and there are samples ("wow...yeah" and horns and bass) on top of the beat. Generally speaking, we proceed as we did for "Posse on Broadway," notating the kick and snare drums first. Having worked closely with them during the Mix-A-Lot song, guiding them toward the correct answers and modeling effective strategies, from here I begin to put more of the responsibility on them. I may encourage them to listen for certain things ("What other instruments do you hear in this song?"), or ask them about relationships ("How does the hand-clap relate to the snare part?"). In this song, the hand-clap pattern is almost the same as the hi-hat pattern, which uses both open and closed hi-hat. This presents a kind of auditory streaming difficulty, in that one instrument – the hi-hat – is represented by two different rows on the chart. To add to the challenge of the exercise, you could also ask the students to plot the samples on the table as well. My transcription of this pattern appears in the Supplemental Materials as Figure 9.3.

Depending on the level of students in the class, you might encourage them to work in pairs, or in small groups. If they're working individually, they can exchange papers once they've completed their transcriptions and try to correct each other's work. Admittedly, the paper representation can only capture so much information, so some things (like balance, timbre-matching, and tempo-matching) will have to be checked on the emulator itself. This can be done in a large group (as a kind of class discussion) or, if students have their own laptops or tablets, individually via headphones.

For the third example, I use the first part of "Slow Ride" from the Beastie Boys' *Licensed to Ill* (1986), until about 1:38. Although it's slower than "It Takes Two" (about 96 beats per minute), this song is more complicated than the first two because not only does it have samples throughout but it also has two different beat patterns that alternate over the course of the song. The TR-808 has the ability to store an "A" and a "B" pattern, so we focus on transcribing each pattern individually and then programming one into A and one into B. The A pattern is the default; to program the B pattern, push the "Pattern B" button and program accordingly. During playback, pressing the A button plays the A pattern, and pressing the B button will change to the B pattern. Pressing both buttons simultaneously will alternate between the two patterns during playback.

The A and B patterns for this song can be found as Figures 9.4a and 9.4b in the Supplemental Materials. Note that on the TR-8, the clave sound is "hidden" under the rim shot, and the cowbell is hidden under the ride cymbal. To access these sounds, press the "Inst" button under "Drum Select" and choose the second lit option. This song also has the same auditory streaming issues as the one earlier, namely the two toms and the open/closed hi-hat would be represented on single staves (presumably) in traditional notation, and the cowbell/clave pattern seems to represent a single stream as well.

The final song that I use in this lesson is "It's Yours" by T La Rock and Jazzy Jay (1984). This is the most difficult song, and brings together all of the challenges from the previous songs. The

tempo of this song is approximately 100 beats per min, but the level of difficulty here lies in the relatively complex syncopation that takes place over a two-bar pattern (an A pattern and a B pattern). Whereas we could think of “Slow Ride” as two alternating one-bar patterns, “It’s Yours” is more accurately described as a single two-bar pattern. The anacrusis in the kick drum at the end of pattern B leads back into pattern A. The scratching on top of the beat makes it challenging to listen to just the beat. Toward the end of the song, La Rock and others start rapping the patterns using “boom bap” solmization. The two patterns can be found as Figure 9.5a and 9.5b in the Supplemental Materials.

If there’s time left in the class, I like to give students the opportunity to compose their own patterns to program into the drum machine. This is fairly easy; they can simply choose some instruments, add Xs where they’d like, and we can program it in. These beats can then serve as dictation exercises for the rest of the class. I also like to highlight the playability of the TR-808; not only is it a sequencer, but it can be *played* in real time (the TR-8 version in particular), even with a looping beat. It’s possible then to add nuance and variety to the otherwise repetitive sequenced beats. Such a demonstration serves as a good counterargument to the “rappers/DJs/producers don’t play instruments” crowd. Beats can also be recorded in real time using the “Inst Rec” feature. Making beats in real time on a sequencer like this allows students to get feedback instantly on their patterns and to make adjustments on the fly, but is probably impractical in anything but the smallest class setting.

This lesson plan can easily be adapted to work with other styles of music that feature the TR-808; Marvin Gaye’s “Sexual Healing,” Whitney Houston’s “I Wanna Dance With Somebody,” and the S.O.S. Band’s “Just Be Good to Me” are among other classic songs that use the machine. The TR-909 sound is prominent on Schoolly D’s “P.S.K. (What Does it Mean?),” which many consider to be the first gangsta rap song, Technotronic’s “Pump Up the Jam,” and Madonna’s “Vogue.”

Notes

- 1 On the TR-08, they are red (1–4), yellow (5–8), green (9–12), and blue (13–16).
- 2 “Boom-bap” is a style of rap music that was popular in the late 1980s and early 1990s in the production of artists like Marley Marl, Scott La Rock, DJ Premier, and Pete Rock, and enjoyed a resurgence a few years ago in the music of artists like Joey Bada\$\$.

10

REBEAMING RHYTHMS

Helping Students “Feel” the Need for Correct Beaming

Gene S. Trantham

Topic: Rebeaming obscured rhythms into simple and compound meters.

Goal: Students will be able to correctly rebeam rhythms into simple and compound meters.

Background: Duration of notes and rests; tied notes; beat division in simple and compound meters.

When students study duration and meter, they are often requested to rewrite obscured rhythms so that the beat placement is more clearly reflected through correct beaming (see Figure 1). As students attempt to rebeam especially in compound meter, they frequently ask, “Why do we need to beam this way?” or “Aren’t $\frac{3}{8}$ and $\frac{6}{8}$ the same because they both contain six eighth notes in a single measure?” Many times, I have attempted to explain why correct beaming is important, but students do not seem to be convinced. Often, they reluctantly do what is asked just so they will receive a high grade on an assignment, quiz, or exam. I am not very satisfied with this extrinsic motivation. How can they develop the “feel” for the need for correct beaming and perhaps have an intrinsic reason for completing these exercises accurately? The aim of this lesson plan is to illustrate why and how correct beaming is important to musicians.

Letter groupings in language can be used to help students experience the importance of correct grouping for comprehension. As an introductory activity, I write the following items on the board:

1. *we lc om etot he ory*
2. *tod a yism ond ay*
3. *myna meis*
4. *abi gdo gch ase dac art*

Students are asked to read each line aloud as quickly as possible. Most struggle with this activity as they attempt to “correctly” pronounce these obscured language fragments. After several minutes, some realize that the letters are not grouped together properly and that it is very cumbersome to read these “words” accurately. With assistance from the instructor, the letters are grouped differently to reveal:

1. *Welcome to theory*
2. *Today is Monday*
3. *My name is...*
4. *A big dog chased a cat*

Through this introductory activity, students can begin to sense the importance of correct grouping/beamings. When students are asked to express their feelings about reading the obscured words, they often say that the activity was cumbersome, silly, and even frustrating. In fact, some did not want to continue deciphering the “words” when they could not figure out the phrase. They just wanted to move on to something else. A few emphatically declared how much time it took for them to decode the letters – time that they were reluctant to give. Once the correctly grouped words are revealed, several students wondered why the letters were not grouped together correctly in the first place. Why would anyone write such jumbled “words” and expect others to read it quickly and accurately?

Similar to the earlier letter grouping exercise, students can attempt to perform obscured rhythms so that they can “feel” the need for correct beaming (an example is provided in Online Figure 1 in the Supplemental Materials). Much like the introductory activity, I ask students to quickly perform the durations in a specific meter. Usually, the students are not able to perform much of the rhythm easily or accurately. They often laugh at their rhythmic derailment. After a second attempt at reading the rhythm, I ask them how much rehearsal or practice time might be needed just to metrically interpret the durations – let alone how irritating it might be to complete this seemingly time-consuming and labor-intensive activity. If we concur with Benjamin Franklin’s statement that time is money, then it can be expensive to pay musicians to read music that does not reflect the beat unit. My students acknowledge that musicians do not have excess time and money. Therefore, it is in their best interest to write things (including rhythms) that are understandable and appropriate for a particular situation.

Some vocal majors are less familiar with beaming because they typically do not deal with beamed notation. For these students, I explain that the beaming in their vocal line is often syllabic, where each syllable is matched with a single note. Using a vocal score such as “A Thanksgiving Fable” by Amy Beach (link to score available on the Supplemental Materials website), I ask them to compare the beaming in the vocal line to the beaming in the accompaniment. They see that the instrumental rhythms are written in a way that reflects the beat unit in the given meter. In this excerpt, some students also notice that occasionally larger groupings of eighth and sixteenth notes are beamed together (see measures 5 and 14). I explain that this can be frequently seen in instrumental music and especially piano accompaniments. However, for our purposes, our beaming will reflect a single beat unit.

As students begin the process of rebeaming Online Figure 2 we review the single duration that represents the beat unit (all Online Figures are available in the Supplemental Materials website, along with a handout for student use and a key). In Online Figure 2, we discover that the quarter note is the beat unit because the meters provided are $\frac{2}{4}$ and $\frac{3}{4}$. As I slowly move my pencil over the rhythm from beginning to end, I ask students to say “now” each time that we have accumulated durations that equal the beat unit. When the class says “now,” I draw a bracket above the cumulated beat unit values. For instance, the class would say “now” between the second and third eighth note and I would draw a bracket that embraces the first two eighth notes. This activity would continue for the entire rhythm (see Online Figure 3). Once the bracketing is completed, we then add bar lines appropriately (e.g. in $\frac{2}{4}$ between the fourth and fifth eighth note; before the first quarter note; after the second quarter note). At this point, I ask the students to rebeam the entire rhythm in $\frac{2}{4}$ so that the beat unit is clearly shown. After students successfully rewrite the rhythm in $\frac{2}{4}$, they then bracket and rebeam the rhythm in $\frac{3}{4}$. Once both rebeamings are completed, students are asked to self-evaluate their beaming to make sure that the beat unit of a quarter note is clearly reflected. As a prompt, I ask them “How many cumulative eighth notes equal the beat unit?” and “Does your beaming show this?” Correctly rewritten rhythms are then performed by the class so that they will experience the ease of reading a rhythm that is beamed to reflect the beat unit.

Before we begin compound meter examples, I play two musical excerpts, one in simple meter and one in compound meter. Possible excerpts might be “Un certo freddo orrore” from *Argenore* by Wilhelmine of Prussia for simple meter and Barcarolle Op. 123, No. 8 by Cécile Chaminade for compound meter (see links to score and recordings on the Supplemental Materials website). As the examples are played, I ask the students to tap the beat. Once all students are successfully tapping the beat, I ask them to tap the division of the beat while I snap the beat. If the beat divides evenly into two parts, it is simple meter. If the beat divides evenly into three parts, this indicates compound meter. Students are then asked to determine whether the played example is in simple or compound meter based on the beat division. This activity helps the students “feel” the different beat divisions in simple and compound meter. Once students complete the simple meter rebeaming of Online Figure 4, they self-evaluate their answer as mentioned previously. Before they begin notating the rhythm in $\frac{3}{8}$, we review the single duration that represents the beat unit in compound meter. During the listening activity, students determined that the heard musical excerpt was in compound meter because the beat unit was divided evenly into three parts – three “tapped” divisions for each “snapped” beat. I start snapping a slow beat and ask the students to tap a compound division, and explain that the beat unit in compound meter divides evenly into three equal durations. Dotted notes can be divided evenly into three parts; for instance, a dotted quarter note can be divided into three eighth notes. For $\frac{3}{8}$ meter, a dotted quarter note is the beat unit and is divided evenly into three eighth notes. For the compound meter portion of Online Figure 4, we will beam three eighth notes together to indicate that the dotted quarter note is the beat unit. Similar to the process mentioned previously, I slowly begin to move my pencil over the rhythm from beginning to end and ask the students to say “now” each time that we have accumulated durations that equal the beat unit. For each “now” I draw a bracket above the cumulated beat unit values. This activity continues for the entire rhythm. Once bracketing is completed, bar lines are added (e.g. between the sixth and seventh eighth note; after the first dotted-quarter note; before the tied notes). After students self-evaluate their answers and Online Figure 4 is correctly rebeamed, we perform both metered examples. To emphasize the metric feel, students are asked to conduct while performing in simple triple, but are required to sway when performing in $\frac{3}{8}$ meter so that they can more aptly “feel” compound duple.

When creating examples for students to rebeam, I find it best to obscure rhythms in various stages. Introductory rhythms include a single beat division similar to Online Figures 2 and 4. Obscured rhythms that require splitting a note value into a tied note would appear in the second stage (see Online Figure 5). Students frequently find it easier to split and tie quarter notes and dotted quarter notes in simple meters when compared to compound meters. To assist students with compound meters, I often provide and have students generate common syncopated patterns similar to those in Online Figure 6. For instance, I would write three quarter notes on the board and ask students to rebeam this rhythm in $\frac{3}{8}$ meter. Then, students are asked to replace two of the adjacent quarter notes with a single half note (half note – quarter note; quarter note – half note) and correctly split and tie these durations into a single $\frac{3}{8}$ measure. This type of exercise can be expanded to include ties across the bar line. The final stage of rhythmic obscurity includes subdivisions (see Online Figure 7). To prepare for this stage, we review several common rhythmic patterns that include subdivisions (e.g. common beamings with eighth and sixteenth notes as well as dotted-eighth and sixteenth patterns as found in Online Figure 8). To connect sound and symbol, I have students perform these rhythms as I point to each pattern. For instance, students perform a simple meter pattern twice in a row to create a measure of $\frac{2}{4}$ comprised of a single subdivided pattern (e.g. two sets of four sixteenth notes). As students complete the second set of sixteenth notes, I point to another pattern so that a seamless performance occurs moving from one $\frac{2}{4}$ measure to the next. After I have led the students through several measures, I ask a student to become the “rhythmic drum major” who shouts out a number that corresponds to a rhythmic pattern. The

other students perform the pattern twice as done previously. This procedure is then repeated for compound patterns thus creating single measures of ♩.

Similar to the process for Online Figures 2 and 4, cumulated beat units are bracketed and bar lines are added appropriately for the requested meters in Online Figure 7. Once students complete a rebeaming, they self-evaluate their answer. They also must be ready to explain why they used a particular beaming. The rebeamed rhythms in Online Figure 7 are performed to again highlight the difference between simple and compound meters both visually and aurally. Although the durations of these rhythms remain the same, the sound is different depending on the meter. As students' rebeaming skills are developed, special emphasis is given to subdivisions in compound meter and meters where the half note is the unit of beat because many of my students are less experienced with these situations.

Some students have difficulty rebeaming rhythms in compound meter that require a note to be split and tied (similar to Online Figure 7 with subdivisions). For these students, I ask them to show their bracketing (colored pencils often help with this stage). I also remind them that they cannot change the duration order to make the rebeaming easier. For example, some of my students want to move the second eighth note to the beginning of the measure or they want to switch the first quarter note with the second eighth note. Students also find it helpful to see if any patterns in Online Figure 8 appear in the rhythm that they are rebeaming.

As a final activity, students are encouraged to locate simple and compound beaming examples from their ensemble and studio literature that clearly reflect the meter. Students share their found examples in subsequent classes. To assist vocalists, I encourage them to look for beaming examples in the accompaniment of their vocal music. I also ask my colleagues who direct vocal ensembles about the music that they are performing during the semester. They often provide excellent examples that students can use for locating beamings that reflect the beat unit. For classroom presentations, I find it best to have students bring an electronic or hard copy of the score plus a recording to the class. These beamed examples are shown and heard at the beginning of several classes. When an example is presented, I first ask the students if they are familiar with the excerpt. While the recorded example is playing, we conduct the beat and tap the subdivision so that the feeling of simple and compound meter is again highlighted. Finally, we assemble a list of these simple and compound meter examples so that it can be distributed to my students when all presentations are completed. I also encourage the students to share their found examples with their studio teachers and ensemble directors. As they do this, my colleagues often help them make additional connections between the classroom, the studio, and the rehearsal hall.

11

CLAPPING FOR CREDIT

A Pedagogical Application of Reich's *Clapping Music*

Jon Kochavi

Topic: Analysis of Steve Reich's *Clapping Music*.

Goal: Students will learn and apply tools of beat classes to meter and structure, framing and mirroring their listening experience; students will construct analyses reflecting their perception of meter and rhythmic patterns.

Background: None, though an ability to read rhythmic notation and a rudimentary knowledge of meter is useful; material can be adapted for upper-level undergraduate music majors.

Introduction

Over 20 years ago, Susan McClary and Robert Walser noted that “the discipline of music theory...has notoriously neglected rhythm in favor of abstract patterns associated with pitch and form” (1994, 77). Though the curricular expanse of the field has broadened significantly since that time, there is still an imbalance in most undergraduate music theory sequences. The complex interaction between rhythm/meter and harmony has perhaps contributed to difficulty in isolating the study of the former in an analytical setting. Studying Steve Reich's 1972 *Clapping Music* provides an opportunity for a class to focus exclusively on non-pitch elements of a musical score, revealing a strong sense of progression through rhythmic patterning, beat hierarchy, textural dissonance and resolution, and form. (The full, one-page score of the piece is available online as part of the Supplemental Materials.)

The pattern and structure of *Clapping Music* are simple enough to explain fully to a class in just a few minutes. Distilling the piece into a beat-class pattern of claps and rests (the *basic pattern*, given in Figure 11.1) and a phasing rule for the second voice (a discrete jump one beat forward with each new pattern in the phasing voice) generates two essential questions, which I elicit from the students themselves:

1. Why *this* basic pattern?
2. Why *this* phase progression?

These questions echo Richard Cohn's (1992) “material vs. process” dichotomization in Reich.



Figure 11.1 The basic pattern.

I have taught *Clapping Music* to classrooms of high school students, lower-level undergraduates (non-majors), and upper-level undergraduates (primarily majors). The same essential approach works well for all three audiences, with adaptations mainly accomplished through topical and analytical extensions made for the advanced group. Regardless of audience, the goal is to demonstrate how the choices of initial pattern and phasing mechanics work together to project formal process in the piece. In each case, I have found that a combination of lecture, discussion, group work, listening, and performing employed over the course of a 50- or 75-minute class period can serve to introduce the students to the piece and the analytical machinery, to allow them time to explore the power of the application of these tools, and to arrive at an understanding of the piece that is compelling and true to their experiential engagement with the music.

Mini-lecture I and Listening: Introduction

We begin with a quick perusal of the score, a familiarization with the basic pattern (with a full-class group clap), and an explanation of the architecture of the piece. There are 13 measures, each repeated 12 times, with two clapping “voices,” Clap 1 and Clap 2. Clap 1 maintains the basic pattern throughout. Clap 2 begins with the basic pattern in measure 1 and – treating the pattern circularly – phases one eighth-beat forward with each measure (beginning the measure 2 pattern on the second eighth of the basic pattern, measure 3 on the third, and so on). By measure 13, the performers are again both clapping the basic pattern in unison.

This brief initial “lecture” sends a message: our investigation of *Clapping Music* is not designed to find the “key” that unlocks the mechanics of its structure – I’m giving the students that key upfront. As we now listen to the piece the first time through, students can attend to the now-familiar basic pattern and can try to identify the phasing process aurally, but these observations are not analytical. Their hearing has been contextualized by their understanding of the basic materials and process (using Cohn’s terminology), but the real analytical work lies ahead. The question that I have them think about as they are listening is broad: “What aspects of your listening experience go beyond the simple confirmation of the structure we discussed?”¹

In addition to encouraging students to think critically about their own engagement with the music, this question provides a semester-long touchstone for pushing students to think beyond “data collection” analysis, a trap that is so alluring for the undergraduate or high school theory student. I call this the “yes, but” aspect of theory pedagogy, as in: “Yes, you’ve analyzed the chords of the passage correctly with Roman numerals, but how does your analysis interact with the motivic repetition?” Or: “Yes, you’ve identified a saturation of [014] trichords, but how are they projecting a transformational progression?” In its most general form: “Yes, you’ve properly identified musical objects we’ve defined, but what is interesting about their appearance here and how does that shape our experience with the music as listeners?”

Class Discussion I: Meter

After listening to the performance, we return to the basic pattern, by now ingrained and embodied, in order to probe the question of meter. Fundamental to the concept of meter is beat hierarchy. We can meaningfully ask questions like, “Does this abstract beat position feel stable, feel like ‘home’? Does it feel ‘close’ to home?” These types of questions are familiar to music theory students from their study of tonal harmony, and metrical experience of hierarchy is analogous to the harmonic one. Discussion prompts for our class conversation are:

1. What is the meter in which you experience this pattern?
2. Why are you hearing it this way?

Most students will hear the pattern in $\frac{3}{2}$ if they hear it in a meter at all. Moving on to the second measure, we clap the phasing clapper's pattern in isolation, and then try to answer the same questions. Some students will be entrained with the $\frac{3}{2}$ metric interpretation of the unphased basic pattern and will continue to experience the measure 2 pattern in this context (supported by the repetition of the rhythm of the first four eighths at the measure's end), while others will approach the pattern with fresh ears and might interpret it in $\frac{12}{8}$, given the repetitive internal rhythms in this configuration (see Figure 11.2).

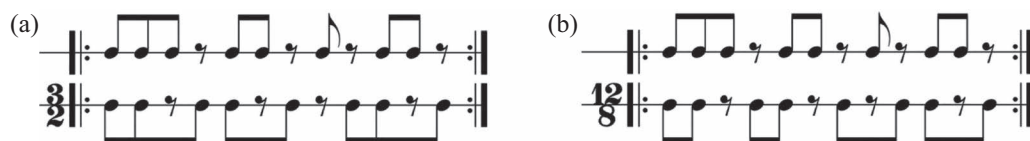


Figure 11.2 Measure 2, Clap 2 part interpreted in (a) $\frac{3}{2}$ and (b) $\frac{12}{8}$.

Throughout this discussion, I try not to imply that any particular answer is correct, since none is: there is no meter notated, and different people can experience it in different ways. The goal of this discussion is to get at an understanding of the second part of the prompt. The importance of pattern salience and persistence of meter once it is perceived usually comes out in our discussion. Further probing will lead to the observation that the initial onset of a string of continuously clapped eighth notes is metrically marked, often shaping our interpretation. Depending on the level of the class (and the length of the class session), we can briefly delve into the role of cultural background at this point. A non-isochronous (units with unequal durations) metrical interpretation of the basic pattern as 4+3+2+3 can be perceived as primary if the listener is not predisposed to imposing an isochronous meter on a given rhythmic field. This hearing – which the occasional student will suggest initially – further emphasizes the phenomenological accent placed at the beginning of a continuous stream.

This discussion should leave the students not with the impression that the patterns are metrically ambiguous, but instead that there are multiple ways of interpreting the meter depending on how you attend to the pattern. In particular, there is a cognitive weight given to the first beat of the strings of contiguous claps, a conclusion with the important corollary: the rests in the pattern are actually more structurally significant than the claps. The claps are sonically all alike – it is only the presence of a preceding rest that marks the subsequent clap. (Reich himself insisted that the performers introduce no dynamic accents throughout the performance, other than the downbeats of the notated measures – this was the reason no notated meter was provided.) Creating an initial clap pattern whose metric identity is fluid across rotations (e.g. the $\frac{3}{2}$ to $\frac{12}{8}$ shift in the first two measures) is a challenging compositional goal, one that perhaps influenced Reich here.

Mini-lecture II: Beat Classes and Translation

At this point in the lesson, the students need some basic tools. It is helpful to introduce the concept of *beat classes* (*bcs*). Beat classes are simply a way to label each discrete moment in a measure during which there is a potential note attack with an integer (or technically, an integer class). The downbeat of a measure is labeled “0,” the next potential attack point is labeled “1,” and so forth. Depending on the meter and number of subdivisions of the notated beat, there will be n beat classes, labeled $\{0, 1, \dots, n-1\}$. These are called *classes* (or mod n integers) because each integer represents not just a single moment in a particular measure, but the same relative position in every measure of the excerpt being analyzed.

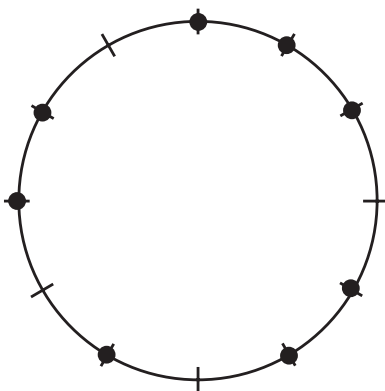
In *Clapping Music*, there are 12 bcs in each bar, corresponding to the eighth-note subdivision of the dotted whole-note duration of each. So the basic pattern of *Clapping Music* (Figure 11.1)

contains claps on mod 12 beat classes 0, 1, 2, 4, 5, 7, 9, and 10, forming the bc set $B = \{0, 1, 2, 4, 5, 7, 9, 10\}$. The phased patterns of Clap 2 are *translations* of B , transformations we can represent with the notation T_k , the translation of a bc set k modular eighth beats forward in time. So, Clap 2's second measure set, $S = \{0, 1, 3, 4, 6, 8, 9, 11\}$, can be transformed back into the original pattern by translating it 1 eighth beat forward: $T_1(S) = B$. Alternately, we can think of translating B 11 eighth beats backward to get S : $T_{11}(B) = S$. In general, $T_k(X)$ can be determined mathematically by simply adding k mod 12 to each element of the set X in turn. Spending a few minutes working through a couple of abstract examples solidifies this concept for the students.

Group Work I: Double-Clap Texture in Resultant Patterns

The importance of texture in beat hierarchy now established and some basic tools acquired, we can begin delving more deeply into intricacies of the resultant patterns in the piece. For any given eighth beat in the music, there are only three possible textures: both performers clap, one claps and one rests, and both rest. These three states motivate a series of questions (downloadable from the online Supplementary Materials) that I generally have the students work on collaboratively in small groups of around three students each. We begin an investigation of the patterns of double claps:

1. For each of the 13 clap patterns (measures), figure out the bc set consisting of those bcs containing attacks from both of the clappers simultaneously. The first pattern will of course produce the bc set B .
2. Tally up the cardinalities of (the number of elements in) each of these 13 sets. Do you see a pattern to this list of cardinalities?
3. Consider the eight elements of B placed on a circular clock face (each bc represented by its corresponding hour tick, with bc 0 at hour 12):



How many (ordered) pairs of dots on the circle are one “hour” apart? How about two hours apart? Continue this computation through 11 hours. How do your results compare to the cardinalities you computed earlier? Why?

4. Are any pair of sets in Question 1 related by translation? Identify the exact translations (T_k) for each. What is the pattern? Where is it coming from?

Solutions to and a discussion of all questions for students in this chapter are available on the Supplemental Materials website. With Question 3, students are essentially determining the interval class vector (technically the expanded Lewinian IFUNC interval vector) for B and then

demonstrating the relationship between the vector and the cardinalities of intersections of sets related by translation (the rhythmic analog of pitch-class transposition). For my advanced classes, these questions are reframed with this post-tonal theory terminology.

The palindromic relationship the students discover in Question 2 (8456564656548) is reinforced by the specific translational relationships found in Question 4 (T_0 , T_1 , T_2 , T_3 , T_4 , and T_5). The prompt at the end of Question 4 is purposely vague, designed to spur the groups to try to reason through the seemingly mysterious patterns of translational relationships on their own terms, whether these are intuitively observational or rigorously mathematical. Note that the double-clap pattern in measure 7, $\{1, 4, 7, 10\}$, translates onto itself via T_6 , continuing the pattern.

Class Discussion II: Share Results and Revisit Rests

At the point that all groups are trying to figure out why the translational patterns among the double-clap sets are occurring, I will interrupt their work so that we can come together as a class to discuss their answers. This also gives me an opportunity to clear up any confusion about tools or methodology, and allows the class to take a step back and examine their results from a birds-eye vantage point. The relevant question is whether their results reveal anything suggesting a *progression* in the piece – motion in some prescribed way that would reflect or inform our listening experience of the work. There is room for disagreement at this point: some might find the palindromic relationships compelling, while others might find them less than salient. Bringing the piece's double rests into the discussion at this point is natural. It is not necessary to analyze these in the same depth as the students did with the double-clap texture, but a quick eyeballing of the score reveals the (by now expected) palindromic pattern of double rest cardinalities (4012120212104), a pattern that is interesting but probably not convincing on its own as an explanation for the work's measure-to-measure development.

Group Work II: Putting It All Together

A shorter group work period helps integrate and focus the work of the lesson to this point and provides more satisfying evidence of progression in *Clapping Music*.

5. For each of the 13 measures, define a vector $\mathbf{V}$ consisting of 12 entries $[v_0, v_1, \dots, v_{11}]$ where $v_i = \mathbf{Y}$ if the two Clap lines are doing the same thing (i.e. both clapping or neither clapping) at bc i and $v_i = \mathbf{N}$ if the patterns don't match at bc i . Write out $\mathbf{V}$ for each of the 13 clap patterns.
6. For each vector you found in Question 5, figure out the length of the longest string of $\mathbf{Y}$ s. When doing this, think of the vectors as circular, so entry v_{11} is adjacent to entry v_0 . What pattern emerges?
7. For each vector in Question 5, count up the total number of $\mathbf{Y}$ entries. Can you find a relationship between these numbers and the corresponding cardinalities of the bc sets in Question 1? Why does this relationship hold?

Question 6 produces a genuinely surprising result even at this late stage of analysis: (12, 2, 3, 4, 5, 6, 1, 6, 5, 4, 3, 2, 12). Question 7 here is optional, designed to allow faster groups to investigate the observed textural relationships further. A discussion of these questions and their solutions are available on the Supplemental Materials website.

Class Discussion III: Share and Perform

With the analysis of the work complete, we come together once again as a class to discuss the results. Forming a narrative description of the aural experience using our findings can be

constructive here. The maximal length of the **Y** strings serves as a stand-in for the relative measure of consonance/dissonance (higher numbers indicate a higher degree of consonance), a convenient metaphor borrowed from tonal analysis. Alternately, the metaphor of tension and stability works equally well. With this frame, the piece can be interpreted as a journey progressing from total consonance (m. 1), to near maximal dissonance that gradually and uniformly becomes more stable (mm. 2–6), jumps rather shockingly to maximal dissonance (m. 7) before reversing the trajectory from high consonance to near maximal dissonance (mm. 8–12), and finally returning to its initial consonant state (m. 13). This narrative echoes the findings Cohn 1992 found in other phasing works of Reich, and for my upper-level classes, we contextualize the *Clapping Music* analysis using Cohn’s work and extended analytical machinery. Depending on time constraints, the class can dive even more deeply into the piece by noting the starting bcs of the maximal **Y** strings in each measure, observing (1) the large array of such starting points (8 of the 12 bcs), (2) the location and impact of the few repetitions, and (3) the effect of the proximity of the starting points to the downbeat (especially in the second and penultimate measures).

I end the session with a class performance of the piece, splitting the class in two. Ideally, the two groups can perform standing up and facing each other, providing visual reinforcement of the motion between consonance and dissonance. It helps to appoint a “conductor” who simply gives downbeats and sometimes indicates the arrival at the final iteration of a measure before a shift if the class is having trouble counting.

Further Work Outside of Class

Although analyzing other phasing pieces by Reich can reinforce these tools, I have found a composition assignment to be the most engaging application of this lesson. See the Supplemental Materials for possible prompts. Further reading is also possible (see online reference list).

Note

- 1 Numerous recordings of *Clapping Music* exist, some including Reich as a performer. Over 20 versions, with varying degrees of fidelity to the original score, are currently available on Spotify. Even more are available on YouTube, in forms as various as a solo clip by Evelyn Glennie and a subtly altered version by the Gandini Juggling troupe. Links to some of these are listed in the online Supplemental Materials.

Bibliography

- Cohn, Richard. 1992. “Transpositional Combination of Beat-Class Sets in Steve Reich’s Phase-Shifting Music.” *Perspectives of New Music* 30 (2): 146–77.
- Lewin, David. 1987. *Generalized Musical Intervals and Transformations*. London: Yale University Press.
- McClary, Susan, and Robert Walser. 1994. “Theorizing the Body in African-American Music.” *Black Music Research Journal* 14 (1): 75–84.

12

HINDUSTANI *TĀL*

Non-Western Explorations of Meter

Anjni H. Amin

Topic: Rhythm and meter in Hindustani music.

Goal: Students will be able to identify basic rhythmic patterns in instrumental Hindustani music.

Background: Prior experience with rhythm dictation; previous experience discussing music analytically; knowledge of a rhythm intoning system is preferable.

Integrating world musics into the music theory classroom is often a difficult feat. While access to quality materials is necessary for an instructor to authentically introduce students to a new musical culture, these resources are often challenging to acquire and compile. The activities described in this plan aim to provide instructors with the materials needed for students to explore rhythm and meter in music outside the Western canon. This plan is scaffolded to clearly indicate components that the instructor must prepare ahead of the lesson and become familiar with, as well as how to then utilize them effectively in the classroom. The success of this lesson relies heavily on employment of the Virtual Field Experience (VFE), which is a mode for contextualization and the primary framework for the ideas in these activities. The goal of the VFE is not to abstractly draw from another culture's musical repertoire and compare it to the Western canon as a subordinate art form, but rather to elicit a greater understanding and appreciation for a new and unfamiliar musical culture in and of itself (Bartolome 2009). The VFE aims to engage students through field recordings, pictures, artifacts, and authentic instruments. What follows are guidelines and resources for creating a VFE suited for your particular theory classroom.

Ideally, the plan presented here would be split up over two 50-minute class periods in order to dedicate sufficient time to both aural skills and written theory. As such, this plan is formatted to work hand in hand with the VFE slideshow, provided on the Supplemental Materials website. For some aspects of the experience, I will provide particular musical examples and content. For others, I will advise you as to what you ought to look for as you construct your VFE to support your own pedagogical freedom; these slides in the lesson plan are marked with an asterisk. The most successful VFE is one that inspires you, ignites your passion for learning, music, and teaching, and is tailored toward the needs of your own students. Therefore, this particular VFE leaves space for your own voice, while providing activities pertaining to aural skills and analysis. The VFE is an effective tool that allows you as the instructor to learn alongside your students and encourages thought-provoking discussion about theory and perception.

Instructor Resources – Supplemental Materials

- VFE Slideshow
- *Tāl* Worksheet
- *Tāl* Worksheet Key
- Analysis Worksheet
- *Tāl* Lesson Pronunciation Guide and Glossary
- Music of North India VFE Guide

Part One: Introduction to North India and Hindustani Tāl

Objectives

This lesson aims to acquaint the students with the region of focus through the VFE. Here, a brief overview of geography, culture, and customs sets the stage for the lesson trajectory before moving toward a description of *tāl*, supplemented by listening activities. By the end of this lesson, students will be able to name and aurally identify the constituent elements of *tāl* theory.

Materials

- VFE Slideshow
- *Tāl* Worksheet
- Recordings
 - **Album:** Tabla – The Zakir Hussain Way.
Track: Teen Taal.
Where to find: Available on Spotify and iTunes.
 - **Album:** Ustad Mohammad Omar: Virtuoso from Afghanistan.
Track: Tabla solo in the rhythmic cycle of jhaptal (10-beat cycle).
Where to find: Smithsonian Folkways, accessible through link in supplemental slide-show or by going to <https://folkways.si.edu>.
 - **Album:** The World's Musical Traditions, Vol. 10: Tabla Tarang – Melody on Drums.
Track: Raag Bilaskhani Todi.
Where to find: Available on Spotify or Smithsonian Folkways for purchase.

1. **Project your VFE slideshow.** The opening slides help to contextualize the musical culture your students will soon be considering. Here, maps and pictures of food or cultural artifacts are welcome; though, no more than 10 minutes of the activity should be dedicated to this. To keep this portion of the activity interactive, ask students to identify the national capital or to name a state in the northern region with the map projected. Similarly, as you project slides with historical landmarks, food, etc., ask students if they can identify what is depicted in the pictures. This is a good chance for you to get a feel for how much knowledge your students already have of the country and culture, while you contextualize the subsequent musical experience for those who may not know much about India.
 - **Slide 2*:** Geography – a map of the Indian subcontinent.
 - **Slides 3–5*:** Historical landmarks, geographical wonders, food, and/or cultural artifacts.
2. **Next, display pictures of North Indian instruments on Slide 6.** As you project pictures of the North Indian instruments, ask students to describe the timbre and/or function of the

instruments based solely on their physical features and identify them if they are able to do so. The sitar functions as a melodic instrument; the tanpura's function is to provide a continuous harmonic drone; and the tabla provides the rhythmic component. As you discuss these musical instruments with your class, you may feel compelled to note why you are specifically referring to *North* India. The musical cultures of the northern (Hindustani) and southern (Carnatic) regions, while they may share some similarities, are ultimately distinct from one another due to theoretical differences, including underlying melodic and rhythmic structures.

- **Slide 6★:** North Indian instruments: sitar, tanpura, and tabla.

3. **Introduce students to Zakir Hussain and the music of classical North Indian music through the tabla.** To contextualize this part of the lesson, revisit the map of India from **Slide 2**. Ask students to find Mumbai on the map. Located in the state of Maharashtra and not squarely in the northern region of the country, Mumbai is one of India's largest cities and its entertainment capital. As such, many musicians and artists from Mumbai are fluent in North Indian musical traditions, such as Zakir Hussain, a tabla virtuoso.

Find a YouTube video of Hussain performing and share a clip with the class – some suggestions are included in the VFE Guide on the Supplemental Materials website. Seeing Hussain performing on the tabla gives students a sense of the tabla's role in chamber music, as well as the timbres the instrument produces.

As an active listening exercise, play *Teen Taal* (which is in 4) from the beginning. Have students raise their hands to acknowledge when they feel that a sense of meter has been established. This occurs quickly, upon the tabla's entrance around [0:09]. Once this has been settled, let the track play on, and ask students to identify the meter by tapping along, stressing significant beats. How are the beats grouped? Is it in 3 or 4?

- **Slide 7★:** Tabla listening exercise (Album: Tabla – The Zakir Hussain Way).

4. **Guide students through an overview of *tāl*.** **Slide 8** provides a movie clip that illustrates the component parts of *tāl* through animation without sound. There is quite a bit of information embedded in the video, but there is time to briefly talk through the components of *tintāl*, which is used as an exemplar for *tāl* theory. The Pronunciation Guide and Glossary on the Supplemental Materials website will be useful for this portion of the lesson.

The *mātrā* is the smallest time unit, and the unit by which a *tāl* is defined (i.e. *tintāl* consists of 16 *mātrās*, *ektāl* consists of 12 *mātrās*, etc.) Note that the *mātrā* is often subdivided in performance.

The *thekā* is the unique drum pattern associated with each *tāl*. It is comprised of *bols*: spoken syllables not unlike rhythm intonation syllables used in aural skills classes. The *bols* distinguish between the performative strokes that are used for the left-hand, right-hand and combination strokes of the percussive instrument, like the tabla. Thus, the *bols* change for *mātrās* 10–13 in this example.

Mātrās are grouped together into larger sections within the *tāl*, called *vibhāgs*. *Vibhāgs* are defined through patterns of strokes that tabla players utilize when learning the *tāls*. Specifically, the characteristic pattern that distinguishes one particular *tāl* from another is communicated through the placement of stresses occurring on *vibhāgs*. In this *tāl*, the sound of *vibhāgs* 1, 2, and 4 are resonant, stressed, or accented, whereas *vibhāg* 3 is non-resonant, unstressed, or unaccented. The difference in respective *bols* reflects this. *Vibhāg* 1 is labelled as 'X' as it is the most stressed *vibhāg*; *vibhāg* 3 is labelled as '0' as it is the most unstressed *vibhāg*. The notation of *vibhāgs* (X 2 0 3) is not essential to this lesson.

Lastly, one complete cycle through the *mātrās* is an *āvart*. Continuous cycles create the *tāl*.

This is a large quantity of new terms and concepts for students to grasp. Ease them into it by revisiting the Zakir Hussain’s *Teen Taal* track. Have students identify the initiating *mātrā* of the cycle (experienced as a standard downbeat) and follow through counting the 16 *mātrās*. Facilitate a discussion regarding the sense of metric cyclicity that may or may not be experienced – this is subjective and there isn’t necessarily a right or wrong answer – and whether some *mātrās* are weighted more heavily than others. In *tintāl*, *mātrās* 1, 5, and 13 are accented, as they initiate the stressed *vibhāgs*.

- **Slide 8:** Movie overview of *tāl* theory.

5. **Hand out the *tāl* worksheet.** There are many different *tāls*; **Slide 9** shows some common *tāls* along with their *mātrā* and *vibhāg* divisions in parentheses. Work through the *tāl* cycle for *ektāl* with the students, marking the *mātrās* and *vibhāg* divisions on the circle on the *Tāl* worksheet, using the supplemental key. After working through the cyclic representation of *ektāl*, play the 30-second preview of the third track from Ustad Mohammad Omar: Virtuoso from Afghanistan (**Slide 10**).

Zakir Hussain counts out the rhythmic cycle (*jhaptāl*) for the audience in this excerpt, highlighting the asymmetry in the meter: “1–2, 1–2–3, 1–2–3–4–5”. Allow students to discover this aspect for themselves as they fill out the worksheet. How does Hussain’s counting divide the cycle for us? On the previous slide, *jhaptāl* is counted as 2+3+2+3, whereas Hussain counts it differently; however, Hussain emphasizes the “3” when counting to 5, subtly dividing the cycle generically.

- **Slide 9:** Common *tāls*.
- **Slide 10*:** *Jhaptāl* from the album Ustad Mohammad Omar: Virtuoso from Afghanistan.

6. **Practice dictation of *tāl* on the worksheet.** Play [7:52–8:07] of track two from The World’s Musical Traditions, Vol. 10: Tabla Tarang – Melody on Drums from **Slide 11** for this activity. Aim for four to six hearings for students to complete the dictation. On first listening, have students identify the meter. They should notate the rhythm in $\frac{9}{4}$ or an equivalent meter. Note that this listening example includes the tabla tarang (a set of pitched tabla drums, providing the melody) and tabla (providing rhythmic accompaniment). The students are aiming to distinguish and transcribe the rhythm of the melodic instrument.

- **Slide 11*:** *Tāl* dictation from The World’s Musical Traditions, Vol. 10: Tabla Tarang – Melody on Drums.

7. **Perform the dictated rhythm.** Have students clap and intone their transcribed work using your preferred rhythm syllable system. If necessary, project the rhythm transcription on **Slide 12**. Then, clap and intone the transcription using North Indian rhythm syllables, or *bols*. These *bols* for *dadratāl* are also on **Slide 12**. Note that *bols* only exist for *mātrās*, no smaller subdivisions; thus, spoken *bols* and clapping patterns are not identical in the second measure of the transcription. For example, on beat 1 of this second measure, students will simply say “dha” but clap eighth notes.

The *bol* intonation for the transcription is as follows:

Dha na Dha tin na | Dha dhin na Dha tin na | Dha na tin na | Dha dhin na tin na |
Dha na tin na | Dha na tin na | Dha na tin na | Dha na tin na ||

- **Slide 12:** *Tāl* dictation rhythm transcription and *dadratāl bols*.

Extension or take-home assignment: As time permits, review the components of *tāl*, particularly terminology. You can use the rhythm transcription for this – have students identify the *mātrās* and *vibhāgs* in *dadratāl*.

Part Two: *Tāl* and Form in “Classical” Hindustani Music

Objectives

This activity aims to build on the introduction to Hindustani *tāl* by applying knowledge in an analytic manner. Here, a notated fusion composition by Ravi Shankar allows for discussion of form, its relationship with the *tāl*, and rhythmic analysis. By the end of this lesson, students will be able to identify the four sections of classical North Indian musical form and analyze the *tāl* in Shankar’s *L’Aube Enchantée*.

Materials

- *L’Aube Enchantée* score, Editions Henry Lemoine for flute and guitar.
- VFE Slideshow.
- Analysis Worksheet.
- Recommended Recording.
 - **Album:** Gilbert, Laura & Goni, Antigoni: Songs And Dances From The New Village
 - Track:** Shankar: L’Aube Enchantée – Sur Le Raga “todi.”
 - Where to find:** Available on Spotify and YouTube.

1. **Begin the class with an active listening to *L’Aube Enchantée*.** Play the track from the beginning; however, this piece is lengthy, so pausing the track and guiding students for engaged listening is encouraged. Students should quickly hear that the opening section is unmeasured. Guide their listening and have them raise their hand when a sense of meter is achieved, around [2:32]. The following section consists of tempo fluctuations; have students raise their hands once a sense of arrival is felt, following the accelerando, around [~4:50]. Continue to listen until there is a grand pause and section break, near [~9:26]. Have students consider whether the material that follows sounds as though it relates to the preceding material or if it is substantially different.

- **Slide 13*:** *L’Aube Enchantée*.

2. **Introduce students to Ravi Shankar.** To recontextualize this part of the lesson, revisit the map of India from **Slide 2**. Ask students to find the state of Uttar Pradesh in North India. Shankar was born in Benares, a city in Uttar Pradesh located along the Ganga River.

Find a YouTube video of Shankar performing and share a clip with the class – some suggestions are included in the VFE Guide. Seeing Shankar performing on the sitar will give students a sense of the sitar’s melodic role in chamber music.

Ravi Shankar is well known for his engagement with Western music, having written compositions for his own instrument, sitar, with concert orchestra as well as other chamber works such as *L’Aube Enchantée* for flute and harp. While most Hindustani classical music is not notated, especially not in conventional Western notation, this composition remains authentic; it is a genuine example of a fusion composition. Shankar utilizes proper Hindustani classical form, as well as *rāg* (tonal structure) and *tāl*.

- **Slide 14:** Ravi Shankar and *L’Aube Enchantée*.

3. **Present Hindustani classical form.** Shankar adopts classical Hindustani form in *L’Aube Enchantée*. It can be divided into four parts: *ālāp*, *jor*, *gāt*, and *jhala*. The form and *tāl* have an interactive relationship; specifically, rhythm and meter define the components of form.

The opening section, the *ālāp*, is slow, unmeasured, and improvisatory. The following section, the *jor*, is similarly improvisatory in nature, but far more rhythmically oriented.

This section usually explores different tempos. The *gāt* is where the *tāl* cycle begins and is generally when the tabla, or other rhythm instrument, enters. Finally, the closing section, the *jhala*, is fast and rhythmically active to conclude the work.

- **Slide 15:** Classical form in Hindustani music.

4. **Review the components of *tāl* and hand out the analysis worksheet.** Slide 16 provides the *tāl* diagram to aid review of the different components of *tāl*. The analysis worksheet includes just a short excerpt from the *L'Aube Enchantée* score.

Begin the analysis activity by projecting Slide 17, which lists common *tāls* again. Listen to the *gāt* section of *L'Aube Enchantée* to have students determine the *tāl*, around [4:50], which is *tintāl*, consisting of 16 *mātrās* at the sixteenth-note level, and four *vibhāgs*.

Feel free to project the *tāl* overview on Slide 16 again while students fill out the analysis worksheet. The overview itself is based on *tintāl*, so their annotations should align with the components shown in the overview. Have students notate the *mātrās* by numbering them under the staff. Identify the *thekā* by labeling the *bols* under the respective notes. Use a bracket to group the *vibhāg* and the *āvart*.

Think, pair, and share. Give students time to complete this task on their own. Then, have them pair up with a peer to discuss their analysis. Finally, ask pairs to share their solutions with the class.

- **Slide 16:** *Tāl* diagram.
- **Slide 17*:** Common *tāls*.

5. **Project the annotated *L'Aube Enchantée* *tāl* analysis on Slide 18.** Using this two-measure excerpt, have students perform the three notated voices using *tintāl* *bols*. Have all students clap and intone the sixteenth notes (part 1), then have all clap and intone the eighth notes (part 2), and finally have all clap and intone the half notes (part 3). Then, split the class into thirds and perform it altogether.

The *bol* intonation for the first measure of the transcription is as follows:

Part 1: Dha dhin dhin dha Dha dhin dhin dha Dha tin tin ta Ta dhin dhin dha

Part 2: Dha dhin Dha dhin Dha tin Ta dhin

Part 3: Dha Dha

- **Slide 18:** Annotated *tāl* analysis.

6. **Conclude these activities with some open-ended discussion questions, led as a large group discussion or splitting the class into small groups.** Points to guide the responses that may be generated by the following questions are included in the VFE Guide. Does *tintāl* sound different from Western common time? If so, what is it about the sense of meter that differs? Does the Hindustani conception of rhythm and meter contrast with the Western conception? How?

And finally, why should we learn about and consider other musical cultures?

Extensions or Take-Home Assignment(s):

- Both Zakir Hussain and Ravi Shankar are seminal musical figures who have made their musical culture more accessible to the Western world. For instance, Hussain has worked with notable jazz artists and Shankar is known for his influence on the Beatles guitarist George Harrison. Have students research these two artists more in-depth and share a video or track of their collaboration with Western artists.
- Popular music, or film (Bollywood) music, though Westernized, still integrates elements of *rāg* and *tāl*. Ask students to find a Bollywood film song and discuss the *tāl*.

Bibliography

Bartolome, Sarah J. 2009. "Virtual Field Experiences for Real Music Classrooms." *Music Educators Journal* 96: 56–59.

Additional Resources: Recommended Reference Books

Clayton, Martin. 2000. *Time in Indian Music*. New York: Oxford University Press.

Sarrazin, Natalie. 2009. *Indian Music for the Classroom*. Lanham, MD: Rowman & Littlefield Education.

PART III

Core Curriculum



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

13

SMALL-SCALE IMPROVISATION IN THE MUSIC THEORY CLASSROOM

Nancy Rogers

Many of the skills we ostensibly teach in our core music theory courses and the activities we engage in to develop those skills are actually in the service of other abilities. Consider sight-singing, for instance. Musicians value sight-singing because it requires a wide range of essential musical abilities: fluent reading of both pitch and rhythmic notation, a solid sense of meter and the major/minor tonal system, an awareness of common melodic formulas and harmonic patterns, and much more. However, sight-singing per se is not the ultimate goal for most of us; rather, sight-singing necessarily unites the symbols and sounds of music, fostering the development of the “seeing ear” and the “hearing eye.”¹ Musical skills are highly interrelated, so the practice of sight-singing leads us to develop a host of related skills – and, conversely, by practicing other skills, we may improve our sight-singing.

Improvisation, of course, also involves a multitude of musical parameters – perhaps more than any other musical activity – and can therefore obliquely address a wide range of abilities and knowledge. I incorporate improvisation into my classes on a regular basis, and I invariably do so in the service of another concept or skill. I should clarify that when I refer to “improvisation,” it is not on the scale that we typically imagine by default (e.g. a solo over the chord changes of an entire jazz standard, or the all-but-lost art of extemporizing a cadenza in a concerto). Rather, I mean small-scale improvisation, ranging from a few measures to just a few notes. Furthermore, my understanding of “improvisation” is quite broad: for me, improvisation is immediately responding to music through music. Even the extremely basic activity of a student singing the resolution of a leading tone qualifies as improvisation, provided that the student sings immediately and was not told in advance what to do.

At this very modest and unintimidating scale, I find improvisatory responses quite practical in typical classroom settings because they convey the students’ musical instincts, providing useful feedback as well as a foundation on which to build. This chapter will highlight the value of very humble improvisational activities, providing several different illustrations of how improvisatory activities can be used effectively in the core music theory curriculum. I believe that a systematic approach centered on collective improvisatory responses and follow-up questions leads to superior understanding of music, a greater appreciation of theory and analysis, and the development of intellectual skills that apply to a wide range of fields (both musical and non-musical).

Illustration #1: Solmization Acquisition

Let us return to the topic of sight-singing. Consider the frustration that many beginning students experience when they initially try to sight read using solmization: concentrating simultaneously

on reading musical notation, interpreting it accurately, conducting, and using the correct syllables can seem overwhelming. It's little wonder that some students begin to perceive solmization as a liability rather than an asset. Becoming familiar with a solmization system through improvisation (perhaps alternating single-measure stepwise units with a teacher – for instance, *do-re-mi-fa-mi* might be followed by *mi-re-do-ti-do*, or by *mi-fa-sol-la-sol*, or by *sol-fa-mi-re-do*, etc.) is easier in many respects than learning exclusively through more traditional exercises. Temporarily eliminating musical notation has several distinct advantages for beginners:

- The cognitive burden of the activity is reduced.
- It establishes an environment in which there is no single correct answer.
- Students are free to work at their own level.

Most importantly, students who focus solely on the sounds of the notes and their associated labels (*1-2-3*, *do-re-mi*, etc.) will more quickly develop the effortless fusion of sound and syllable that facilitates sight-singing, dictation, and other aural skills. As some of my students have remarked, “The note just seems to say its name.” Furthermore, they will have ample time to discover and absorb the important characteristics of each scale degree (e.g. the stability of the tonic and the leading-tone’s desire to resolve to the tonic) before we draw upon this implicit knowledge in the context of four-part writing.

Clearly the exercise just described is easily adapted to focus on rhythmic solmization. A slightly more ambitious task would be to improvise a four-measure rhythmic phrase in $\frac{2}{4}$ – particularly if two or four students improvised the phrase successively (i.e. each student performs either one or two measures, at which point the next student jumps in without pause). The activity provides opportunities to discuss the features that create a sense of closure (or undermine closure) long before the topic arises in the context of harmony, part-writing, or form. The analysis could involve subtleties that might ordinarily go unnoticed; for instance, a phrase that incorporates sixteenth notes may cadence on either beat one or beat two, whereas a phrase consisting primarily of quarter notes will almost certainly need to cadence on the downbeat. There may also be opportunities to address motivic repetition and the rhythmic profile of a phrase – why, for instance, a phrase that begins *1 2-e-&-a* is more likely to continue *1-& 2-e-&* or *1-a 2-e-&-a* than it is to continue *1-e-&-a 2*. Although the short-term goal is internalization of the solmization system, analysis of improvised solutions and reinforcing feedback on their most successful features will contribute to the ultimate goal of fostering good musicianship and stylistic awareness.

The key to successful improvisation in these very early stages of music instruction is creating a set of restrictions that will keep the results simple yet musically satisfying. As the class progresses, it is desirable to target a specific skill or musical element that has been learned recently. When students are able to produce a particular item (e.g. a syncopation, a half cadence, a tonic arpeggio, or a chromatic passing tone) in context on demand, we can be much more confident that they not only grasp the abstract concept but also understand its practical use. Providing student improvisers with immediate feedback (and soliciting peer feedback) is crucial for increasing consciousness of musical style and underlying patterns.

We tend to think of improvisation as suitable only for advanced students. Relatively easy small-scale improvisational activities such as those just described, however, are very appropriate and useful for novices. If some students initially are unusually flustered by producing solmization in real time, they still may gain from temporarily improvising suitable melodies or rhythms using a neutral syllable (e.g. *la-la-la* or *ta-ta-ta*). The entire class (or an individual partner) could then repeat the patterns using solmization, which is excellent preparation for traditional dictation. In my opinion, it’s never too early to try improvisation.

Illustration #2: The Cadential $\frac{6}{4}$

We often think of students in our beginning music theory classes as “blank slates,” and indeed many of our students probably perceive themselves in this way. However, nothing could be further from the truth: after many years of performing music and quite literally a lifetime listening to music, our students’ unconscious knowledge of musical patterns and schemata is extensive. Simply put, students in music theory classes typically know much more about music than they (or we) realize.

Teachers are likely to recognize this fact at the level of music fundamentals (e.g. triads and scales) because so much of early music theory instruction essentially consists of applying labels to familiar structures and explaining the details of their construction. As we progress into more advanced topics like harmony and form, however, many music theory teachers become increasingly reluctant to tap into students’ unconscious knowledge. On the surface, this may seem entirely justified: students are considerably less likely to volunteer answers once we exceed the material they explicitly learned in high school. Does their reticence truly indicate an absence of stylistic understanding, though? I’m more inclined to interpret silence as signaling a lack of confidence, or perhaps misgivings that their technical vocabulary is inadequate for the task.

How can we overcome these problems – that is, students’ understandable reluctance to respond individually when they feel uncertain, and their difficulties in using words to communicate their thoughts about music? As the reader has undoubtedly guessed, the answer for me is collective improvisatory responses: I play or sing some musical prompt and have the entire class simultaneously sing what comes next. In order for this activity to be useful in a classroom setting, the prompt must be carefully constructed to inspire a near-universal immediate response in encultured listeners. When I hear the expected continuation from my students, it confirms their familiarity with the topic at hand – and it demonstrates to students that they remain able to contribute to the discussion.

My pedagogical goal is to transform this wealth of unconscious knowledge into a conscious understanding of our focal topic. Having elicited improvisatory musical feedback, I ask a series of discussion questions that guides students toward discovering the principles behind their musical instincts. While this approach is effective for most harmonic topics, one of the clearest illustrations is my lesson plan introducing the cadential $\frac{6}{4}$.

The cadential $\frac{6}{4}$ chord is among the most challenging and confusing concepts that students encounter in their first year of harmony. At the same time, however, the chord’s sound is extremely familiar to students – even those without extensive classical experience. In general, most of us let our students’ aural skills lag a little bit behind their written skills because this tends to be an efficient arrangement: ear training requires less effort when the music is well understood. The cadential $\frac{6}{4}$ is exceptional because most students have already absorbed its characteristics intuitively, but very few grasp it intellectually. I find that introducing this chord by ear through a series of improvisation exercises not only makes the topic easier for students to comprehend but also better conveys the most essential musical information about the chord.

My approach is compatible with almost any textbook, although it will become abundantly clear that I favor textbooks that represent the cadential $\frac{6}{4}$ and its resolution with Schenkerian notation (i.e. V_{4-3}^{6-5} rather than I_4^6-V). The necessary part-writing background is quite minimal: students only need experience with I, V, and at least one pre-dominant chord (presumably IV or ii⁶). A few additional chords like I⁶, V⁶, V⁷, and another pre-dominant would be preferable, but only root-position I, root-position V, and either IV or ii⁶ are absolutely required. Students should also know several categories of embellishing tones: the passing tone, the accented passing tone, and the suspension.

I begin with an activity that is already routine for students in my classes: I play an incomplete progression twice, and on the third iteration students sing the bass line and continue to a cadence. Establishing and maintaining the tempo and meter are crucial, so I strongly recommend asking the class to conduct. We complete this process twice with two different prompts such as those shown in Figure 13.1. It doesn't matter whether students sing with solfège, scale-degree numbers, or a neutral syllable, although there are advantages in using *some* movable system. Having students sing from the beginning of the progression along with the piano is very beneficial because they are much more likely to continue to the cadence in unison (and in tune) if they get a "running start" – and ensuring a unison response is critically important to my method. The exact prompts themselves are fairly inconsequential, but two specific features are necessary: both prompts should end on precisely the same pre-dominant chord (i.e. same melodic note, same spacing and doubling), and this pre-dominant chord must fall on a metrically strong beat in one prompt and on a metrically weak beat in the other.

Harmonic prompts:	Expected responses:

Figure 13.1 Two suggested harmonic prompts and the bass continuations they will likely inspire.

After students complete both bass lines, I ask a series of analytical questions.

- Before you added the cadence, what type of chord did I stop on – tonic, pre-dominant, or dominant?
- Can you tell me *exactly* which chord I stopped on?
- Where did IV really want to progress? (Elaborate on how strongly IV seems to pull toward V. In my class, this will sound like typical review because we would have introduced pre-dominant chords quite recently.)
- What kind of cadence do you feel like you're setting up with that bass line?
- You concluded the first progression with *sol-sol-do* and the second one with *sol-do* (that is, one *sol* instead of two). Why?

The initial response to my final question is frequently incorrect (often an erroneous guess that I stopped on a different chord or used a different melodic note), but without fail someone soon realizes that the critical difference is the pre-dominant chord's metrical placement. We care very much that the cadential tonic arrives on a strong beat. When the pre-dominant chord

arrives on beat 1 in $\frac{4}{4}$, then a single beat of dominant allows the cadential tonic to fall appropriately on beat 3. However, when the very same pre-dominant chord arrives on beat 4, two beats of dominant are needed in order to place the cadential tonic on beat 3. With only one beat of dominant, the cadence would unstylistically fall on beat 2. (If no one realized how meter had influenced this decision, I would have students conduct while I completed the bass line of the first progression with only a single beat of dominant. I would then ask why the cadence sounds peculiar.)

At this point, it is helpful to write the fully voiced IV chord twice on the board: once with a bar line immediately before IV, and once with a bar line immediately after IV. Add the two slightly different bass lines that the students sang following each IV chord. Last but not least, add the Roman numerals IV, V, and I under each bass line on the appropriate beats. This effectively summarizes our observations thus far.

Having established the harmonic functions of the cadential chords as well as the interaction of harmony and meter, the class ostensibly returns to ear training and improvised responses. We repeat the same exercise using my initial prompt, but this time I ask students to sing and complete the melody rather than the bass line. Their instinctive response (shown in Figure 13.2) invariably suggests a cadential $\hat{6}$. (Although I previously indicated that the exact musical prompt is not terribly consequential, notice how strategic it is to present a melody that goes up to $\hat{5}$ during the initial tonic expansion and then descends to $\hat{4}$ for the pre-dominant because this is especially likely to result in a continued stepwise descent to the cadential tonic.)

Harmonic prompt:	Expected response:

Figure 13.2 A suggested harmonic prompt and the melodic continuation it will reliably inspire.

I add this collectively improvised melody to the bass line and Roman numerals already on the board, feigning amazement that students have spontaneously added an accented passing tone – but also enthusiastically confirming that this seems like the ideal location for an accented passing tone. Students are amused when I then predict that I can make them want to sing a different kind of embellishing tone. I explain that I’m going to move the alto line into the soprano to make it easier to hear, and I again ask them to follow the melody and complete it. This time, of course, the melody stops on $\hat{1}$, and students reliably continue $\hat{1}-\hat{7}-\hat{1}$. (Incidentally, this prompt might not work reliably had students not already sung the previous $\hat{3}-\hat{2}-\hat{1}$ melody. Once the sound of the cadential $\hat{6}$ has been established, however, it is very likely to be maintained. If my pre-dominant of choice were ii^6 , then I would instead predict that I could get the students to sing another accented passing tone. In this case, the melody $\hat{1}-\hat{2}-\hat{3}-\hat{2}$ will work well.) I add this alto line to our increasingly detailed representation on the board. When asked, students easily identify the new embellishing tone as a suspension. This leaves us with only one more voice to complete, so we repeat the melodic completion exercise one final time, this time with a prompt ending on $\hat{6}$, which generally inspires

students to end $\hat{5}-\hat{4}-\hat{3}$. (Some students may continue $\hat{5}-\hat{5}-\hat{5}$, but this is the one portion of the lesson where a unison response doesn't matter: students already know that V and V^{8-7} are equivalent. When I hear a divided response, though, I always choose V^{8-7} because students are familiar with the connected figures that depict upper-voice motion, and obviously this representation suits my purposes for the cadential $\frac{6}{4}$.)

When I add the final pitches to our notation on the board, I ask the class how we can represent the line they just sang using figures. Students have previously encountered the notation V^{8-7} both in part-writing and in analysis, so my question poses no particular difficulty. How could we depict the previous voice's suspension in figures? Although using 4-3 and 8-7 simultaneously might be a bit surprising to them, the concept of including suspensions in figures is also quite familiar – which is why I prefer to use IV as my pre-dominant rather than the more common ii⁶ for the purposes of this lesson. Representing the melody, in contrast to the previous two upper voices, requires some creative thinking because my class has not portrayed accented passing tones in figures before. Following the established principle that voice-leading may be conveyed as intervals above the bass, we add the final 6-5 figures. It is only at this point (having completed both the part-writing and the analytical symbol) that I describe our new chord as a “cadential $\frac{6}{4}$ ” – or, more likely, finally allow an eager student to volunteer the expression.²

The cadential $\frac{6}{4}$ is much more easily understood by ear than by eye. Approaching the chord through ear training rather than analysis clearly establishes its dominant sound without the distraction of its tonic appearance. Effectively building the chord from scratch, we not only demonstrate that the cadential $\frac{6}{4}$ tends to fall on a metrically strong beat, but we also vividly illustrate *why* this is the case – something that otherwise often goes unexplained. The most typical voice-leading patterns of stepwise descent in the upper parts ($\hat{3}-\hat{2}$, $\hat{1}-\hat{7}$, and possibly $\hat{5}-\hat{4}$) are strongly emphasized, as is the stationary bass (or the equivalent octave-leaping bass). Because we have established that the moving voices include embellishing tones, we have also indirectly provided a reason to double the more stable bass note. The students have experienced $\hat{1}$ as a tendency tone that urgently needs to resolve to $\hat{7}$, which not only provides critical voice-leading information, but also explains why doubling $\hat{1}$ is a bad mistake in this chord, and furthermore illustrates that the cadential $\frac{6}{4}$ does not function as a tonic.³ (If the chord were indeed a true tonic, obviously $\hat{1}$ would be an extremely stable note.)

Considering how much information is conveyed, illustrated, and reinforced in just a fraction of a class, the aural approach is surprisingly time efficient. Furthermore, there is no danger of bewildering a class and subsequently needing to back up: by singing and answering questions, students provide continuous confirmation that they understand the material each step of the way. Also, by trusting their musical reflexes (as demonstrated in the immediate-response exercises), students prove that the “rules” for the cadential $\frac{6}{4}$ don't originate from their textbook or from my instruction, but instead arise from their own musical experience. No abstract explanation, in my opinion, can match the effectiveness and practicality – not to mention the superior student engagement – of a primarily aural approach to the cadential $\frac{6}{4}$ chord.

Illustration #3: Phrase Structure

Phrase structure is a very complex topic involving the interaction of many parameters – most obviously harmony, voice-leading, rhythm, hypermeter, and motivic structure. Fortunately, as in the case of the cadential $\frac{6}{4}$, students have already heard many thousands of phrases in context before ever setting foot in our classrooms. Once again, I find that improvisation exercises followed by discussion are indispensable for building and refining style awareness. An immediate improvised response necessarily reflects statistical learning and therefore reveals the improviser's current

knowledge (conscious or not) of a musical style. There is perhaps no more efficient assessment/feedback mechanism, either for the students or for the teacher.

As an illustration, consider Figure 13.3a, which shows a melodic pattern that could serve as the opening gesture of a phrase. If I simply instruct my students to “sing whatever should come next” and then sing the fragment in Figure 13.3a, they will almost invariably continue the melody in unison as shown in Figure 13.3b. Clearly there is no definitively “correct” answer to a question of this nature, so why did they produce a unison response?⁴ When I ask students why their response seems so right, they typically point out the matching interval and rhythmic pattern, and they also often observe how the underlying rise from $\hat{1}$ - $\hat{2}$ continues $\hat{2}$ - $\hat{3}$. (Notice that such statements involve spontaneously performing reductive analysis of the melodic line – an important skill that students don’t necessarily display as successfully in more traditional written assignments, perhaps because they aren’t as musically engaged.)

Figure 13.3 A melodic prompt with a likely response and two unlikely responses.

Why does the first unexpected response (Figure 13.3c, which answers $\hat{1}$ - $\hat{2}$ with $\hat{7}$ - $\hat{1}$) seem less suitable? Students frequently indicate that the phrase isn’t yet long enough to cadence – or, more generically, that it’s too soon to get back to $\hat{1}$. This automatic and seemingly mundane reaction is actually quite significant, because it illustrates the students’ implicit knowledge that phrases (in many different musical styles) often exhibit sentence structure, and sentences typically avoid a strong arrival on $\hat{1}$ before the cadence. Indeed, sentence structure is so prevalent that, without any priming on my part, students unconsciously assume that I am presenting a basic idea, and so they sing an appropriate variation of the basic idea, understanding intuitively that the cadence has not arrived. Many students find it more difficult to explain independently why the second unexpected response (which extends $\hat{1}$ - $\hat{2}$ with $\hat{3}$ - $\hat{4}$, as shown in Figure 13.3d) doesn’t sound quite right, but once someone points out that this continuation violates our expectation of a tonic expansion during the first half of the phrase, the concept is fairly easy to grasp.

Responding to the one-measure prompt in Figure 13.3a with another measure is quite easy, but continuing beyond measure 2 requires considerably more musical sophistication. Figure 13.4b illustrates how a naïve student might proceed, in contrast with a far more stylistic completion that an experienced musician might suggest. A beginner will probably maintain the pattern with essentially no alterations beyond moving it up another step. Although this response is completely rational, it is also utterly unstylistic. A more experienced musician will instinctively know that a pair of one-measure subphrases should lead to a two-measure subphrase ending with a cadence. In other words, an expert musician will know how to complete the implied sentence structure. One possibility is shown in Figure 13.4c.

Figure 13.4 A melodic prompt with two extended continuations.

Under the circumstances described, a student is unlikely to improvise a phrase ending with a half cadence. However, if I sing this phrase and ask the class what comes next, students will instantly interpret my phrase as the antecedent portion of a period structure and will jump in on the next downbeat, effortlessly singing a parallel consequent phrase. There will be some variation around measure 7, of course, but students will reliably arrive in unison at a perfect authentic cadence on the third beat of measure 8. Such an exercise not only demonstrates that parallel periods are the norm but also provides an illustration of which portions of the phrase are most likely to match (i.e. roughly the first half of the phrase and the timing of the cadence – but not the cadence type, and often not the approach to the cadence).

Instant-response improvisation activities like this are an excellent way to gauge students' current stylistic knowledge. They also become an exceedingly effective teaching tool when followed by class discussion. What makes one continuation superior to another? Which specific musical features give us subtle cues for what to expect next? Answering questions like these helps us tap into instincts and make them conscious – and yet at the same time this mindful practice gradually transforms deliberate decisions into automatic habits, eventually resulting in an effortless sense of style.

Conclusions

The strategies I have illustrated in these brief classroom vignettes are easily applied to harmony, rhythm, meter and hypermeter, phrase structure, voice-leading, and any other facet of music that relies on expectation. I see many distinct advantages to incorporating brief improvisational exercises into core music theory classes. Every unison (or near-unison) response demonstrates the class's shared stylistic knowledge, and when students generate material based on their own musical instincts, it proves that the patterns and principles involved are not merely speculative, let alone arbitrary: information produced through an unmediated unison response must be musically valid. Analyzing their own improvisation leads students to observe underlying features that might otherwise escape their notice, sometimes reinforcing concepts like melodic reduction that are often met with skepticism when presented in other contexts. Presumably these critical thinking skills will lead to further success both in music theory and in other fields, preparing students for professional life in a way that passively receiving information cannot.

Notes

- 1 I borrow these expressions from Bruce Benward (*Music in Theory and Practice*). Michael Rogers, correctly emphasizing the intellectual component necessary for this transference, described the same phenomenon as the “understanding ear” and the “hearing mind” (*Teaching Approaches in Music Theory*). For an interesting discussion of reading-listening integration as well as the concept of thinking *in* music rather than thinking *about* music, see the introduction to Gary Karpinski’s *Aural Skills Acquisition*.
- 2 Incidentally, my biggest challenge when introducing the cadential $\frac{6}{4}$ is preventing students from volunteering information prematurely. When students raise their hands early in the class, I can almost always tell from the looks on their faces that they either want to identify the cadential $\frac{6}{4}$ or feel concerned that we have added a tonic chord by mistake. Fortunately, I find that students are very obliging when I simply say, “I know what you’re thinking; please hang on for a few minutes.”
- 3 This relationship of $\hat{7}$ and $\hat{1}$ is an excellent illustration of something that will become a recurring theme throughout my course: interpretation is context-dependent. For many weeks, students have repeatedly observed (and been explicitly reminded) that the leading tone resolves to the tonic – yet here is a clear instance of a tonic that resolves to the leading tone. This ostensibly small detail is, in fact, crucially important to our understanding of harmony and voice-leading.
- 4 This prompt is sufficiently long and its underlying structure is so simple that I don’t need to establish the key and tempo in advance in order to elicit an immediate response from music majors. However, I don’t mean to imply that students will invariably respond to *any* prompt in unison: it takes a carefully crafted prompt to produce this effect, given that many prompts have more than one suitable continuation. When my goal is to confirm the existence of some pattern or principle, I focus on generating a unanimous instinctive reaction in order to underscore its relevance.

Bibliography

- Benward, Bruce and Marilyn Saker. *Music in Theory and Practice*, seventh edition (New York: McGraw-Hill), 2003.
- Karpinski, Gary S. *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians* (New York: Oxford University Press), 2000.
- Rogers, Michael R. *Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies*, second edition (Carbondale, IL: Southern Illinois University Press), 1984.

14

THE COGNITIVE AND COMMUNICATIVE CONSTRAINTS OF PART-WRITING

Daniel Shanahan

Introduction

In the opening chapter of his book *Heartland Excursions: Ethnomusicological Reflections on Schools of Music*, Bruno Nettl imagines an ethnomusicologist from Mars visiting a School of Music in the Midwest (named “Heartland U.”) and being perplexed that certain composers are referred to as though they’re alive, even though they’re not (1995). This alien is struck by the god-like status given to certain (mostly German; all male) composers, to the point where the names are etched on the concert halls, which are themselves a church-like space. Not only is the repertoire seen as somewhat odd, but so are the methods. Why do we mythologize composers who could remember a piece after only one hearing, while focusing our educational efforts primarily on fluency with notation, rather than memory? Obviously, we as theorists can benefit from a similarly autoethnographic reflection: why do we use the tools that we do to express fluency in music, how do we assess proficiency, and why do we enforce certain guidelines and not others? What would our theory curriculum look like to an alien creature?

This exercise should seem familiar. Many of our students in the first-year theory curriculum have never taken a music theory class, and although there are placement exams to ensure a basic grasp of the fundamentals, the theory curriculum is a new experience for a significant number of our students. It’s therefore quite understandable that inquisitive students would have questions about why certain guidelines would exist, and it’s equally understandable that the teacher, ensconced in stylistic nuances from their many years of training, might struggle to answer questions about the broader “why” questions. Handling these questions incorrectly, however, can have devastating effects. Responding solely with the cognitive and empirical reasons can turn too quickly into *scientism*, in which the descriptive discussion of music can be conflated with the prescriptive; that is, the “what is happening” can be interpreted as a “what *should* be happening.”

Of course, culture – to paraphrase Dan Sperber (1996) – is the intersection of cognition and communication. The theory of music that we teach our students exists because it is a manifestation not only of our cognitive constraints but also of communicative pressures that have forged a path to our classroom. In this chapter, I will talk about teaching music theory through constraints, the dangers of relying too heavily on certain constraints rather than others, and outline an approach that highlights cognitive, communicative, and physical constraints. I will also argue that one of the most direct ways of doing this is through a “top-down” approach that begins with a broader comparative discussion of topics before moving into specific stylistic constraints.¹ This

chapter is partly a review of cognitive and communicative constraints that form the rules we engage with in our theory curriculum, and partly a manifesto for a more open and comparative introductory theory class.

Introducing the Concept of Constraints

Perhaps the most obvious starting point in a constraint-based class would be a discussion of just how strange music is, wherein we might think of a constraint as a physical, biological, psychological, or cultural limitation of behavior.²

Our alien observer might expect that pitches, rhythms, and harmonies would occur either with an equal distribution or perhaps some sort of normal distribution (in which we would see a “bell” curve highlighting the most commonly used pitches). Of course, we know that this is not the case, although there is some degree of predictability. Figure 14.1 demonstrates the usage of scale degrees in four separate melodic collections: the Meertens Dutch Folksong Collection (2016); the Essen Collection of European (primarily German) folksongs (1995); the *Barlow and Morgenstern Dictionary of Musical Themes* (1948); and Helmut Schaffrath’s collection of Chinese folksongs (1995) (transcribed into Western notation, and using Western concepts of key and scale degree). Although there are some interesting differences – the Meertens collection seems to be alone in having an equal usage of $\hat{4}$ and $\hat{6}$, for example – it’s quite striking how similar they are. The prominence of $\hat{1}$ and $\hat{5}$, followed by the pitches diatonic to a major key, can be seen quite prominently in the European collections, mirroring Krumhansl’s key profiles (1982; 1990) astonishingly closely, and the Chinese collection seems to clearly outline a pentatonic collection.

Put succinctly, what might seem obvious to the enculturated musician might not be familiar to our extraterrestrial visitor. Some pitches are more prominent than others, some chord progressions are more common than others, and some rhythms are more likely to be used than others. This is the result of a network of intertwined and overlapping constraints, ranging from the cognitive to the sociopolitical, and the communicative.

Despite the vast number of cultural and communicative constraints, there are also commonalities. Eitan and Timmers (2010) examined alternative metaphors for pitch height employed across different cultures. Rather than “high/low,” there are cultures that discuss pitch as “young/old,” “grandmother/granddaughter,” “thick/thin,” and “those that chase the crocodile/those that are being chased by the crocodile.” Although the metaphors themselves are culture-dependent, Western listeners were easily able to infer which term corresponded to “high” (e.g. young, thin, granddaughter, the one about to be lunch) and which meant “low” (e.g. old, thick, grandmother, the one chasing the crocodile). The study is an excellent example of how, although metaphors can be culturally specific, there are often underlying realities to all metaphors that we use to infer their meaning.

The notion that there are underlying conceptual commonalities, despite culturally informed semantic differences, is often referred to – by Lakoff (1990) and others – as the “invariance hypothesis.” Put simply, there are aspects of abstract reasoning based on events experienced, and those experiences are often universal. Saslaw (1996) has discussed how metaphors might be used to examine the thought processes of music analysts, and has touched on much of the work of Lakoff in a way that is directly applicable to music theory. It’s clear that music theory should focus not simply on the culturally informed specifics but also on the invariances that underlie our understanding of how music works.

With this in mind, we might ask how a course could be designed to teach the broader aspects of music in a way that begins by focusing less on the experiences of a single genre, and more on the broader patterns upon which music is built, while also allowing for a discussion of changing norms, and the difference between perceptual rules and communicated nuance? I argue that one of the most efficient ways of achieving this goal would be to start from the cognitive “archetypes,”

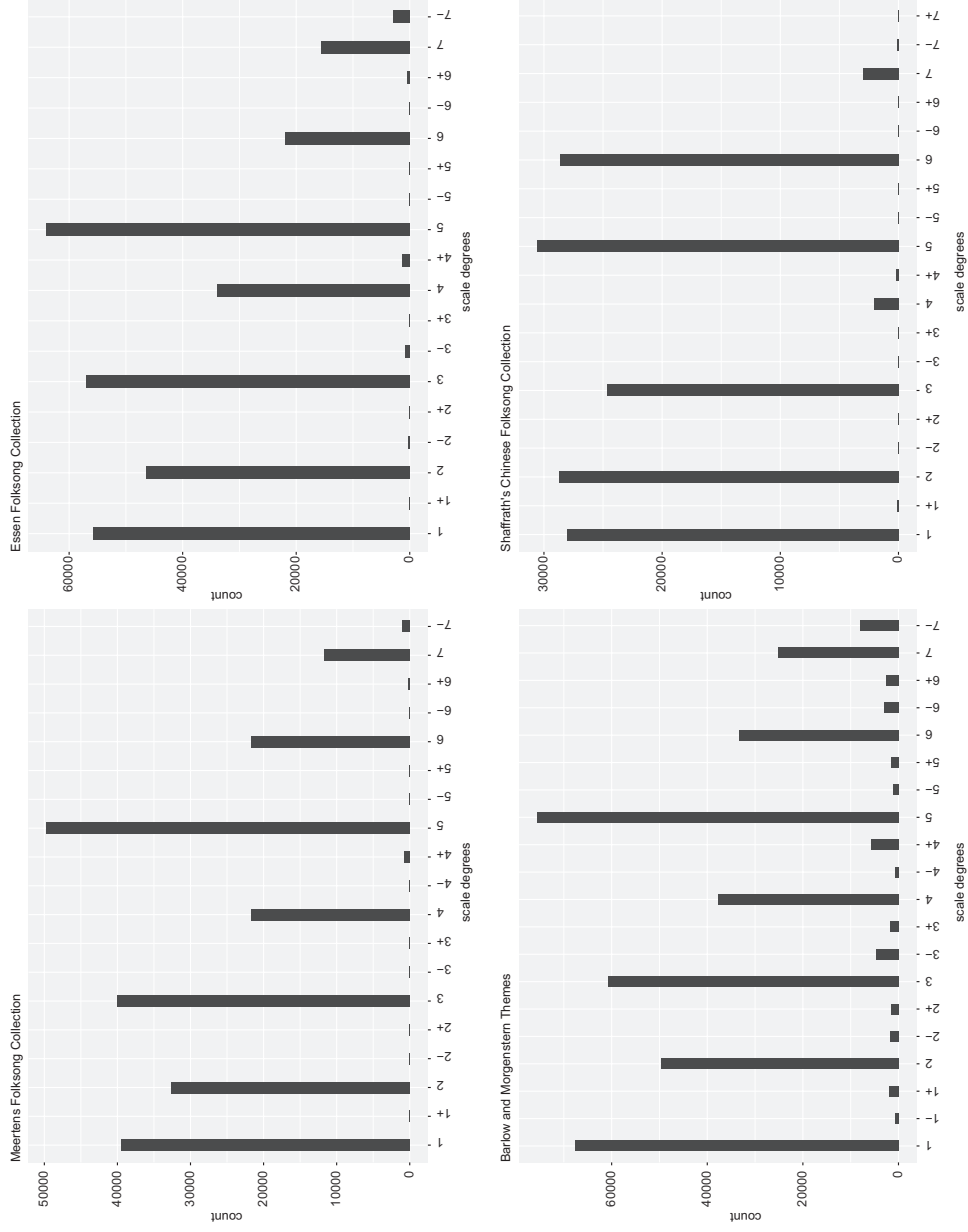


Figure 14.1 Distribution of scale degrees in the Meertens Dutch Folksong Collection (2016), the Essen Folksong Collection (1995), the Barlow and Morgenstern Dictionary of Musical Themes (1948) and Helmut Schaffrath's collection of Chinese folksongs (1995). It should be noted that the scale degrees in the Chinese folksong collection are approximations placed within the context of Western notation and scale systems.

and to progress into stylistic nuance. Such an approach would not be entirely dissimilar to Meyer's approach of archetypes. He writes that, "...because they persist, archetypes may help to illuminate the nature of the changes that have occurred in the history of an art such as music" (1980, 181). For Meyer, archetypes serve as an avenue to examine both stylistic and cognitive constraints, and the interaction between the two (p. 201).

The Top-Down Approach

A top-down approach would therefore begin by defining some invariances, followed by archetypes, which would then focus more specifically on stylistic nuance. By situating the musical landscape of the course on the broader relationship of the musical act, the body, and mind, and the communicative constraints of the act, students are able to examine the stylistic aspects of Western art music in context, and the scientific reasonings for certain musical features are less likely to be interpreted as a scientific validation of a certain style or culture over another.

Step 1: Parsing Form and Repetition

A possible first step might be to ensure that students have a basic understanding of some types of form. How much theory knowledge is required to hear a contrasting middle or a rondo? This also allows for a discussion of pieces from many styles. For example, why is there a need for a contrasting middle? Ollen and Huron (2004) argue that form might be thought of in terms of habituation, and repeats become more frequent throughout a piece as a result of a need to economize on the amount of material being presented to the listener. Similarly, Savage *et al.* have shown that phrase repetition is "predominant on a global scale" (2015, 8988).

As Margulis (2014) has discussed, not only is music present in all cultures, but so is musical repetition. She argues that repetition allows for an attentional shift from the local to the global features of a composition, writing that "[R]epetition can at once erect perceived syntactic structures and invite a kind of participatory, shared subjectivity" (p. 12). If one of the primary evolutionary purposes of art is social cohesion (see Boyd, 2010; Dissanayake, 2008) it would make sense for a musical art to facilitate as much group participation as possible. Furthermore, repetition allows for more complex ideas to be transmitted and understood because repeated hearings facilitate the processing of more information. If we tend to prefer ideas that are "optimally complex" (Berlyne, 1960) it would make sense that repetition would be a required supplement to such musical ideas.

In an article focusing on the effects of oral transmission on Stephen Foster's "Oh, Susanna," Spitzer (1994) argues that formal variants in the original version of the piece are eventually replaced by parallel passages. Performers and listeners seem to prefer parallelism, to the degree that ideas that are varied and unequal become less so over time. This raises another question pertaining to repetition and form: to what extent do communicative constraints create formal boundaries? Lerdahl and Jackendoff (1983) include parallelism amongst their grouping preference rules, and Deliege (1987) found that these rules were applicable to both musicians and non-musicians (this is further discussed by both Temperley, 2001 and Cambouropoulos, 2001). Understanding the distinctions between repetition, similarity, variation, and difference is crucial to our understanding of formal boundaries, but we tend to not discuss it much in the traditional curricular design until students have had multiple semesters of theory.

In my experience, when introducing students to sentences and periods later in the curriculum, there is often a bit of confusion about the notions of parallel, transposed, and contrasting ideas. Beginning with discussions of how the return of phrases is treated, as well as the psychological desire for a coexistence of variation and cohesion, would be valuable to any theory curriculum, and could frame more specific stylistic discussions as students progress.

It would therefore make sense to have students diagramming form from the outset of their theory education. The stylistic nuances of phrase structure can be quite complex, but given the definitions of a sentence and a period, I've found that students are able to intuit a continuum of hybrid phrase structure quite similar to that presented by Caplin (1998, 63), with remarks such as "I think this would normally be a period because of a return of the material in measure 5, but it doesn't sound as though there's a break in measure 4 as I would expect." Although the intricacies of *formenlehre* can be quite complex, there's no need to withhold the general concepts, and placing the material earlier would not only generate discussions on aspects of differentiation, variance, repetition, and similarity but also provide students with a contextual understanding that a more "bottom-up" approach beginning with chord-to-chord transitions might not.

Step 2: Presenting Types of Closure

Once students are aware of these basic concepts, we might consider using discussions of closure as a means of discussing aspects of form, cadences, and phrase structure. It's remarkable that we are able to use nothing but an understanding of closure and parallelism to have informed discussions of phrase structure, and yet once again it all too frequently comes quite late in the curriculum, implicitly teaching students to focus more on the local chord-to-chord events than the signposts.

In Western art music, closure is inextricably linked to cadences, which Dunsby refers to as "one of the few consistently patterned aspects of musical structure" (1980, 43). Most investigations of closure have therefore examined cadences quite closely (e.g. Meyer, 1956; Narmour, 1992). Recently, Sears (2016) has examined the relationship between various cadential types and closure with both computational and experimental methods, arguing that classical cadences are strong predictors of closure, but – expectedly – many of the more nuanced aspects of cadential closure are learned stylistic traits.

Recently, I have started my Theory I classes by listening to Ragas, asking students to raise their hands as they feel a phrase is completed. There is a remarkable level of agreement, and we are then able to engage in the question of "What musical features contribute to your sense of closure? Is it related to scale degree? Rhythm? Duration?" Students are able to intuit points of closure quite well, and the discussion that ensues can be quite useful. We begin to talk about the role of different parameters in creating a sense of closure, whether more parameters might be more important than others, or if closure requires melodic, rhythmic, and harmonic elements to be working in concert. Here, we are discussing Meyer's notion of primary and secondary parameters (see Meyer, 1989, 14), in which certain musical features are more able to "establish criteria for closure" while others cannot. Having this discussion early means that it can inform and influence every subsequent analysis in the course.

Step 3: Examining Melodic Archetypes

In both speech and music, pitch tends to decline over the course of a phrase. As we progress through an utterance, we lose air from the lungs, intervals become smaller, and pitch becomes lower (see Collier, 1975; t'Hart, Collier, &, Cohen, 1990); in other words, speaking becomes more of an effort. Likely as a result of this physical constraint, melodies also tend to conform to archetypes that descend at the close. Huron (1996, 2016) found a prevalence of arch-shaped melodies in both German and Chinese folksongs, and Shanahan and Huron (2011) found that melodic intervals in German folksongs tend to become smaller over the course of the phrase (although this was not necessarily the case in non-Western folksongs). The interesting music theoretical question for the beginning student would therefore not be "Are there commonalities in melodic lines across cultures," but rather, "At what point would a performer or composer decide to exert more effort, and what expressive purposes does such an exertion serve?"

Recently, Joshua Albrecht and I conducted an experiment in which participants were asked to sing melodies to one another in a game of “musical telephone.” We found that cadences that ended with $\hat{7}-\hat{1}$ melodic motion were far more susceptible to change than those that ended with $\hat{2}-\hat{1}$ (Shanahan and Albrecht, 2019). In the same paper, we found that instrumental folksongs were far more likely to exhibit $\hat{7}-\hat{1}$ cadences than vocal songs of the same period, country, and genre, which were more likely to use $\hat{2}-\hat{1}$ endings. We conjectured that this was related to the increased effort required to produce an ascending gesture at the end of a phrase, at which point we have lost sub-glottal air pressure. As musical communication is a product of the human body, it shouldn’t be surprising that music is bound by physical constraints: melodies are constructed in certain ways because they are easier to produce; harmonic progressions are often related to the specific instrument on which they were composed (De Souza, 2017); and rhythms and dance forms are inextricably intertwined to dances and other physical gestures that facilitate the communication of a certain genre (Zbikowski, 2017). Nevertheless, I’m still shocked at how often we teach melodic construction as a disembodied set of principles derived from Western tonal music. The incorporation of aural skills is obviously a great connector, but the theory curriculum should also explicitly discuss the connection of theoretical principles with physical effort, and to do so early on.

Building upon these discussions, one might then move onto slightly longer melodic archetypes which, according to Meyer, are quite general, and “memorable and tend to be stable over time” (Meyer, 1980, 181). Many studies have examined common melodic archetypes and variants. For example, Bronson (1951) examined hundreds of folksongs from the British Isles, classifying the tunes within a relatively small number of melodic families. Gjerdingen (2007) has discussed schema similar to archetypes, and Byros (2009; 2012) has examined how such schemata can be thought of as a “situated psychology of hearing.”³ Recently, some theory curricula (such as one developed by Byros at Northwestern University and discussed in Sanchez-Kisielewska, 2017) have been structured around schemata, and the focus on the interplay of melodic archetypes seems to allow students to engage with very musical problems from a very early stage.

For example, a class can explain the most idiomatic aspects of a style – choosing to be as historically situated in their terminology as desired – and a discussion of stylistic opening, transitional, and cadential gestures would occur from the very beginning, before the discussion of Roman numerals or voice-leading rules. This would be offering what a jazz musician would call a “lick-based” approach to understanding a musical style. By conversing with the prototypes of the style, students can make “real music” sooner, and an understanding of the more specific rules will occur through the process.⁴

Step 4: Consonance and Dissonance

If a composer intends to convey a sense of independent voices, there are some best practices they might choose to employ. Huron (2001) presents the argument that the rules taught in the theory classroom are an efficient and valuable means of achieving one of the principal goals of music composed in the Western polyphonic style; namely, emphasis on the independence of voices, and the maximizing of as many harmonic colors from these voices as possible. Specifically, composers achieve the independence of voices through the reinforcing of specific perceptual principles: *toneness*, *temporal continuity*, *minimum masking*, *minimum tonal fusion*, *pitch proximity*, and *minimum co-modulation of pitches*.

By *toneness*, Huron is referring to how listeners perceive pitches within a certain range more clearly than others. The overall range for best perception of pitch is roughly 80–800Hz, or E2 to G5, and in both Western and non-Western music, the average pitches used fall near the middle of that range. Thus, as Huron states, “‘Middle C’ truly is near the middle of something” (Huron 2001, 9).

Bregman and Campbell (1971) argued that in order to maximize the perception of a single auditory stream, one should try to maximize *temporal continuity*. Put succinctly, notes separated by rests or other durational separators don't sound as connected as successive notes with durations that flow into one another. Therefore, in order to create a melodic stream, notes tend to be sustained somehow, and are most often followed by another pitch than a rest or another type of silence. Comparatively long durations and consistent melodic lines with sparing rests are therefore more common. Huron provides some statistics as well: 93% of all tones in vocal melodies by Stephen Foster and Franz Schubert (a combined corpus) are followed by another tone, rather than a rest (2001, 13).

Masking occurs when two tones interfere with one another, or the perception of one tone is hindered by the presence of another tone (see Greenwood, 1961b). According to many auditory scientists (Plomp and Levelt, 1965; Von Békésy, 1989), however, masking does not occur equally throughout all registers; smaller intervals cause more masking in lower registers than in high ones. Huron therefore argues that simultaneous tones should be spaced wider as the lower pitch descends in keeping with the goal of achieving “minimal masking” (2001, 33). To illustrate, Huron examines more than 10,000 vertical sonorities in Haydn string quartets and Bach's keyboard works and finds that as the bass descends, the distance between the bass and the tenor gets larger.

Tonal fusion – when multiple tones are most likely to be perceived as one tone, rather than separate discrete tones – is most likely to occur at the unison, followed by the octave and then the perfect fifth (Greenwood, 1961a; Plomp & Levelt, 1965; Huron, 1991). A musical style seeking to maximize the multiplicity of voices would minimize these intervals, and performing those intervals consecutively would only further hurt the polyphonic cause.

Pitch proximity plays a significant role in the perception of melody as well. Dowling (1967) found that participants preferred smaller interval sizes between melodic tones, and smaller melodic intervals seem to be the most common across cultures and styles. As Vos and Troost (1989) have pointed out, melodies in Western art music, rock, and folk musics are most likely to move by intervals of 1–2 semitones. As mentioned, Shanahan and Albrecht (2019) have similarly argued that descending stepwise motion at cadences is a result of constraints linked to physical effort; this type of motion occurs in many different folk musics of Europe, as well as in Native American folksongs. Smaller melodic intervals reinforce the notion of a melodic “stream,” whereas disjointed melodic lines impair the perception of a single melodic idea.

Finally, *pitch co-modulation* occurs when one interval moves to a similar interval through parallel or similar motion. Pitch co-modulation would be minimized by a preference for contrary or oblique motion in order to maximize independence of lines (see Bregman and Doehring, 1984; Huron, 2001, 30).

These guiding principles, grounded in auditory perception, have also been subjected to what we might refer to as communicative pressures: constraints not of cognition, but of social interactions. As an example, it is worth discussing how a voice-leading rule might begin as an awareness (explicit or implicit) about perceptual principles, be transmitted to other generations and cultures, and be adjusted to include value judgments and a fundamental “othering” of musics that don't adhere to the same guidelines. We need look no further than the most well-known rule to all theory curmudgeons: the avoidance of parallel fifths. Jean de Muir (c. 1290–1355) first wrote that “[w]e ought to avoid two perfect consonances ascending or descending in consecutive conjunction, so far as possible” (quoted in Sewall, 1926). Zarlino, employing a typical sixteenth-century Grecophilia, ascribed this principle to “the ancients,” as “they knew very well that harmony can arise only from things that are among themselves diverse, discordant, and contrary, and not from things that are in complete agreement” (Strunk, 233). Almost immediately, however, the idea that this rule could be broken for aesthetic reasons was commonplace. Caccini intentionally employed parallel fifths, despite being aware that doing so would

require justification. Writing in 1600 in the preface to *Euridice*, he states, “I have not avoided the successions of two octaves or two fifths, thinking thereby, with their beauty and their novelty, to cause a greater pleasure, especially since apart from these passages all the parts are free from faults” (quoted in Strunk, 371).

This seemingly innocuous guideline became intertwined with value judgments. Leopold Mozart wrote that the village musicians were singing in parallel fifths without knowing they had done it, and “[t]hus we may conceive of the parallel fifths and octaves of primitive peoples as nothing more than a more fully orchestrated unison” (see Sewall, 1926, 250). These judgments would continue well into the twentieth century. William Pastor writes of organum in 1913, stating: “the old Christian Psalmody approaches the primitive, horizontal music, and [...] is entirely foreign to the characteristic European feeling,” whereas “all polyphonic music is north-European and secular, or at least heathen, in origin” (Pastor, 1912, cited in Sewall, 1926, 253).

To reiterate, the first step can be teaching that the prohibition against parallel fifths is constructed out of a cognitive constraint that tones fuse at the octave and the fifth, and that this fusion hinders independence – but it should never be the only step. The conversation should always include how such rules have been avoided to great effect, and how they’ve been used as a means of othering musics and cultures perceived to be “less-than.”

Melodic Anchors

A similar trajectory takes place regarding a number of points of music theory. For example, Carner, when discussing non-chord tones, refers to such pitches as “foreign,” writing:

Just as they “spice” the chord by chromatic alterations, so they “ginger up” the melody with “foreign” chromatic notes. In addition, the use of chromatic unessential notes, particularly of passing and changing notes, imparts to the melodic line a greater fluency, suppleness and plasticity than it is possible on a diatonic basis.

(Carner, 1942, 8)

In terms of auditory perception, it’s true that we do make the distinction between “structural” and “ornamental” notes, and there is some truth to the simple axiom that “some notes are more important than others.” Dibben (1994) found that listeners were able to accurately identify a melody when non-structural pitches were removed, but were unable to identify the melodies when only presented with the ornamental pitches. Bharucha and Krumhansl (1983) found that certain tones are perceived as “cognitive reference points” for a melody, and serve anchoring roles that are enabled by the movement of tendency tones ($\hat{2}-\hat{1}$ and $\hat{7}-\hat{1}$). Similarly, Bharucha (1984) found that the perception of a pitch as “unstable” was contingent upon its relationship to the following note; an unstable note followed by a stable pitch is less salient than an unstable pitch that is not “anchored” to a stable pitch. This helps to explain why the leap to an appoggiatura must be followed by its stepwise resolution; the resolution helps to “anchor” the non-chord tone. Teaching the distinction between structural and ornamental tones as a basic cognitive principle rather than as a stylistic device would encourage students to apply this distinction to pieces with which they’re engaging at a very early stage.

Conclusion

As we’ve seen, a recurring theme in music theory has been to incorporate science as a justification for a common musical practice, and for this justification to be used as a way of privileging certain stylistic musical traits. To use Popper’s terms (1934/2005), the context of justification (whether

something should be done) can be conflated with the context of discovery (the origin of the idea). It would therefore seem quite important that any discussion of the “whys” of music theory takes into account how a student might interpret any reasons given. Beginning with an appeal to auditory perception could possibly be seen by a student as a reason for a certain style of music to be considered more “natural” or “correct,” whereas an appeal too strongly on the cultural factors could too easily be dismissed as archaic or inapplicable.

Perry (1981) proposes stages students undergo during their “cognitive and ethical development” in their college careers. Students enter college with a position of duality: there are right and wrong answers, and such answers are prescribed to them by their instructors. This gives way to multiplicity, in which everyone is entitled to their own opinion, and none is more right or wrong than another. Next, there is relative and procedural knowledge, in which any answer should be supported by logic and viewed within a certain context. The final stage of a student’s cognitive and ethical development is that in which the student integrates knowledge given to them by others with their own experiences, and the student realizes that making this connection to their own world is a continuing and ongoing process.

If a student in the first stage of Perry’s development (the Dualist stage), as most students are in their first semester of college, asks, “Why must I avoid parallel fifths?” an answer too heavily based on a single constraint can have a lasting consequence. Responding with, “It’s the style in which Bach wrote,” ignores that composers wrote in such a style to highlight independence of voices and there are certain cognitive constraints that might hinder the perception of independent voices. Conversely, a response such as, “Because we perceive fifths as more likely to fuse together,” could convey to the student that musical styles that follow these rules are somehow more “natural” or “correct.” A top-down approach allows for a student to be introduced to broader comparative aspects of music theory without being presented solely with specific stylistic points, which might be too easily interpreted as the “right” answer compared to anything else. Our role is therefore to teach students looking for a right or wrong answer that all music is the product of multiple constraints, and while we will talk about many in the theory classroom, they are only one part of a much larger story.

Notes

- 1 My thinking on a “top-down” approach to curricular design has been influenced by Anna Gawboy and Bruce Taggart, to whom I am extremely grateful.
- 2 This is taken from Meyer (1989, p. 8), who writes that human behavior is subject to the constraints of the physical, biological, and psychological worlds, as well as to those of the realm of culture.
- 3 It should be noted that a schema might be more akin to a prototype, which changes over time, rather than an archetype, which is thought of as relatively consistent.
- 4 For a more in-depth discussion of teaching music theory through prototypes, see Bourne (2018).

Bibliography

- Barlow, H., & Morgenstern, S. (1948). *A Dictionary of Musical Themes*. New York: Crown Publishers.
- Berlyne, D. E. (1960). *Conflict, Arousal and Curiosity*. New York: McGraw Hill.
- Bharucha, J., & Krumhansl, C. L. (1983). The representation of harmonic structure in music: hierarchies of stability as a function of context. *Cognition*, 13(1), 63–102.
- Bourne, J. (2018). Teaching music theory through a cognitive lens. In R. Lumsden & J. Swinken (Eds.), *Norton Guide to Teaching Music Theory* (pp. 107–125). New York: Norton.
- Boyd, B. (2010). *On the Origin of Stories: Evolution, Cognition, and Fiction*. Cambridge, MA: Belknap Press of Harvard University Press.
- Bregman, A. S., & Campbell, J. (1971). Primary auditory stream segregation and perception of order in rapid sequences of tones. *Journal of Experimental Psychology*, 89(2), 244–249.

- Bregman, A. S., & Doehring, P. (1984). Fusion of simultaneous tonal glides: the role of parallelness and simple frequency relations. *Perception & Psychophysics*, 36(3), 251–256.
- Bronson, B. H. (1951). Melodic stability in oral transmission. *Journal of the International Folk Music Council*, 3, 50–55.
- Byros, V. V. (2009). *Foundations of Tonality as Situated Cognition, 1730–1830: An Enquiry into the Culture and Cognition of Eighteenth-Century Tonality with Beethoven's "Eroica" Symphony as a Case Study*. PhD Dissertation, Yale University.
- Byros, V. (2012). Meyer's Anvil: revisiting the schema concept. *Music Analysis*, 31(3), 273–346.
- Carner, M. (1942). A study of twentieth century harmony: Contemporary harmony. Joseph Williams.
- Cambouropoulos, E. (2001). Melodic cue abstraction, similarity, and category formation: a formal model. *Music Perception: An Interdisciplinary Journal*, 18(3), 347–370.
- Caplin, W. E. (1998). *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven*. New York and London: Oxford University Press.
- Collier, R. (1975). Physiological, correlates of intonation patterns. *The Journal of the Acoustical Society of America*, 58(1), 249–256.
- De Souza, J. (2017). *Music at Hand: Instruments, Bodies, and Cognition*. New York: Oxford University Press.
- Deliège, I. (1987). Grouping conditions in listening to music: an approach to Lerdahl & Jackendoff's grouping preference rules. *Music Perception: An Interdisciplinary Journal*, 4(4), 325–359.
- Dibben, N. (1994). The cognitive reality of hierarchic structure in tonal and atonal music. *Music Perception: An Interdisciplinary Journal*, 12(1), 1–25.
- Dissanayake, E. (2008). The arts after Darwin: Does art have an origin and adaptive function. In Zijlmans, K. & van Damme, W. (Eds). *World Art Studies: Exploring Concepts and Approaches* (pp. 241–263). Amsterdam: Valiz.
- Dowling, J. (1967). *Rhythmic Fission and the Perceptual Organization of Tone Sequences*. (PhD Thesis). Cambridge, MA: Harvard University.
- Eitan, Z., & Timmers, R. (2010). Beethoven's last piano sonata and those who follow crocodiles: cross-domain mappings of auditory pitch in a musical context. *Cognition*, 114(3), 405–422.
- Gjerdingen, R. (2007). *Music in the Galant Style*. New York: Oxford University Press.
- Greenwood, D. D. (1961a). Critical bandwidth and the frequency coordinates of the basilar membrane. *The Journal of the Acoustical Society of America*, 33(10), 1344–1356.
- Greenwood, D. D. (1961b). Auditory masking and the critical band. *The Journal of the Acoustical Society of America*, 33(4), 484–502.
- t'Hart, J. T., Collier, R., & Cohen, A. (1990). *A Perceptual Study of Intonation*. Cambridge: Cambridge University Press.
- Huron, D. (1991). Tonal consonance versus tonal fusion in polyphonic sonorities. *Music Perception: An Interdisciplinary Journal*, 9(2), 135–154.
- Huron, D. (1996). The melodic arch in Western folksongs. *Computing in Musicology*, 10, 3–23.
- Huron, D. (2001). Tone and voice: a derivation of the rules of voice-leading from perceptual principles. *Music Perception: An Interdisciplinary Journal*, 19(1), 1–64.
- Huron, D. (2016). *Voice Leading: The Science behind a Musical Art*. Cambridge, MA: MIT Press.
- Krumhansl, C. L., & Kessler, E. J. (1982). Tracing the dynamic changes in perceived tonal organization in a spatial representation of musical keys. *Psychological Review*, 89(4), 334–368.
- Lakoff, G. (1990). The invariance hypothesis. *Cognitive Linguistics*, 1(1), 39–74.
- Lerdahl, F., & Jackendoff, R. S. (1983). *A Generative Theory of Tonal Music*. Cambridge, MA: MIT Press.
- Margulis, E. H. (2014). *On Repeat: How Music Plays the Mind*. New York and London: Oxford University Press.
- Meyer, L. B. (1956). *Emotion and Meaning in Music*. Chicago, IL: University of Chicago Press.
- Meyer, L. B. (1980). Exploiting limits: creation, archetypes, and style change. *Daedalus*, 109(2), 177–205.
- Meyer, L. B. (1989). *Style and Music: Theory, History, and Ideology*. Chicago, IL: University of Chicago Press.
- Narmour, E. (1992). *The Analysis and Cognition of Melodic Complexity: The Implication-Realization Model*. Chicago, IL: University of Chicago Press.
- Nettl, B. (1995). *Heartland Excursions: Ethnomusicological Reflections on Schools of Music*. Urbana: University of Illinois Press.
- Ollen, J., & Huron, D. (2004). Listener preferences and early repetition in musical form. In S. Lipscomb, R. Ashley, R. Gjerdingen, & P. Webster (Eds.), *Proceedings of the International Conference for Music Perception and Cognition* (pp. 405–407). Evanston, IL.
- Pastor, W. (1912). *The Music of Primitive Peoples and the Beginnings of European Music*. Essay printed in *The Annual Report of the Smithsonian Institute, 1912*.

- Perry, W. G. J. (1981). Cognitive and ethical growth: The making of meaning. In A. W. Chickering (Ed.) *The Modern American College* (pp. 76–116). San Francisco: Jossey-Boss.
- Plomp, R., & Levelt, W. J. (1965). Tonal consonance and critical bandwidth. *The Journal of the Acoustical Society of America*, 38(4), 548–560.
- Popper, K. (1934/2005). *The Logic of Scientific Discovery*. New York: Routledge.
- Sánchez-Kisielewska, O. (2017). The rule of the octave in first-year undergraduate theory: teaching in the twenty-first century with eighteenth-century strategies. *Journal of Music Theory Pedagogy*, 31, 113–134.
- Saslaw, J. (1996). Forces, containers, and paths: the role of body-derived image schemas in the conceptualization of music. *Journal of Music Theory*, 40(2), 217–243.
- Savage, P. E., Brown, S., Sakai, E., & Currie, T. E. (2015). Statistical universals reveal the structures and functions of human music. *Proceedings of the National Academy of Sciences of the United States of America*, 112(29), 8987–8992.
- Schaffrath, H., & Huron, D. (1995). *The Essen Folksong Collection in the Humdrum Kern Format*. Menlo Park, CA: Center for Computer Assisted Research in the Humanities.
- Sears, D. (2016). *The Classical Cadence as a Closing Schema: Learning, Memory, & Perception* (PhD Dissertation). McGill University.
- Sewall, M. G. (1926). Hucbald, Schoenberg and others on parallel octaves and fifths. *The Musical Quarterly*, 12(2), 248–265.
- Shanahan, D., & Albrecht, J. (2019). Examining the effect of oral transmission on folksongs. *Music Perception*, 36(3), 273–288.
- Shanahan, D., & Huron, D. (2011). Interval size and phrase position: a comparison between German and Chinese folksongs. *Empirical Musicology Review: EMR*, 6(4), 1–12.
- Sperber, D. (1996). *Explaining Culture: A Naturalistic Approach*. Oxford and Maiden, MA: Blackwell.
- Spitzer, J. (1994). “Oh! Susanna”: oral transmission and tune transformation. *Journal of the American Musicological Society*, 47(1), 90–136.
- Strunk, W. O. (1998). *Source Readings in Music History*. New York: W. W. Norton & Company.
- Temperley, D. (2001). *The Cognition of Basic Musical Structures*. Cambridge MA: MIT Press.
- van Kranenburg, P., Janssen, B., & Volk, A. (2016). The Meertens Tune Collections: The Annotated Corpus (MTC-ANN) versions 1.1 and 2.0. 1. *Meertens Online Reports*. Meertens instituut KNAW. Retrieved from <https://dspace.library.uu.nl/bitstream/handle/1874/346322/Meertens.pdf?sequence=1>
- Von Békésy, G. (1989). *Experiments in Hearing*. Acoustical Society of America through the American Institute of Physics by arrangement with McGraw-Hill Book Company.
- Vos, P. G., & Troost, J. M. (1989). Ascending and descending melodic intervals: statistical findings and their perceptual relevance. *Music Perception: An Interdisciplinary Journal*, 6(4), 383–396.
- Zarlino, G. (1573). *Istitutioni harmoniche del reu. messere Gioseffo Zarlino da Chioggia, ... di nuovo in molti luoghi migliorate, et di molti belli secreti nelle cose della prattica ampliate...* Con due tavole, l'una che contiene le materie principali, et l'altra le cose piu notabili che nell'opera si ritrovano. appresso Francesco de i Franceschi senese.
- Zbikowski, L. M. (2017). *Foundations of Musical Grammar*. Oxford; New York: Oxford University Press.

15

VOICE-LEADING DETECTIVES

Meghan Naxer

Topic: Stylistic voice-leading norms.

Goal: Students will be able to identify and explain voice-leading practices for a given style.

Background: Students need to be able to identify basic diatonic harmonies and chord inversions, preferably with Roman numerals. This lesson is best taught before any kind of exposure to part-writing, voice-leading discussions, or figured bass realization.

One of the most frustrating and abstract concepts first-year music theory students encounter is voice-leading and four-voice part-writing. While much time is dedicated to the topic in commercial textbooks and traditional core curricula, David Kulma and I argue that “when part writing becomes a set of memorized rules rather than a flexible tool, it limits the engagement and agency of our students” (Kulma and Naxer, 2014). This lesson plan puts students in the driver’s seat as they discover voice-leading practices from literature.

In this activity, groups of students will work together to answer a list of questions about a specific musical excerpt. Every group will receive a different musical excerpt and the same set of guiding questions related to voice-leading. After groups have answered their questions, students will collaboratively compare answers in order to compile a more comprehensive set of observations that are similar (or different) for all the different pieces of repertoire. Preparing students to take on the role of musical detectives involves three important elements of planning for the instructor: preparing musical questions, selecting appropriate repertoire excerpts, and forming student groups.

How do music theorists understand and recognize voice-leading patterns? In order to help students know what to look for during this activity, I recommend providing students with guiding questions that may include: how many voices are present? How is *ti* resolved? How is *fa* resolved? Do any chords consistently appear in inversion? Are any pitches in triads doubled? These questions challenge students to consider the music in more detail, rather than simply discovering how a chord is spelled. Questions about chord inversions and doubling also build recognition of chord qualities, scale degrees, and inversions in a variety of musical textures. Roman numerals may be provided for each excerpt, or the lesson plan can be expanded over several days to include labeling chords before examining voice-leading. Please see the online Supplemental Materials for a handout with a list of suggested questions and scores (without Roman numerals).

Repertoire selections for this activity are crucial, as excerpts need to be long enough for students to be able to make generalizations about their findings, but short enough for them to answer

their guiding questions in one or two class meetings (depending on class meeting lengths and frequency). A variety of textures and style periods is also ideal, depending on the ability level of students in the class. The repertoire included in the online materials was selected with several factors in mind, including prevalence of diatonic harmonies, straightforward textures, and clear cadences. I also selected six pieces so each student group would only have about three to four members. Once repertoire is selected, I ranked the pieces from easiest to most difficult (for the online materials: Schubert, Bach, Haydn, Mozart, Beethoven, and Lang) and created groups for each repertoire selection with a mix of student ability levels. Grouping students in this way encourages closer-knit teamwork and even pacing between groups. Creating predetermined groups can also prevent a struggling student from working on a piece of repertoire that is too challenging for their current ability level and prevent an excelling student from the lack of a good challenge. Once the questions, repertoire, and groups are created, it is time to run the activity during class.

This activity is broken up into two distinct parts: investigation and discussion. For the investigation, I provide student groups with their assigned score and list of investigative questions. I float around the classroom answering questions and observing the pacing of each group. If I find that several groups are getting stuck on the same question, I may offer a general tip for the class as a whole. If one group is getting behind, I may point out several questions for them to focus on more than others so they are able to catch up in a timely manner. Since this activity is all about discovery, I avoid answering any investigative questions for a group. Instead, I will provide a group with hints and further questions to aid in their discovery. During the investigative time it is also important to consider how to handle excerpt recordings and access to a piano. For using recordings, providing the class with a link to a playlist or recordings on a course website or learning management system (e.g. BlackBoard, Canvas, Moodle) may be sufficient. (A link to a YouTube playlist of the included repertoire is included in the Supplemental Materials.) Having one or more portable speakers may also make it easier for each group to listen to their musical selections. Another option is playing each excerpt for students at the beginning of the activity and playing recordings an additional time upon request. If there is a piano available in the classroom, some groups may find it helpful to reference a few measures of music at the piano in addition to hearing recordings.

After each group has compiled a list of answers for their particular excerpt, the class engages in discussion. Before discussing their findings, I provide all students with all the scores currently being investigated so they may reference and study those additional materials and freely communicate their findings among all groups. (For example, “We found one seventh chord in m. 4.”) Overall, most groups should have very similar answers to most of the questions from their investigation. These shared findings may be compiled on a board or in a collaborative Google doc or other online tool so students can see the similarities (and any differences) between groups. Again, the goal is for students to discover, in a larger collaborative environment, that tonal music follows similar trends in voice-leading practices in a wide variety of textures, styles, and time periods. Instead of being told or reading about doubling the root in root-position triads, students will discover this practice in musical repertoire – initially on their own in small groups, and then confirmed by the findings of their peers. After working through each question, students will gain an understanding of basic voice-leading through observation and collaboration.

There are multiple ways to continue exploring these basics of voice-leading in future classes. Because students began by observing voice-leading practices in repertoire, composing a short phrase of music in the style of one of the activity’s pieces is one way students could begin applying this knowledge. Another follow-up activity might include asking students to examine multiple phrases of music by a single composer, with one “fake” excerpt having irregular voice-leading patterns that they need to identify. For example, if one or more of the detective excerpts was a

string quartet by Mozart, this activity would include several phrases of music by Mozart and one excerpt by Mozart with altered voice-leading that would make the phrase uncharacteristic. The goal for the students is to identify which of the excerpts does not match the others. Further work with the altered excerpt could include identifying what voice-leading practices are uncharacteristic and rewriting the excerpt without the voice-leading errors. At the end of the exercise, students could compare their rewritten excerpt with the original phrase by Mozart before the voice-leading alterations were made.

Additional alterations to the included lesson plan include adjusting the repertoire genre to focus on different kinds of voice-leading. For example, what voice-leading norms would students discover by comparing Top 40 tracks from the 1980s? 1990s? What about music composed for film franchises like Marvel or Star Wars? How would students interpret parsimonious voice-leading in music composed by John Adams or Philip Glass? For students studying post-tonal repertoire, how would the investigation change when examining atonal voice-leading? While the included lesson plan has focused on the genres of music most first-year students will be studying, there are a multitude of ways this lesson plan could be adapted for a class studying any number of different genres or stylistic periods. This lesson could even be repeated in the same class in order to make numerous voice-leading investigations, culminating in a discussion of what different genres and stylistic periods have in common and how voice-leading practices have changed over time.

As students continue exploring topics in voice-leading, referring back to this detective activity and the knowledge gained through observations can help students make connections between music they are gaining familiarity with and new music theory topics. Encouraging students to continue discovering musical patterns in music outside of class may also lead to new epiphanies or questions in class in the future. This lesson plan invites students to become musical detectives – hunting for patterns, finding clues that will help them answer questions, and working together to discover commonalities between different pieces of music. By the end of the activity, students will be able to identify the typical voice-leading tendencies of a given style. When they are ready to begin working in a four-voice or keyboard texture, students will have a model of guidelines for voice-leading from repertoire that they discovered on their own alongside their peers.

In summary, creating a voice-leading detectives activity involves three planning elements and two in-class elements. Before class, you will need to compile investigative questions, repertoire selections, and decide on how to form groups for each piece of repertoire. During class, you will need to set aside time for the investigation and for the collaborative discussion. Numerous factors, such as student abilities, class size, and class length, to name a few, will impact how long the in-class portions will take to complete. In my own experience with this activity, I have found a minimum of 30 minutes is needed for the investigative portion and a minimum of 20 minutes for the discussion. Depending on your own class, you may decide to split the investigation and discussion between two class meetings. Ultimately, this kind of activity may kindle a musical curiosity for continuing investigations of music inside and outside the music theory classroom.

Bibliography

Kulma, David, and Meghan Naxer. 2014. "Beyond Part Writing: Modernizing the Curriculum." *Engaging Students: Essays in Music Pedagogy* 2.

16

HARMONIC SEQUENCES SIMPLIFIED

The First Week of Instruction

Brent Auerbach

Topic: Harmonic sequences.

Goal: Students will identify the most common sequences by sight and sound.

Background: Familiarity with diatonic (letter-name) space and intervals will be helpful.

This chapter describes a proven strategy for introducing harmonic sequences in a written theory course. A harmonic sequence is said to occur when a “model” pattern of (usually) two chords immediately repeats one or more times under diatonic transposition. The well-known “Pachelbel” or “Romanesca” pattern in C major presents a C–G chord model followed by four more chords, a–e and F–C (Gjerdingen 2007, 25–34).¹ Typically, as the root succession repeats, most or all parts of the texture retain their model voice-leading.

Several sequence naming systems are in current use. The chord progression C–F–b^o–e–a–d–G–C might be known to some as a “circle of fifths” and to others as a linear intervallic pattern (Forte–Gilbert 1982). A growing trend involves labeling sequences according to the root motion occurring within the model and the interval directing the path of its copies (Ricci 2002). For the Romanesca, the model interval C–G is an ascending fifth and the transposing interval is a descending third (e.g. the C–G model restarts down a third on a–e). This system is codified in Steven Laitz’s *The Complete Musician* textbook (2012, 325–386). This chapter employs my closely related variant of Laitz’s method; however, the pedagogical techniques described can be adapted to any classroom, no matter what labeling convention is preferred.

To ensure success, teachers should foster pre-familiarity with sequences. In the weeks before this first lesson, students can be aurally acquainted with the four main exemplars of harmonic sequence printed in Figure 16.2. These are dubbed the “Bingo progression,” the “Pachelbel progression,” the “Brahms 4 brass progression,” and the “Little Prelude progression.” It is not necessary to concentrate on that figure’s annotations now; we will revisit them below.

Lesson 1, 50 Minutes

Topics:

- Diatonic root motions by 2nd, 3rd, 5th
- The four exemplars
- How to label any two-chord sequence

The start of a new unit often injects fresh energy into a class. In this case, students may be excited to learn that they will be granted a respite from Roman numeral labeling. That said, chords remain chords, and we will at all times describe them in terms of their roots, qualities, and inversions. The new wrinkle is that we will be concerned with the directed distances separating chord roots, as opposed to their scale step identity.

To measure root distance, we eschew Roman numerals in favor of “Classical lead sheet” symbols that specify root letter name, chord quality, and inversion, e.g. $A\flat_4^6$ or e^{o6} . Students first practice applying Classical lead-sheet symbols using the exercise shown in Figure 16.1a, placing their answers in the line marked “symbol.” (A blank version of the worksheet appears in the Supplemental Materials.)

With aid of Figure 16.1b, students are prompted to consider how distances between chords can be measured. In this quick review of diatonic space, it should be emphasized that only six chord root motions are needed to connect all letter-name roots. These are **seconds**, **thirds**, and **fifths**, all of which will manifest in **ascending (A)** or **descending (D)** forms.²

1. 2. 3. 4. 5. 6.

symbol: C e C6 e C d6 d6 C6 E6 a F C

interval: A3 A3 A2 D2 D5(!) A5

Figure 16.1a Classical lead-sheet symbol exercise.

Instructions: First, identify the root letter, quality, and inversion for each chord (e.g. e^{o6} , G_4^6) and write these in the line marked “symbol.”

Second, determine a root interval distance (A2/D2, A3/D3, or A5/D5) between each pair of letter names and write this in the line marked “interval.”

<----- Descending Letter name space Ascending ----->

G A B C D E F G A B C

Intervals (arrow toolbox)

A2 →

D2 ←

A3 →

D3 ←

A5 →

D5 ←

Figure 16.1b A2/D2, A3/D3, and A5/D5 are the most efficient chord root intervals in diatonic (letter name) scale space. Students should practice measuring distances between letter names using the three sizes of arrows given in the “toolbox.”

*A blank worksheet version of this graphic is provided in the Supplemental Materials as Figure 1s.

Some verbal drilling with Figure 16.1b at hand will solidify this concept:

“Starting at any *A* chord, how far to any *B* chord?”

Answer: ascending second (A2).

“Starting from any *G*[#] chord, how far to any *E*^b chord?”

Answer: descending third (D3). The accidentals qualifying *G* and *E* are not accounted for in diatonic space.

“Starting from any *E*⁷ chord, how far to any *A* chord?”

Answer: descending fifth (D5). Any response of 4th, 6th, or 7th should be recast as a “primary” interval, 5th, 3rd, or 2nd.

Newly acquainted with this limited palette of intervals, A2&D2, A3&D3, and A5&D5, students return to the exercise in Figure 16.1a to evaluate the distance (“interval”) between each pair of roots. The exercise includes both simple and counterintuitive examples.

At this early stage, students must be prompted to think abstractly about root motion and not literally about bass line melodic motion. In Question 3, the root motion is A2; the bass leap by fourth is immaterial. Questions 3 and 4 confirm that ordering matters; moving from *C* to *D* is not equivalent to moving from *D* to *C*. The answer to Question 5 is not A2; it is D5 motion, essentially a *V*⁶–*i* progression in *A* minor.

We next invoke the four exemplars shown in Figure 16.2. (The instructor should work from the figure printed below, while students use Figure 16.2s, which is available in the online Supplemental Materials.) Each exemplar has been given a nickname in the left column that reflects its origins. Exemplar number 1 is based on the refrain of the American folk song, *B-I-N-G-O*, number 2 on the opening of Pachelbel’s *Canon in D*, number 3 on a late passage of Brahms’s *Fourth Symphony*’s finale movement, and number 4 on Bach’s “*Little Prelude*,” BWV 924. A YouTube playlist of recordings of the exemplars can be accessed from the “Links” document included in the Supplemental Materials.

The class should interact with the exemplars in multi-part singing. They first sing the two-chord model that initiates the Bingo progression: *D*–*G*, a surface **D5** motion. The two-note voice-leading in all four voices should be explored, with special attention given to the bass.³ Even without using the score, students can generate the full Bingo sequence by employing a **D2** transposition strategy. In the soprano, they should imagine the starting *mi*–*fa* restarting down a step on *re*–*mi*, then on *do*–*re* and *ti*–*do*. The bass model pattern begins *do*–*fa* and then repeats on *ti*–*mi*, *la*–*re*, and *sol*–*do*.

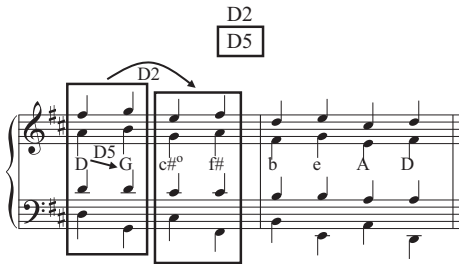
The same singing task should be applied to the other exemplars, time permitting. Note that it is critically important, even at this early stage, to explore exemplar patterns in both major and minor modes. “*Te*” versus “*ti*” solfège should be used to distinguish the minor *v* triads used in the interior of sequences from the major *V* needed for cadential motions to *i*.

Lesson 1 culminates in the topic of formally labeling harmonic sequences. The starting point for discussion is the fully analyzed Bingo exemplar appearing at right in Figure 16.2, which is blank on the student worksheet available online. All of its chords must carry lead-sheet symbols, which serve as the basis for measuring the two kinds of diatonic intervals that the students concentrated on when singing it. The surface interval they sang, shown *within* each model-and-copy box, was a **D5**. The transposition interval, shown by the arrow drawn *between* the boxes, was a **D2**.

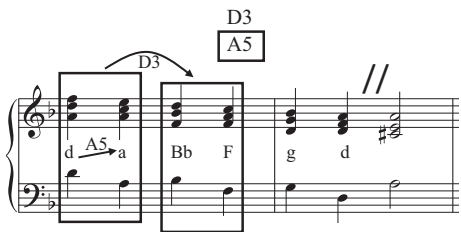
a. Class Nicknames

b. Formal label

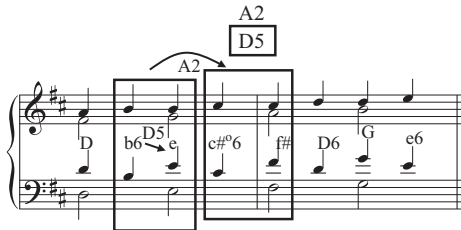
1. Bingo progression



2. Pachelbel progression



3. Brahms 4 brass progression



4. Little Prelude Progression

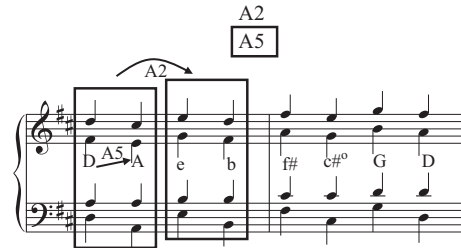


Figure 16.2 The “Four Exemplar” harmonic sequences. The sequences, given in musical notation in the left column, are analyzed at right according to model progression (boxed), chord roots/qualities/inversions, and root interval.

* A blank worksheet version of this graphic is provided in the Supplemental Materials as Figure 2s.

These two pieces of information provide the basis for labeling all two-chord harmonic sequences. The format is as follows:

Transposing Interval
Surface Interval

When setting this label in typeface, it is often necessary to list the interval components side-by-side as such: Transposing IntervalSurface Interval. Both formats will be used interchangeably in this chapter.

As they introduce this label format, instructors should stress its correspondence with the boxes and arrows used in the analyzed Bingo exemplar. It is a visual analog: in label and graphic alike, the surface interval appears inside the box. Similarly, in both cases, the transposing interval appears outside of the model.

After discovering why the Bingo progression is named D2D5, students should determine proper labels for the remaining exemplars. For the Pachelbel progression given in D minor, they again begin by labeling the chords. The answer, shown at right in Figure 16.2, is d–a–B♭–F–G–d. The bold hash marks indicate where the patterning and thus the sequence concludes; the A chord that follows is tacked on to create a half cadence.

Students next determine the label’s two interval components. Most students will select the d–a motion as the surface interval, calling it an A5. A few might select the other interval spanning the second to third chords: this “even-odd” reading posits a–B♭ as the model succession, an A2. The instructor should accept both readings at this early stage; however, she should give strong preference to the former because it is a true *harmonic* motion. (The fifth-based choice establishes the half-cadence gesture, i–v, as the basis for transposed repetition.) No matter which surface interval is chosen, the transposing interval will be D3. The full analytic process yields the label, D3A5, or, less preferred, D3A2.

The same process applied to the Brahms 4 brass progression yields A2D5 as the preferred label. Remarkably, in this case, the surface root interval manifests among the even-to-odd pairs, whereas the odd-to-even pairs produce the weaker harmonic root motion, D3.⁴ The instructor should generalize this point, noting the possibility that any sequence spotted “in the wild” might begin mid-model. This A2D5, for instance, is properly eight chords long, even though the appearance of the full model is delayed to its second-to-third chords.

Lesson 1 should conclude by emphasizing the following summary points:

1. A harmonic sequence is a two-chord harmonic unit that repeats under transposition.
2. All chord motions are measured according to chord root distance, *not* bass motion. The only distances recognized are D5&A5, D3&A3, and D2&A2.
3. The proper label format includes a Transposing Interval measured as the distance between every-other-chord, and aSurface Interval measured as the distance between adjacent chords, with preference given in the order 5ths >> 3rds >> 2nds.

The homework provided in the Supplemental Materials will allow students to practice identifying harmonic sequences in the literature. The approach I recommend, again, follows Laitz (2012). Whenever students encounter a sequence, they should enclose that portion of the score in large brackets [], and provide a full sequence label. They should indicate the key of the example and give traditional Roman numerals for the sequence’s first and last chords (i.e. the “edges”). For an illustration of this process, see the homework’s answer key appearing in the Supplemental Materials.

Lesson 2, 50 Minutes

Topics:

- Group study of Handel's "Sheba" from *Solomon*
- Measures 1–50: Sequence versus no sequence
- Measures 51–89: Exemplar and novel sequences

Where the first lesson concentrated on more theoretical aspects, the second one emphasizes harmonic sequence analysis. The focus is Handel's "Entrance of the Queen of Sheba," an effervescent concerto-style movement for oboes and string orchestra. Both a blank and annotated version of the score, as well as a link to a recording, are included in the Supplemental Materials.

At the beginning of this class meeting, the following guidelines should be displayed:

1. A proper sequence consists of a two-chord model and at least one complete copy.
2. Many harmonic sequences are fully patterned; however, one or more voices may exhibit variation across repetitions.
3. No sequence is present where the bass is static or absent.
4. Expect the four exemplars, but other sequence types are possible. If you discover a novel pattern, devise a label!

Students should break into small groups and listen to the piece twice, with a few minutes given in between. Their task is to determine the location and identity of all harmonic sequences. They should be able to find most of them within ten minutes after the second playing concludes. Where group work concerning Roman numeral analysis can be a tedious enterprise, group discussion of sequences typically flows faster.

The instructor can then begin group discussion. A good way to begin is to ask, "Where does the first clear sequence appear?" Classes will quickly identify the D3 $\overline{A5}$ (Pachelbel) in mm. 7–9 and its recurrences in mm. 31–33, 59–61, and 80–82.

Discussion should continue in two stages. The first stage, centering on mm. 1–50, allows students to work on distinguishing sequence events from non-sequence events. I have found it effective to open with a provocative assertion: "Aside from mm. 7–9 and 31–33, only one other sequence appears in mm. 1–50."

Students may bristle at this, objecting that mm. 1–2 feature a patterned bass line.

Response: "The bass has passing tones. The upper strings express a single tonic chord in m. 1."

They may object that mm. 3–4.1 express a D2 $\overline{D5}$.

Response: "The bass starts this way, but the pattern breaks at the end of m. 3. Beats 3–4 express a single C⁷ chord."

They may object that mm. 5.3–6.3 contain a sequence that is similar to the candidate from mm. 1–2 but is more fully patterned.

Response: "This is the one exception to my claim about mm. 1–50, and good on you for finding it! It is not perfectly patterned in its inner voices, but the chord roots adhere to D2 $\overline{D5}$. Reading the string of lead-sheet symbols, one can see that even the chord inversions are patterned, alternating between $\frac{6}{3}$ and root position seventh chords."

They may object that m. 11 contains a sequence because of the patterned bass motion.

Response: "That is a scale. No chords are present."

Last, some students may intuit that a two-beat sequence appears in mm. 23.1–23.2 and that a four-beat sequence appears in m. 36.

Response: “It is true that there are tiny melodic sequences present, but there are no functional bass lines nor any chords.”

Where mm. 1–50 offers a test field for distinguishing sequence from non-sequence, the remainder of the piece offers abundant opportunity both for recognizing/labeling exemplars and engaging with sequence variants. In mm. 51–54 the music moves among the chords G^6 – c – F^6 – $B\flat$ – $E\flat^6$ – a° – D^6 – g . Even though the melody in the oboes is not perfectly patterned, this constitutes a bona fide $D2[D5]$ sequence.

Only four measures intervene before another sequence appears in $E\flat$ major, a $D3$ $[A5]$ (mm. 59–61). Measures 66–70.1 present the largest harmonic sequence yet, and an unfamiliar one, to boot. Determining the lead-sheet symbols here is straightforward: $E\flat$ – C^6 – f – D^6 – g – $E\flat^6$ – $A\flat$ – F^6 – $B\flat$. The challenge is deciding whether to pick a model that spans each odd-to-even chord pair, $D3$, or one that spans each even-to-odd pair chords, $D5$. Of the two, $D5$ is preferred because it exhibits a stronger “harmonic” sensibility. Whichever is selected, it repeats up a step each measure, yielding the sequence label $A2[D5]$ or, less preferred, $A2[D3]$. The sequence in mm. 74–75 is $A2$ $[A5]$, the Little Prelude progression. The c chord and g chords in m. 75 pass through first inversion, causing some variation in the bass line; however, the upper three voices are perfectly patterned.

The music in mm. 76–79 poses one last challenge, encouraging class members to step briefly off the well-worn path of textbook analysis. Some students likely will have bracketed a sequence or two here. If prompted further, they will observe that mm. 78–79 present an inexact $A2$ assembled from applied V_5^6 – I motions. This pattern can be dispatched with the label, $A2[D5]$.

Measures 76–77 present as a variant of the $D2[D5]$, but this time the model takes up three chords: c – G – c . What information should go in the box in this case? We could label the model as $D5$, in which a non-essential c chord adorns a central, G – c core motion. Or we could explore a new kind of model entirely. One possibility is to track *both* surface motions in m. 76, $[A5 D5]$. Another is to depict the model as a miniature progression, $[i-V-i]$, that repeats a step downward in m. 77. The class should weigh all options, postponing a decision until more three-or-more chord sequences are encountered.

Conclusion

These first lessons seek only to introduce harmonic sequences. Their early emphasis on analysis, however, can take students only so far. Part-writing sequences is of paramount importance and should be practiced in Week 2 of the unit; a good starting point is to practice setting all of the exemplar progressions in various keys. Eventually, all common bass line variants for sequences should be studied in analysis and part-writing, too. (Some preparation for this will stem from strict adherence to the requirement that Classical lead-sheet symbols document chord inversion.) So should applied-chord sequences, which should return after the unit on applied dominant harmony is complete. When it is time to broach that topic, the first example put before the class can be mm. 78–79 of Handel’s “Sheba.”

Harmonic sequence is no mere enrichment topic, but a core compositional phenomenon that exhibits its own, unique harmonic logic (Fétis 1840, 164). Thus, the more time is dedicated to harmonic sequences, the more theory students will not only grow comfortable in working with them, but will come to appreciate the pivotal role they play in shaping the tonal/rhythmic energy of musical works.

Notes

- 1 The formatting of all letter names indicates chord quality. For example: the designations C, c, and c^o signify C major, C minor, and C diminished triads.
- 2 Auerbach (2013) argues for privileging these intervals of 5th, 2nd, and 3rd, on the basis of their being the primary embodiments of harmonic, melodic, and smooth voice-leading impulses, respectively.
- 3 All solfège in this essay is based on movable do and do-based minor systems. Instructors that prefer other solfège methods should feel free to adapt them as needed.
- 4 Laitz (2012) prefers the label A2 D3 for this sequence. It is frequently viewed as a contrapuntal sequence, generated by 5–6 motion that transforms the model's root position triad into one in $\sharp$ position. Throughout the sequence unit, instructors should drill all common nicknames for the sequences with the two-interval formula; for example, "Circle of Fifths" for D2D5 and "Ascending Circle of Fifths" for A2A5.

Bibliography

- Auerbach, Brent. 2013. "Techniques for the Functional Classification of Two-Chord Sequences." *Intégral* 27: 107–57.
- Fétis, Francois-Joseph [1840] 1994. *Esquisse de l'histoire de l'harmonie*. Tr. and ed. Mary Arlin. Stuyvesant, NY: Pendragon Press.
- Forte, Allen, and Steven Gilbert. 1982. *Introduction to Schenkerian Analysis*. New York: W.W. Norton.
- Gjerdingen, Robert. 2007. *Music in the Galant Style*. New York: Oxford University Press.
- Laitz, Steven. 2012. *The Complete Musician*, 3rd ed. New York: Oxford University Press.
- Ricci, Adam. 2002. "A Classification Scheme for Harmonic Sequences." *Theory and Practice* 27: 1–36.

17

GRADING THE SONG

Michael Baker

Topic: Voice-leading and part-writing rules.

Goal: Students will be able to identify part-writing errors in composed musical excerpts from songs and compare the use of voice-leading “errors” as depicting important imagery and ideas in the poetic text.

Background: Familiarity with typical voice-leading and part-writing rules in four voices (SATB) texture, ability to identify errors in a printed score.

One of my favorite and most successful lessons in the freshman-year music theory curriculum is called *Grading the Song*. This lesson follows a few class meetings on general part-writing principles, and ideally students will have learned to compose short progressions in four voices (SATB spacing), adhering to typical conventions as taught in most music theory courses. One of the challenges I’ve found when teaching part-writing and voice-leading rules to students at all stages in the curriculum, but especially freshman, is an indifference to all of the variety of rules and principles, especially for those students who have only limited exposure to canonic classical music ahead of entering their music degree. Students may be able to learn these part-writing and voice-leading rules and imitate the short compositions that their teachers assign to them, but frequently they are only concerned with getting right answers to achieve the desired grade on assignments. As such, the student’s motivation for this task usually only involves completing the assignment without incorporating unwanted voice-leading errors, and not considering the musical and artistic impact that such errors may hold for a composition. *Grading the Song* addresses these questions and provides a framework for understanding how departures from typical voice-leading principles can have a significant impact on understanding a composer’s musical intent, in a vocal work or otherwise.

Music theory teachers frequently have a fixed list of errors for offensive voice-leading and part-writing violations to help them in grading their students’ work. Some teachers may also have standardized point deductions for written assignments that may vary according to the severity of the error involved. Figure 17.1 provides a sample list of objectionable voice-leading errors. Different teachers may have more or less specific rules than those given here, but these are common rules that most music theory teachers can generally agree upon. I suggest that instructors use their own list of voice-leading errors, or make additions/edits to this list as they see fit, in order to make the student task of locating and evaluating errors as close to their own rubric as possible.

A preliminary assignment I give involves evaluating problematic voice-leading in typical four-part writing. I give my students my list of voice-leading errors along with prepared examples in

Grading the Song

Parallel fifths or Parallel octaves.

Spacing too wide between adjacent voices in a chord – more than an octave span between the soprano and alto or alto and tenor voice.

If the leading tone of the key is in the top or bottom voice of the texture, it should resolve up by step to tonic. This rule also goes for secondary leading tones for applied chords.

Direct fifth or octave approached by leap (two voices moving in similar motion to a P5 or P8, and both voices approach by leap).

Seventh of chord should resolve down by step. (An exception can be made for the progression $V_3^4 \rightarrow I^6$, where the seventh may resolve up by step, especially if it is in the soprano voice.)

One or more voices are out of their range.

Incomplete triad or seventh chord – all triads should include both the root and third of the chord, and all seventh chords should contain the root, third, and seventh of the chord. The fifth may be omitted, depending on the circumstances.

All four voices leap in the same direction at the same time.

Avoid awkward melodic leaps or other awkward intervals – a common error is an augmented second interval in a voice from one chord to the next.

Chord doubling is problematic – don't double the leading tone of the key, the seventh of a chord, or chromatically altered pitches. These are tendency tones and when doubled frequently lead to parallel octaves.

Figure 17.1 A general list of voice-leading and part-writing errors for freshman-year music theory courses.

SATB spacing incorporating some common errors, then have them identify where objectionable voice-leading occurs. Many music theory textbooks and workbooks have similar exercises in voice-leading error detection; these are usually given in four-voice settings similar to those that students will complete for homework assignments, quizzes, and exams. I then have them try their hand at composing in four voices and evaluate their work with the rubric, allowing re-writes on assignments as practice toward quizzes and exams on the topic.

Following this training in general voice-leading rules, I move to the lesson on songs. I give the students prepared scores of nineteenth-century Lieder with the text removed and my voice-leading grading rubric, with the assignment to find any objectionable voice-leading or part-writing errors in the excerpt. Figure 17.2 shows a prepared score for Schubert's "Der Müller und der Bach" from *Die schöne Müllerin*, D. 795.¹ For my prepared scores I type these in Finale, though other teachers may use the printed score and simply white-out the text. One challenging aspect of this excerpt involves identifying the dominant harmony above the tonic pedal in mm. 4–5, though with the proper guidance students can understand the harmony here. Another involves the Neapolitan sixth chord in m. 8, discussed below.

Students then set to work in class identifying voice-leading and part-writing errors in the score, working in pairs, and I remind them to consider the melody as part of their evaluation, not only the piano accompaniment. The main focus of this particular excerpt involves the abandoned leading tone in m. 5 and failure to resolve it in the melody, which most students quickly detect. Once students have detected voice-leading errors we then make provisional musical interpretations,



Figure 17.2 Schubert, “Der Müller und der Bach,” mm. 1–10, prepared score with text removed.

usually along the lines of “Why do you suppose the composer may have made this error?” Another “error” that students identify is the Neapolitan sixth chord in m. 8. This harmony is usually taught in the sophomore year curriculum; thus, freshmen are unaware of this chord, its spelling, or its function, and may mention a wrong pitch in the ii^o chord, using $A\flat$ instead of the diatonic $A\sharp$. I follow up with a brief discussion of this error, asking about the quality of the chord and what the scale-degree is for the root, making sure to point out that it has been lowered from the typical diatonic pitch in G minor.

Following this, I pass out another score, this one with the text (usually just the score from the actual song), along with an English translation.² Students then notice that the failed leading tone in m. 5 coincides with the poem’s word “Liebe” (“love”), signifying the unrequited love of the poem’s persona. This may lead directly into a discussion-based brainstorming session of other situations where a composer may intentionally use the failed leading tone in their compositions for artistic purposes. I pose the question to the students as, “If you were writing music to a poetic text, what kinds of poetic images or ideas might you use a failed leading tone to depict?” Students then provide a number of ideas, and we take notes and compare our suggestions. I let the discussion go freely for a few minutes, as I find this kind of wonder over artistic possibilities rewarding for students, who frequently fall into a repetitive pattern of rote completion of tasks for music theory classes without considering the creative impact that departure from expected norms may have on a musical setting.

Following this discussion, I then turn to the $A\flat$ in m. 8, which coincides with the word “Lilien” (“lilies”), and mention that the poem speaks of the lilies withering as a byproduct of the faithful heart dying in unrequited love, and compare the withering to the lower-than-expected pitch in the Neapolitan sixth chord. I similarly lead into a brainstorming session of other harmonic “errors” that composers might use for strategic purposes such as altered chords (secondary dominant or leading tone chords, borrowed chords, etc.). These topics, as well as the Neapolitan sixth chord, will be covered in future weeks and semesters of the course, but the

discussion can be beneficial at this point to show these chords as possibilities in tonal harmony, once they have learned how to properly spell and voice lead harmonies within a typical diatonic framework.

Other “errors” that students may detect involve the doubling of A $\flat$ in m. 8 and the parallel octaves in the bass and tenor in mm. 8–9. Students may also point out the doubling of the leading tone between the voice and piano at m. 5 and again at m. 9. We then turn to discuss how some of the “errors” we’ve uncovered pointed to important aspects of the poetic text, while others were more a byproduct of harmonizing chords and fitting within musical phrases. This leads students to consider that some musical devices in songs are strategic moves on the composer’s part to depict poetic imagery or ideas, while other notable devices may not play into a text-to-music relationship in a broad sense.

Another “error” that some clever students might detect involves the notation of rhythms, since breaking the beams between pitches in the vocal melody would likely be seen as a departure of what teachers have taught them about 3/8 meter in prior semesters. When I show the text, I take time to sing the melody myself at the piano, demonstrating that the rhythmic notation coincides with syllabification in the German poem. This can be eye-opening to students, especially instrumentalists who haven’t considered the possibility that the composer’s rhythmic notation reinforces the syllable placement in the poem. (That being said, I make sure to point out that any written work in this course or others should adhere to typical notation standards, unless there is a musical/artistic reason otherwise.)

At this point I make clear to students that what we’re doing is *not* detecting actual errors in Schubert’s compositional process, but using this assignment to highlight intentional departures from stylistic norms in the song, and how they correlate with his interpretation of the poetic text. I conclude the lesson with a reminder that one can only notice such strategic compositional devices through an awareness of the part-writing rule(s) Schubert is intentionally breaking.

In addition to “Der Müller und der Bach,” I have used a number of other songs to demonstrate other voice-leading errors and their impact on music-to-text interpretations. Wolf’s “Das Ständchen” from the *Eichendorff-Lieder* features a progression of parallel perfect fifths in the left hand at the opening.³ Whereas the failed leading tone in “Der Müller und der Bach” coincides with an exact word in the text, the parallel fifths in this song occur within the piano introduction. However, after considering the text, and that the poem’s title translates to “serenade,” I suggest students consider the rising parallel fifths as depicting a musician tuning their string instrument ahead of the serenade. This is reinforced with the poem’s direct reference to a lute, though I point out that the pitches of the parallel fifths pattern do not correlate to typical lute tunings.

Another song I use is the opening of Schubert’s “Die Leiermann,” the final song from *Die Winterreise*, D. 911, which opens with a bare fifth chord in the left hand.⁴ Students quickly detect this as an incomplete triad, missing its third, and frequently make a preliminary interpretation of “something is missing” in the harmony.⁵ Upon showing the text, we discover that the title refers to a hurdy-gurdy player, leading into a discussion of this instrument and the mechanics of producing sound on it. Depending on the curiosity level and skill of the students, a teacher may take a moment to dip into a semiotic interpretation of the bare fifths, incorporating the approach to semiotics from Charles Sanders Peirce (1839–1914). From a Peircean perspective, the bare fifth that opens “Die Leiermann” is an *icon*, imitating the hurdy-gurdy’s drone fifth. The drone fifth correlates to the *indexical* notion of hollowness or emptiness, which, in turn, stands as a *symbol* for the emotional state of the poetic persona at the conclusion of the song cycle. In contrast to “Der Müller und der Bach,” both of these songs involve “errors” within the piano introduction, and thus are not aligned with a specific word or phrase within the poem. However, in each, the imagery within the poem can be compared to the musical device in the piano writing, and most students can make a meaningful connection.⁶

As a final example of this teaching strategy, consider Fanny Hensel's "Warum sind denn die Rosen so blaß," Op. 1 no. 3, given in Figure 17.3.⁷ This excerpt can be disorienting for students, given the range of harmonies that occur and that important chord tones are given in the voice, as well as the piano. To get a better grasp on the harmonies in the passage, I have students create an imaginary continuo part by verticalizing all arpeggios and drawing them as block chords on the staff, taking also the voice's pitches into account. Students then notice some unusual chord doublings of tendency tones, but also an unresolved chordal seventh in m. 5. Other students may also notice the improper placement of the six-four chord in m. 4, following, not preceding, the dominant harmony. After examining the text and translation, students notice that the poem is marked by a number of questions; in fact, *all* sentences in the poem are questions, without answers.⁸ The unresolved chordal seventh in this passage, as well as the erroneous placement of the six-four chord, correlates to the notion of questions without answers in Heine's poem.



Figure 17.3 Fanny Hensel, "Warum sind denn die Rosen so Blaß," Op. 1 no. 3, mm. 1–6, prepared score with text removed.

This lesson plan and the strategy involved can be effective for freshman-year music theory courses when initially learning voice-leading and part-writing rules, but it can also be an effective teaching tactic for upper-level and graduate courses. Graduate seminar courses that consider text-to-music relationships in songs and other vocal works can also benefit from this type of study; the perspective that it entails, considering voice-leading irregularity as a signifier for compositional strategies, can be eye-opening for students at later levels of study. Finally, the overall approach – starting with purely musical observations, then considering the poetic text, then comparing the two to develop a contextual reading of the relationship between – is a practical application of Kofi Agawu's recommendations for musico-poetic analysis in his classic 1992 article.⁹ Chief among Agawu's recommendations in his informal method for analyzing song is to adopt a "music to text" approach to song analysis, beginning with analytical observations about the music alone, irrespective of the text, then proceed to an interpretation of the poem, then finally to compare the two.

This article, now more than 25 years old, continues to be influential for those scholars focusing on text-music relationships in songs.

As a follow-up assignment, students may try their hand at composing short chord progressions in SATB spacing and intentionally including certain part-writing errors. The instructor can dictate the specific chord progression and bass line and provide a list of errors to include in their composition. For instance, the instructor can specify that all compositions include at least one instance each of a parallel perfect interval, doubled leading tone, unresolved dissonance, a chord with too much space between soprano and alto, and a chord with a missing third, or whatever the instructor may prefer. In class, the instructor can take volunteers from students to share their work, play through the composition with students singing in four parts, then another student may be designated as the detective, tasked with finding the errors. This turns the task of learning the concept into a creative, collaborative, community project rather than yet another worksheet to complete.

Grading the Song is an effective supplemental activity to use in music theory courses when teaching voice-leading and part-writing rules. It builds upon students' emerging knowledge of voice-leading and part-writing regulations and develops a critical eye for subtle details in harmonic voicings and connections, which students can use in their future work in the music theory curriculum. It also provides an opportunity for students to contemplate composers' response to poetry, and gives a means for them to evaluate the aesthetic effect created when composers depart from typical stylistic norms for informed, artistic purposes. In practice, this leads to students knowing not only how to avoid certain part-writing pitfalls but also *why* to avoid them in their own study of harmony and voice-leading.

Notes

- 1 I recommend Fritz Wunderlich's recording; link available in the Supplemental Materials. Observe how Wunderlich brings out the unresolved F# in "Der Müller und der Bach," highlighted in this lesson plan, with a slight crescendo.
- 2 An English translation of this first stanza reads: "Where a true heart wastes away in love, there wilt the lilies in every bed." A link to the full translation is available in the Supplemental Materials.
- 3 A link to the score for "Das Ständchen" is available in the Supplemental Materials.
- 4 I recommend Thomas Quasthoff and Daniel Barenboim's recording; link available in the Supplemental Materials. Notice how both musicians' use of rubato creates a timeless, dreamlike state in this performance.
- 5 For a discussion of the impact of bare fifths on a song setting, see Eric Sams, *The Songs of Hugo Wolf* (Indiana University Press, 1992), p. 33, where he states "when the harmony remains unfilled, and only the so-called bare octave or bare fifth is employed...the effect is one of emptiness or transparency whether metaphorical or literal."
- 6 One may also compare the tonic pedal maintained throughout the song – an iconic reflection of the hurdy-gurdy instrument's drone – as representing stillness, correlating to the emotional numbness felt by the persona at the end of this cycle.
- 7 A link to the score and Diana Damrau's recording for "Warum sind denn die Rosen so Bläß" is available in the Supplemental Materials.
- 8 A link to a translation of the poem is available in the Supplemental Materials.
- 9 Kofi Agawu, "Theory and Practice in the Analysis of the Nineteenth-Century Lied," *Music Analysis* 11/1 (1992): 3–36.

18

FINDING THE IMPLIED POLYPHONY IN THE MINUET II FROM BACH'S CELLO SUITE NO. 1 IN G MAJOR

Edward Klorman

Topic: Figured-bass reduction.

Goal: Students will be able to develop figured-bass reductions to model the implied polyphony in a movement for solo cello.

Background: Solid grounding in basic principles of tonal voice-leading (including treatment of tendency tones); knowledge of circle-of-fifths sequence including secondary dominants; knowledge of modulation; knowledge of binary form and of lamento bass helpful but not required.

Introduction

This lesson focuses on music beloved by many instrumentalists. Bach's suites for unaccompanied cello are a cornerstone of the instrument's repertoire and are studied by advancing and professional players alike (not only on cello but also viola, bass, trombone, and bassoon, among others). Related Bach works, such as the sonatas and partitas for solo violin and the partita for solo flute, occupy similarly central positions in those instruments' repertoires.¹

For players of single-line instruments, a particular challenge in playing unaccompanied solo music is to learn to conceptualize these pieces contrapuntally, in terms of the implied polyphony. Whereas students may tend at first to hear (and perform) this music as unaccompanied melody, this lesson will help them to understand these pieces as complete textures incorporating melody, bass line, and harmony into a single part. This is clearly how Bach understood this music, since he titled his violin sonatas and partitas as six solos "a violino senza basso accompagnato" (for violin without accompanying bass). In other words, his title states that these are not mere violin *melodies*, to which a basso continuo must be added to complete the texture; rather, these are already composed as *complete textures*.²

This lesson plan aims to help students recognize and audiate in terms of implied polyphony, focusing on outer-voice counterpoint between melody and bass. Such contrapuntal hearing can unlock new possibilities in performance and can reinforce important learning outcomes in the theory classroom. Moreover, this lesson offers a first glimpse of sophisticated analytical techniques that might be explored more fully in upper-level or graduate analysis courses.

What Is a Figured-Bass Reduction? Why Make One?

Figure 18.1 shows the first phrase of Chopin's Étude in C major, op. 10, no. 1 (upper pair of staves) along with a figured-bass reduction (lower pair):

Finding the Implied Polyphony

The figure displays a musical score for the opening of Chopin's Étude in C major, op. 10, no. 1. It is divided into three systems, each with a 'Piano' staff and an 'Analysis' staff. The Piano staff shows the original notation with a forte 'f' dynamic and a 'legato' marking. The Analysis staff provides a figured-bass reduction, using figures like 8va, 7, and 6 to indicate intervals and octaves. The second system includes a list of figures: 19, 7, 4, 5, 8, 3, and #5. The third system shows the continuation of the analysis with figures like 8va, 7, and 5.

Figure 18.1 Figured-bass analysis of Chopin, Étude in C major, op. 10, no. 1 (opening).

From playing through the reduction, its relationship to the Chopin excerpt becomes self-evident. The reduction constitutes an *analysis*, a simplification of the étude's virtuosic figuration into keyboard-style harmony. The purpose of this analytical practice is to illustrate how the “clean” principles of voice-leading students diligently master in the theory classroom are at play even in seemingly “messy” surfaces of actual musical compositions. For students who occasionally wonder whether composers actually follow the “rules” taught in theory textbooks, this analytical method is a powerful way to traverse the chasm between theoretical principles and actual compositional practice.

For example, m. 4 of the reduction shows how the melody note E can be heard as an accented passing tone, resolving to D on the fourth beat. This may be challenging to discern from the score directly, since the Es on beats 1–3 appear in three different registers, resolving to a D on beat 4

in yet another register; but once these registers are simplified, as shown in the analysis, it is much clearer how the F (m. 3) passes through E (m. 4, beats 1–3) arriving at D (beat 4).

A thornier juncture is m. 7: how are we to understand a chord with a bass note of G and upper voices of D–F–A $\flat$ –C? This progression is clarified in the reduction: the secondary dominant V⁷/V (m. 6) resolves normally to V⁷ (mm. 7–8), and the latter chord is decorated with a pair of suspensions in m. 7 that resolve in m. 8 (A $\flat$ –G and C–B).³ Finally, in the last two measures of the figure, the arrow shows how the chordal seventh of the V⁷ chord, F, resolves (correctly, if abstractly) to E in a different register.

Figured-bass analysis can be introduced fairly early on in the study of tonal theory. As soon as students have a little experience with basic voice-leading principles and are comfortable analyzing musical passages that include non-chord tones, I tend to introduce this approach, initially in my own demonstrations but gradually as a task for students to complete as classwork or homework, either alone or in small groups.⁴ This analytical work helps students develop confidence navigating textures of increasing complexity, including those found in, for example, Baroque counterpoint or late Brahms. In this chapter, I have opted to show my analyses with figured-bass notation only, but Roman numerals could easily be incorporated if that better suits one's pedagogical purposes.

The test of a good figured-bass reduction is twofold: (1) it should “sound like” the passage it analyzes and (2) it should follow the voice-leading principles relevant to the composer's style (i.e. suspensions should be prepared, chordal sevenths should resolve down). I invite readers to play through Figure 18.1 to determine for themselves whether my analysis satisfies these criteria.

To put it in formal terms, creating a figured-bass reduction could be described as composing a piece of music that explains another piece of music, presenting its voice-leading in a simplified or “normalized” form. Or, to put it more simply, a figured-bass analysis may resemble a kind of chordal accompaniment to the original passage. Indeed, William Rothstein (1991) has suggested the term “imaginary continuo” to conceive of such an accompaniment “abstracted from a composition that does not actually call for one” (297).

Lesson Plan: Day 1

After students have some experience with figured-bass reductions of relatively short, chordal passages (such as Figure 18.1), they will be prepared for this lesson plan, which I divide over two class meetings. The first session is devoted to an analysis of a minuet by Christian Petzold that appears in the *Little Notebook for Anna Magdalena Bach* (see Figure 18.2 for a score with my analysis; a worksheet for students and a link to a recording is available in the Supplemental Materials), which prepares students for the solo-cello minuet to be analyzed in the following class (Minuet II from Bach's Cello Suite No. 1).

This keyboard minuet shares three important features in common with the solo-cello minuet: (1) the key of G minor (notated in the original sources with “incomplete” or Dorian key signatures),⁵ (2) the use of a lament-bass opening (i.e. a bass line of G–F–E $\flat$ –D, with the F supporting a passing harmony of v⁶), and (3) a second reprise comprising eight measures leading to a perfect authentic cadence (PAC) in B $\flat$ major, followed by eight measures leading to a final PAC in G minor.

After singing through the minuet (outer voices), I give students a few minutes, working individually, to identify modulations (key areas) and cadences. Then, working with partners or in small groups, students can compare their preliminary findings and begin the next stage of analysis by identifying harmonies and labeling non-chord tones. In much of the piece, this will be straightforward. For instance, m. 1 is clearly a G minor harmony (with A as a passing tone), and m. 2 contains nothing but chord tones. But in some places, it may be difficult for students to ascertain how many chords occur per measure or to infer an implied harmony from just two of its notes. In

Figure 18.2 displays the musical score for Petzold, Minuet II in G minor, BWV Anh. 115, showing both the Keyboard and Analysis staves.

The score is divided into measures, with measure numbers 5, 9, 13, 17, 21, 25, and 29 indicated. The Keyboard staff shows the melodic line, and the Analysis staff shows the harmonic structure, including figured bass notation.

The Analysis staff includes figured bass notation (e.g., 6, 5, 6, #, b6, 6, 5, #) and chord symbols (e.g., 6, 5, 6, #, b6, 6, 5, #) indicating the harmonic structure.

The score is written in G minor (three flats) and 3/4 time. The piece consists of 32 measures.

Figure 18.2 Petzold, Minuet II in G minor, BWV Anh. 115.

these junctures, I encourage students to begin by making plausible guesses for now, as preparation for the class discussion. Getting “stuck” can be an important stage in the process.

In the second part of class, we work together as a class. I begin by supplying the bass line myself, since it is nearly identical to the left hand of the composition (only slightly simplified in a few places such as mm. 12–13 and 18–19). I then pose questions to the students about their preliminary analysis, and their input helps me to develop the upper voices and figured-bass symbols for the analysis.

To do this, I propose the principle that the soprano line of the figured-bass reduction should trace approximately the same path as the minuet’s melody; for instance, I opt for soprano notes B $\flat$ (m. 1) and A (m. 2), which helps the reduction to resemble the minuet more closely. In m. 3, students may interpret the entire measure as a single E $\flat$ major harmony; one risk of this interpretation is that students may include an A in the D major harmony in m. 4 to fill in that incomplete chord, which can create parallel fifths. My proposed solution, having two harmonies in m. 3, helps to break up the potential parallels and moreover reflects the minuet’s melodic motion B $\flat$ –C in that measure. Another possible melody in m. 3 would be three quarter notes: G–B $\flat$ –C, which has the benefit of continuing the downbeat parallel tenths and mirroring the melodic motion.

The principle that the soprano line of the analysis should resemble the minuet’s melody is especially important at cadences. For instance, in m. 16, the minuet’s PAC arises from the melodic motion C–B $\flat$. Those same notes must appear as the soprano line for the reduction, lest it unduly transform a PAC into an imperfect authentic cadence (IAC).

A second principle I emphasize is parallelism: since the music in mm. 21–24 that achieves a cadence in B $\flat$ major “rhymes” with (i.e. is a transposition of) the equivalent music in mm. 29–32 in G minor, these two passages should receive parallel treatment in the reduction. These two passages are the most challenging in the entire piece, since there is a rapid harmonic rhythm, with many harmonies represented by just two notes each. It is helpful to work backward: once students recognize that mm. 21–24 arrive at a PAC, then they can experiment in mm. 23–24 with various cadential formulas such as I ^{6} –ii $^6_5$ (or IV)–V ^{7} –I. (Either option is possible; since Bach generally favored ii $^6_5$ chords as predominant harmonies, I chose that version.) Then, we might think about which harmony could fit at the end of m. 22 *and* that would connect nicely to a I ^{6} harmony on the downbeat of m. 23. Whereas some students might have initially assumed that E $\flat$ –C (m. 22, third beat) stands for a ii $^6_5$ harmony, that is an awkward choice to progress to tonic; however, substituting V4/2 would work nicely, since this harmony resolves idiomatically to I ^{6} since the bass note E $\flat$ would be a downward-resolving tendency tone. With this harmony established, the rest of the measure falls into place, and the solution in mm. 21–24 can be copied, in a transposed version, to mm. 29–32.

Throughout this discussion, I frequently offer aural reinforcement by playing through trial versions of particular passages at the piano. Each time I do so, I ask for the class’s assistance evaluating the work according to our two criteria: (1) does our draft reduction sound like the piece? and (2) does it follow correct voice-leading? Based on student feedback, refinements can be introduced until we arrive at a final version.

In the last part of class, as a “reward” for the analytical work, I ask students to sing through our reduction in two ways: first with all students singing the bass line (with solmization) while I play the right-hand harmonies, and then dividing the class into two groups to sing the outer voices (swapping parts at each repeat). The purpose of this once again is aural reinforcement, to cultivate a visceral sense that our figured-bass reduction indeed sounds like a plausible model of the minuet.

Finally, as a segue to Day 2: I distribute scores of the solo-cello minuet (see Figure 18.3 for a score with my analysis and a link to a recording; a worksheet for students is available in the Supplemental Materials) and if possible, invite a student to perform. To prepare for the next class, I ask the students to do the following preliminary analytical homework: (1) locate all cadences, identifying the key, the cadential bass note, and the associated harmony, (2) bracket any sequential passages, (3) circle whichever notes in the cello part seem to form part of the bass line (typically the lowest note

Finding the Implied Polyphony

Figure 18.3 Figured-bass analysis of Bach, Cello Suite No. 1, Minuet II, BWV 1007.

or notes in each measure). As a bonus, students might also think about any features common to both minuetts (Figures 18.2 and 18.3). I pose this question as a hint to help students notice the lament bass line in mm. 1–8 of the cello minuet, which mirrors the opening of the keyboard minuet.

Lesson Plan: Day 2

After singing through the minuet to refresh our ears, students work in pairs to compare their preliminary analytical work. Then, working together as a large group, I guide the class through an analysis of mm. 1–4 (which repeats in mm. 5–8). Bach’s complete avoidance of double stops in this minuet raises an issue that may be confusing: in m. 1, I understand B $\flat$ –A–B $\flat$ to be melody, D–E $\flat$ to be an inner voice, and the low G to be the bass. Since these voices are sounded successively (rather than simultaneously), that means the bass note heard at the very end of the bar is understood to be “sounding” for the entire measure, moving to a bass of F in m. 2. The note A is easily identified as a neighbor note, but the note E $\flat$ is leapt away from and therefore seems to be a chord tone, indicating a change of harmony on beat 3. In my analysis, I treat that E $\flat$ as the preparation for a chain of suspensions, since this lament-bass pattern is often decorated in this way in the literature; however, a simpler analysis without the suspensions would also be possible.

Having worked through the opening together, I divide students into small groups to work on the next two phrases, to prepare for a group discussion in which we compare their ideas and work toward a common, final analysis. As a strategy, I recommend students work in four-measure units, identifying the bass line first, then the harmonies. Here is a brief summary of the most challenging aspects:

1. In m. 9, I avoid beginning directly with a dominant-ninth chord for stylistic reasons. Instead, I understand mm. 9–10 as an intensified version of V⁸⁻⁷–i. Whatever solution is chosen here should be used, transposed a step lower, in mm. 11–12.

2. Measures 13–16 are very challenging. What seems clear is that m. 13 initiates a cadential progression in B $\flat$ major with a I ^{6} harmony, and that m. 15 appears to represent a predominant harmony (downbeat) followed by cadential $\frac{6}{4}$ figure (beats 2–3). Less clear is m. 14: students may be tempted to interpret this as IV ^{7} moving in m. 15 to V ^{7} , but such an interpretation violates the rule that chordal sevenths resolve down. My analysis shows one of several possible solutions for this difficult juncture.
3. For the sequence beginning in m. 17: the bass note B $\sharp$ cannot proceed directly to a bass note of E $\flat$ (m. 18, downbeat). But a clue is found on the surface of the music: the bass E $\flat$ is approached from F. This suggests that m. 17 presents two inversions of essentially the same harmony: a (local) vii ^{o7} harmony followed by V ^{4} . As always, the solution used for the sequential model in mm. 17–18 should be reused for the remainder of the sequence in mm. 19–20 and 21–22.

Depending on the level of the class, it is likely that many of the challenges posed by this piece will be too great for many students to resolve on their own. Therefore, as we go over the piece together as a class, the instructor's role is to frame questions, propose alternative possibilities, and enlist students' help in evaluating options (eliminating problematic ones, selecting plausible ones). In my experience, the key for this lesson is that students will have done several preliminary steps on their own, which prepares them to engage actively in those parts of the discussion for which I serve as guide.

As a final stage of this process, I invite a student to perform the piece once again, now with the rest of the class singing the bass line, while I play the chords. Then I reveal to the students that, in creating a figured-bass version of this minuet, we are essentially retracing steps once taken by the composer himself. According to Bach's student J. F. Agricola, the composer "often played [his solo-violin pieces] on the clavichord, adding as much in the nature of harmony as he found necessary" (quoted in Lester 1999, 22–23). It is rewarding that, as theory learners, our students are able to do much the same with movements from Bach's cello suites!

Notes

- 1 For an informative and highly readable guide to Bach's solo works, see Ledbetter (2009). Another valuable introduction, focusing on the analysis of selected solo violin works only, is Lester (1999).
- 2 Bach presumably conceived of his cello suites in the same way. However, his exact title for the cello suites is unknown since the autograph manuscript has been lost.
- 3 It may be difficult to understand A $\flat$ in m. 7 as a suspension, since that note may appear to lack preparation in the previous chord. My understanding here is that the A $\sharp$ in m. 6 serves as preparation, and that it is inflected through modal mixture to A $\flat$ at precisely the moment in which it becomes a suspension (downbeat of m. 7).
- 4 Suggestions of passages suitable for such analysis can be found in textbooks (and workbooks) that are influenced by principles of Schenkerian analysis. See, for example, textbooks by Aldwell and Schachter, Forte and Gilbert, Gauldin, and Laitz.
- 5 If desired, one could sidestep this issue by providing scores using complete (Aeolian) key signatures, that is, with two flats for G minor.

Bibliography

Ledbetter, David. 2009. *Unaccompanied Bach: Performing the Solo Works*. New Haven: Yale University Press.
Lester, Joel. 1999. *Bach's Works for Solo Violin: Style, Structure, Performance*. Oxford: Oxford University Press.
Rothstein, William. 1991. "On Implied Tones." *Music Analysis* 10, no. 3 (October): 289–328.

19

USING TENDENCY TONES TO TEACH THE MORPHOLOGY AND SYNTAX OF CHROMATIC HARMONY

Stacey Davis

I often get a similar reaction when I first meet public school music teachers and professional performers. Upon finding out that I teach college-level music theory, their immediate response tends to be something like “I hated augmented-sixth chords,” or “Augmented-sixth chords were so hard.” The words “music theory” therefore seem to trigger an instant, negative memory of certain chords. Such responses make me wonder about the typical undergraduate music theory experience with chromatic harmony. What makes these chords so confusing or disliked? Why do they leave such an indelible memory, often beyond the assortment of other concepts and skills that are part of the college curriculum and likely incorporated into their continued musical experiences?

A possible answer to these questions lies in the degree to which instructors balance the different aspects of harmony in their teaching. According to the authors of one commonly used harmony textbook, “the basic vocabulary of tonal harmony consists of triads and seventh chords and... its grammar involves the ways in which these chords are selected (harmonic progression) and connected (voice leading)” (Kostka, Payne, and Almén 2018, 66). This description highlights the fact that harmony involves both vertical (simultaneous) and horizontal (melodic) dimensions. But the words vocabulary and grammar also engender comparisons with studies of language, suggesting that additional linguistic concepts might be analogous to aspects of harmony pedagogy.

One such concept is morphology, which is the study of the internal structure of words. An awareness of various lexical components (root words, prefixes, suffixes, etc.) reveals commonalities between words and aids in vocabulary development, spelling accuracy, and reading fluency. The acquisition of a fluent harmonic vocabulary might therefore be facilitated by an understanding of the morphology of chords, with focus placed on shared interval combinations and patterns. Principles of harmonic progression and voice-leading are then comparable to the linguistic concept of syntax, which examines how words are combined to form grammatical phrases and sentences. Just as the meaning and impact of a sentence are affected by the order of its words, a tonal harmonic progression is shaped by the order of chords and the connections between those chords. For instance, logical syntax is found in the sentence “The minuet is in rounded binary form” and the chord progression “I–vi–IV–ii⁶–V⁷–I.” Less suitable syntax occurs when those same elements are rearranged to produce the sentence “Form in rounded minuet the binary is” and the chord progression “ii⁶–I–V⁷–IV–I–vi.”

Effective harmony pedagogy requires a balance between morphology and syntax. Students must learn to spell and identify individual chords, as well as connect them in a stylistically appropriate order. Excessive focus on either goal might lead to acceptable syntax with spelling mistakes (Figure 19.1a) or correct spelling and awkward syntax (Figure 19.1b). Teachers must also think about their prioritization of these two aspects of harmony, both in the order of presentation and the balance of time spent. One approach is to teach chord spellings first, then place those chords in a certain context in order to study principles of harmonic progression and voice-leading. Another strategy emphasizes syntax by introducing chord spellings as byproducts of those principles. The latter approach is particularly effective for teaching chromatic harmony, where an emphasis on the principle of tendency tones can simplify the spelling of supposedly “hard” chords while concurrently enriching an understanding of their harmonic and melodic impact.¹

a. Not in chord Raise leading tone

b. Backward chord progression

am: i VI iv ii°6 V7 i i V7 ii°6 iv VI i

The minute is in rounded binary from.

Form binary rounded in is minuet the.

Figure 19.1 Morphology versus syntax in sentences and chord progressions (a. effective syntax with spelling mistakes; b. correct spelling and backward syntax).

Tendency Tones

A tendency tone is a pitch that typically resolves in a certain way depending on its tonal and harmonic context, with half steps most often generating a stronger expectation for resolution than whole steps. Huron (2016) addresses the syntactic impact of tendency tones by comparing a four-part chord progression with its exact retrograde (133–135). Since a change in order does not affect chord spacing, chord doublings, common tones, and consecutive melodic interval sizes, Huron asserts “if the part-writing is good in one direction, playing it backward will do little harm” (134). However, a comparison between Figure 19.1a and 19.1b reveals that a forward and backward chord progression still *sound* very different. In addition to violating principles of harmonic progression and dissonance resolution, the backward version lacks the sense of forward motion that is created by the resolution of tendency tones. As a result, Huron proposes that “this dynamic sense of tones wanting to go somewhere is what distinguishes voice leading from part-writing” (135). Voice-leading is driven by “expectations about ‘how sounds go,’ learned through exposure to some musical environment” (146). A clear understanding of these expectations can transform students’ experience with harmony. Rather than focusing on individual chord spellings and seemingly arbitrary part-writing “rules,” they appreciate the powerful role of tendency tones in creating and manipulating the syntax of harmonic progressions.

Within the diatonic major scale, half-step tendency tones occur from *fa-mi* and *ti-do*.² When sounded together, *fa* and *ti* create a dissonant interval that typically resolves in contrary motion to a

consonance. Composers can voice that dissonance as a diminished fifth resolving to a major third or as an augmented fourth resolving to a minor sixth (see Figure 19.2a). The presence of these tendency tones in the major mode V^7 and vii° chords contributes to the progression from tension to stability. In the minor mode, these dominant function chords are altered to maintain this resolution, with the seventh scale degree raised in order to reestablish the half-step resolution from *ti* to *do*. The minor mode half step from *le-sol* also combines with *ti-do* to create the resolution of a dissonant diminished seventh to a perfect fifth (see Figure 19.2b). Based on the presence of *ti*, *fa*, and *le*, the minor mode $vii^{\circ 7}$ carries substantial momentum to its resolution on tonic. In addition to these harmonic implications, all three of these tendency tone patterns demonstrate that, within common-practice tonal music, augmented intervals tend to expand and diminished intervals tend to contract.

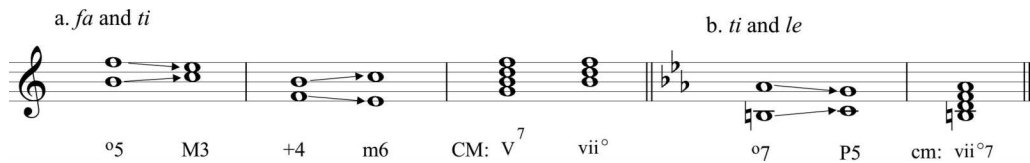


Figure 19.2 Resolutions and harmonic contexts of diatonic tendency tones (a. resolutions of *fa* and *ti*; b. resolutions of *ti* and *le*).

Once these diatonic patterns are understood, chromaticism can be introduced as a way to generate additional half-step tendency tone patterns whose combinations create dissonance and resolve in contrary motion. In many instances, these chromatic alterations produce momentary leading tones that serve to tonicize the subsequent chord. Such is the case with secondary dominants, which include the pitches that act as *ti* and *fa* within the key of the resolution chord in order to create the same tendency tone patterns that occur in the diatonic V^7 chord. In contrast to these tonicization effects, other chromatic tendency tones intensify the resolution to the dominant. Two such chords are the augmented sixth and Neapolitan, both of which employ chromatic tendency tones to generate expectations, add color to a musical passage, and mix elements of the major and minor modes. Basing our pedagogy on tendency tones and voice-leading also reveals commonalities between these chords that might aid students in understanding their morphology and syntax.

Augmented-Sixth Chords and Neapolitan Chords

As shown in Figure 19.2, the dissonant intervals created by diatonic tendency tones typically resolve to thirds, sixths, and fifths. In contrast, a compelling use of chromatic tendency tones occurs when composers resolve half steps in contrary motion to an octave. The simultaneous use of those pitches creates the dissonant interval of an augmented sixth, which expands to its resolution in the same manner as its diatonic augmented fourth counterpart (see Figure 19.3a). According to Harrison (1995), recognizing this shared resolution pattern “brings the augmented sixth out of the hinterlands of harmony pedagogy and lets it bask in the same theoretical prestige enjoyed by the other two intervals, indubitably the fundamental harmonic dissonances of tonal music” (172). Inverting that augmented sixth produces a diminished third, which contracts to its resolution as did the diminished fifth and diminished seventh, this time to a unison (see Figure 19.3b). These inversionally related intervals of the augmented sixth and diminished third occur harmonically within the augmented-sixth chord and melodically following the Neapolitan chord, respectively.

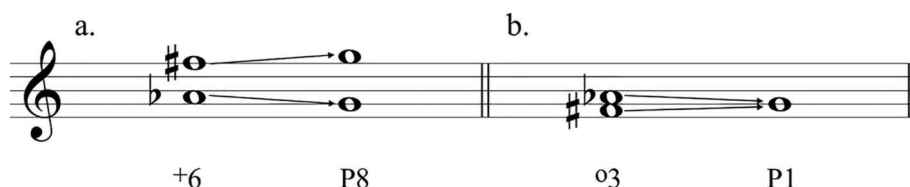


Figure 19.3 Tendency tones that resolve in contrary motion to an octave or unison.

Augmented-Sixth Chords

Ellis (2010) asserts that the “most arresting feature” of the augmented-sixth interval is its “simultaneous ‘flatness and sharpness,’ a combination that exerts a natural outward thrust because of the tendency for sharp notes to resolve up and flat ones down” (2). In the aptly named augmented-sixth chord, this dissonant interval occurs at the same time in two different voices and resolves immediately to an octave. Given that this octave is typically treated as the dominant of the prevailing key, the two defining pitches of this chord are the lowered sixth (*le*) and raised fourth (*fi*) scale degrees. In order to expand the resolution as is typical for augmented intervals, composers tend to voice the chord with *le* in the bass.

The presence of *fi* contributes to the predominant function of the augmented-sixth chord, with V^7/V also containing this chromatic tendency tone. However, the combination of *fi* with *le* distinguishes augmented-sixth chords from the tonicization effects of secondary dominants. Although the upwardly resolving tendency tone could be interpreted as a temporary leading tone that is diatonic to the key of the resolution chord, neither the major or minor mode contains a half step between the first and second scale degrees. It is therefore impossible for the descending tendency tone of the augmented-sixth interval to be diatonic. As Aldwell and Schachter (2011) summarized, “Unless there is strong evidence to the contrary, therefore, the resolution of an augmented 6th will not sound like a tonic – one reason why augmented 6ths function so well as preparations for important dominant chords” (560). Within this predominant context, recipes for the three commonly recognized flavors of this sonority specify the addition of different scale degrees to the archetypal augmented-sixth interval: *do* for Italian, *do* and *re* for French, *do* and *me* for German.³

Basing an introduction to augmented-sixth chords on their tendency tone syntax contrasts with an approach that initially focuses on their morphology as inversions of chromatically altered diatonic chords. For instance, the Fr^{+6} could be interpreted as a ii^7 chord in second inversion, with a raised third and lowered fifth (e.g. in C major, D-F-A-C is transformed into D-F#-Ab-C).⁴ Although the corresponding label of Fr_3^4 reflects both the predominant function and the intervals that occur above the bass, its utilization of familiar numbers also suggests that the chord is both tertian and inverted. But the presence of a diminished third when arranged in so-called root position prevents augmented-sixth chords from being tertian in the conventional sense. For this reason, they might be better explained as voice-leading chords than as altered tertian chords. Focusing on the syntax of voice-leading therefore simplifies the spelling and resolution of these chromatic chords, where students simply need to identify the fifth scale degree and spell the two half steps that expand to that pitch in contrary motion.

Emphasizing the distinctive dissonance and the resolution of tendency tones also accommodates a wider variety of conceivable augmented-sixth chords, with additional harmonic possibilities beyond the traditionally taught Italian, French, and German cousins being welcomed into this family of chords. In making this petition, Harrison (1995) states that “an apparent lowering

of the membership standards” for these chords gives the “three ethnic purebreds an infusion of new blood for their tight club” (170). Such an infusion makes it less likely that students will be alarmed or confused when composers harmonize that same augmented-sixth interval with other scale degrees, spell certain pitches enharmonically, or resolve the dissonance to notes other than the dominant. As Harrison continued,

this is not to say that the ethnic chords lose *analytic* significance, which they cannot simply on account of their abundant manifestations in the tonal repertory. But the theoretical understanding of augmented-sixth chords needs to be reconstituted if the newcomers are to be integrated well with the charter members.

(170–171, *emphasis in original*)

Neapolitan Sixth Chord

The Neapolitan sixth chord is typically defined as a major triad whose root is the lowered second scale degree (*ra*). It was named in reference to its typical occurrence in first inversion and its supposed association with a group of opera composers living in Naples during the seventeenth and eighteenth centuries.⁵ Although this chord shares the word “sixth” with the augmented-sixth chord, that term refers to a characteristic interval in the augmented-sixth chord and a figured bass position in the Neapolitan chord. In addition, the augmented-sixth interval creates a harmonically distinctive dissonance. The Neapolitan chord, on the other hand, is a commonplace major triad. Although its chromatic tones create melodic and tonal tension, the chord itself is consonant.

If taught from the perspective of morphology, students can easily employ previously learned skills to spell the Neapolitan chord: just identify the lowered second scale degree (*ra*), spell a major triad, and remember the necessary accidentals in the given key (*ra* in minor, *ra* and *le* in major). Yet if students only remember this definition of the Neapolitan chord, they will likely make voice-leading errors that deprive this chord of its propulsion toward the dominant. It is therefore important to also emphasize its distinctive syntax and resolution.

Given their familiarity with half-step tendency tones, students might initially expect that *ra* will resolve down to *do*. However, the Neapolitan chord combines *ra* with *fa* and *le* to create a chromatic version of the supertonic chord, whose predominant function is further confirmed by the presence of *fa* in the bass when placed in first inversion. Following the Neapolitan with a dominant chord therefore prevents an immediate *ra-do* resolution and creates a “tension between melodic and harmonic tendencies” (Aldwell and Schachter, 2011, 537). The resolution of *ra* is suspended during the dominant chord, with *ra* moving directly to *ti* in the same voice in order to melodically surround the ultimate resolution to tonic with both upper and lower half-step tendency tones (see Figure 19.4a and 19.4b).

An understanding of this voice-leading pattern can be heightened by the addition of the cadential six-four chord prior to the dominant, which allows for the resolution of both half-step tendency tones (*ra-do* and *ti-do*) in immediate succession within the same voice (see Figure 19.4c and 19.4d). When placed within the cadential six-four chord, *do* is stripped of its tonic identity and instead creates a suspension effect that delays the arrival on the dominant. That initial *ra-do* resolution therefore lacks a sense of tonic stability, with *do* instead being perceived as a melodic passing tone on the path to eventual resolution within the *ti-do* motion of the dominant and tonic chords. Removing the cadential six-four chord then reveals why the characteristic *ra-ti-do* voice-leading of N⁶–V–I maintains the predicted tendency tone resolution and intensifies the expected tonic arrival.

a. b.

GM: I vi N⁶ V I gm: i VI N⁶ V i

c. d.

GM: I vi N⁶ ⁶/₄ V I gm: i VI N⁶ ⁶/₄ V i

e. f.

CM: I vi IV⁶ Fr+6 V I cm: i VI iv⁶ Fr+6 V i

Figure 19.4 Contrary motion tendency tone resolutions in the Neapolitan chord and augmented-sixth chord (a–b. major and minor progressions with N⁶; c–d. major and minor progressions with N⁶ and cadential ⁶/₄; e–f. major and minor progressions with Fr⁺⁶).

Comparing Augmented-Sixth and Neapolitan Chords

Focusing on these tendency tone resolution patterns reveals captivating comparisons between the Neapolitan chord and the augmented-sixth chord. Both center on the resolution of dissonance in contrary motion to the same scale degree, with the augmented sixth moving to an octave and its inverted diminished third to a unison. But those resolutions occur in different ways relative to the vertical and horizontal aspects of harmony. The augmented-sixth chord involves the resolution of two simultaneous half steps in different voices (*le-sol* and *fi-sol*), while the Neapolitan chord requires the resolution of two consecutive tendency tones in a single voice and across two different chords (see Figure 19.4a–d versus Figure 19.4e–f). In addition, the octave resolution of the augmented-sixth chord is typically the dominant, whereas the eventual unison resolution of the Neapolitan chord and its partner dominant is tonic. These inverted intervallic relationships are highlighted in Figure 19.4 by the choice of different keys, allowing the same two pitches (A^b and F[#]) to act as the tendency tones in each progression.

Further comparison reveals the important role of the sixth scale degree in both of these chromatic chords. In the augmented-sixth chord, *le* is part of the defining dissonant interval and

combines with *fi* to propel the resolution to the dominant. Part of the justification for hearing the resolution as dominant rather than tonic is, as mentioned, that neither the major or minor mode contains a diatonic half step between the first and second scale degrees. A similar case could be made for the predominant function of the Neapolitan chord since it contains the same half-step tendency tone from *le-sol*. But rather than being in the bass and participating in the contrary motion resolution as in the augmented-sixth chord, *le* is now the fifth of a major triad. Although the arrival on *sol* could be harmonized as both a tonic and a dominant chord, the simultaneous presence of *le* and *ra* requires an immediate resolution of N^6 to V , with *ra* moving to *ti* within the V chord prior to its eventual arrival on *do* in the subsequent tonic chord.

Students might also discover that these two chords are exactly the same in parallel major and minor keys, which invites a worthwhile discussion about how they relate to the concept of mode mixture. Such a realization invites students to consider the accidentals that are required to spell these chords in major and minor keys. In major, both chords need two accidentals – *le* and *fi* in the augmented-sixth chord, *ra* and *le* in the Neapolitan chord (see Figure 19.4a, 19.4c, and 19.4e). In addition, the Ger^{+6} requires a third accidental to create the minor mode third scale degree (*me*). In comparison, since *le* and *me* are diatonic in the minor mode, both chords only need one accidental – *fi* in the augmented-sixth chord and *ra* in the Neapolitan (see Figure 19.4b, 19.4d, and 19.4f). Students must also remember to add the accidental that produces *ti* in the dominant chord in order to reestablish that essential half-step tendency tone resolution in minor mode chord progressions.

These chords can certainly be spelled correctly by thinking of their individual morphology. For instance, students can remember to add the accidental for *ra* in the Neapolitan chord, then build a major triad and recognize the need for another accidental on *le* if in the major mode. Or they can correctly spell a Ger^{+6} chord in major by chromatically altering a diatonic chord or remembering its scale degree ingredients of *le*, *do*, *me*, and *fi*. An approach that also prioritizes tendency tone resolutions provides students with an additional way to understand and ensure the correct spelling and syntax of these chords. Focusing on tendency tones might also prevent the common mistake of adding an accidental to “lower” the sixth scale degree in minor, where students often forget that the key signature already provides the necessary half step.⁶

Conclusion

Imagine the possibilities for a different interaction upon initially meeting the music teachers and performers mentioned earlier. Rather than sparking negative memories of certain chords or eliciting comments about how much they have forgotten since college, what if my introduction as a music theory professor generated excited accounts about how they continually apply their analytical skills to the pieces they teach and perform? In terms of chromatic harmony, what if their college music theory experiences helped them acquire a fluent and balanced understanding of chord morphology and syntax that increased their awareness of how composers create moments of tension and resolution? Given that context, how might they articulate the ways in which their listening experiences and expressive choices are influenced by the manipulations of expectations that are created by half-step tendency tones?

A recent second-year music theory class produced a wonderful example of such possibilities. During a discussion of augmented-sixth chords, we studied and sang the familiar chorus of “Take Me Out to the Ballgame.” After identifying the chromatic notes required to create an augmented-sixth chord in the key of D major, students immediately noticed their presence in m. 26. They commented on the conventional resolution of *le-sol* in the bass, as well as the implication of contrary motion resolution from *fi-sol* in the middle voice (see Figure 19.5a). After recognizing that this chord is a Ger^{+6} , they acknowledged its typical progression to the cadential six-four chord, but were surprised that the dominant chord did not immediately follow. Instead,

Figure 19.5 consists of two musical staves, (a) and (b), representing the chorus of "Take Me Out to the Ballgame".

Staff (a) shows measures 17-32. The vocal line (treble clef) has lyrics: "Root, root root for the home team, If they don't win it's a shame For it's". The piano accompaniment (bass clef) has lyrics: "one, two, three strikes, you're out, at the old ball game." Chord symbols below the piano part are: DM: ii⁴₃, Ger⁺6, and 14⁶.

Staff (b) shows a recomposition of measures 25-32. The vocal line is identical to (a). The piano accompaniment is recomposed. Chord symbols below the piano part are: DM: ii⁴₃, ii⁴₃, Ger⁺6, and 14⁶. A dashed box highlights the first three measures of the piano part in (b).

Figure 19.5 Jack Norworth and Albert von Tilzer: Chorus of "Take Me Out to the Ballgame" (a. mm. 17–32; b. recomposition of mm. 25–32).

the final four measures include additional chromaticism that creates momentum and intensifies the delayed arrival on V⁷ in m. 29 and the final cadence of the song.

We certainly could have ended our discussion there, having practiced the identification of chromatic chords and tendency tone resolutions within a well-known song. Instead, students were invited to consider why the composer might have chosen to place the augmented-sixth chord at that particular moment, based on its overall effect and its relationship to the lyrics. In response to that prompt, a student offered an insightful observation that engaged the entire class and enhanced their understanding. The student commented that this particular augmented-sixth chord occurs with the word "two" during the phrase "for it's one, TWO, three strikes, you're out." He subsequently compared the tension created by the dissonance of that chord with the "dissonance" that exists within a baseball game. Since the player, team, and crowd know that a third strike "resolves" a plate appearance and eliminates the possibility for that player to score a run, the moments of greatest tension often occur when a batter has two strikes. It might therefore be less effective to align the dissonant chromatic chord and its dual half-step tendency tones with the word "three" (see recomposed version in Figure 19.5b). Given that the outcome of that plate appearance is already realized, there is no tension in having three strikes.

That clever interpretation inspired other students to think about manipulations of musical time. Not only did the composer align the augmented-sixth chord with the word "two," he also chose longer rhythmic values for the melody at that moment. Strikes one and two both last a dotted half note and occupy a full measure, as compared to the single quarter note of strike three.

Students compared this to the relatively longer amount of time that the player stands in the batter's box when they have one or two strikes and the quick trip back to the dugout after the receipt of strike three. In addition, we explored the effects of using rubato to further lengthen the time spent on strike two, thereby increasing tension during the dissonance and delaying its eventual release in m. 27. Just as the excitement of a baseball game is increased during the tension of strike two, the excitement of this song is impacted by the shrewd placement of a chord with distinctive chromatic tendency tones.

It is likely that my students will remember this discussion more than other assignments that focused solely on spelling or identifying these chromatic chords in various keys. Although achieving fluency with that morphology is certainly a crucial part of understanding, identifying the specific type of augmented-sixth chord in this particular song was less meaningful than realizing how its dissonance created tension and generated expectations that the composer either fulfilled or denied. Such are the possibilities of a pedagogy that combines morphology with syntax, perhaps even emphasizing harmonic progression and voice-leading over individual chord spellings.

In general, this tendency tone approach requires that students acquire three fundamental skills: (1) the ability to spell and recognize half steps, along with their necessary accidentals within the context of the prevailing key, (2) an awareness that these half-step tendency tones typically resolve in contrary motion, and (3) an understanding of harmonic function that reveals the scale degrees to which these dissonances tend to resolve. For the two specific chromatic chords addressed here, a focus on syntax also allows students to employ an already-learned voice-leading strategy – identify the tendency tones and resolve them in contrary motion – either simultaneously in the augmented-sixth chord across two voices or consecutively in the Neapolitan chord within a single voice.

Not only are these concepts relatively simple, their straightforward application to many types of music encourages students and music professionals to make connections between analysis, listening, teaching, and performing. For instance, teachers could invite their beginning and intermediate students to notice accidentals and find their half-step resolutions, then discuss what makes those moments particularly interesting. Upon detecting similar patterns, more advanced students and performers could examine the ways in which composers manipulate the expectations generated by these tendency tones. As addressed in the ensuing lesson plans, these manipulations often center on less typical resolutions (both in chord choice and voice-leading), enharmonic reinterpretations, and additional uses of chromaticism. When combined with an awareness of the way half-step tendency tones imbue music with direction and momentum, knowledge of these harmonic innovations further deepens our ability to make expressive choices that bring us in partnership with the composer to satisfy, suspend, delay, or thwart the resolution of musical expectations.

Notes

- 1 Perhaps this is similar to learning how to read while simultaneously learning how to spell. Rather than waiting to read until we can correctly spell every individual word, we use context and syntax to figure out the meaning of a sentence. Such reading experiences also provide opportunities to recognize morphological patterns that improve spelling ability.
- 2 Throughout this chapter, *do*-based, moveable-*do* solfège will be used to reference scale degrees. This allows for shared labels between scale degrees in parallel major and minor keys and avoids any mismatch between necessary accidentals within the prevailing key and labels like ♭2, #4, and ♭6.
- 3 Although many now consider these geographical labels insignificant, it is possible that they were first used to stereotype the chords relative to the music of the indicated countries. John Wall Calcott was likely the first to make such associations, describing the “elegance” of the Italian chord, the “feebleness” of the French, and the “strength” of the German that “leaves no doubt of their superior excellence” (Calcott, 1810, 239n). Ebenezer Prout also stereotyped the Italian augmented sixth as the “simplest,” the French the most “piquant,” and the German the “richest and fullest in character” (Prout, 1889, 203n).

- 4 The Fr^{+6} could also be interpreted as a $\text{Mm}7$ chord with a lowered fifth, where $\text{D-F}\sharp\text{-A}\flat\text{-C}$ is labeled as $\text{D}7(\flat 5)$. Given the typical perception of a $\text{Mm}7$ chord, this reading changes the function of Fr^{+6} from predominant to dominant.
- 5 Given the relative vagueness of the term Neapolitan, an awareness of chord root, quality, and function is likely enhanced by labeling this chord as $\flat\text{II}^6$ rather than N^6 , which matches customary Roman numeral labels and highlights the role of mode mixture.
- 6 Clendinning and Marvin (2016) also remind students of the importance of careful tuning in these chords, where harmonic identity and function are dependent on sufficiently altered scale degrees and precise half-step resolutions. In addition, they suggest that we “might even employ a darker tone color for the lowered pitches and brighter for the raised pitches. Such exaggerations hold true in ensemble singing and playing, where this line is crucial in tuning the chord qualities” (556).

Bibliography

- Aldwell, Edward, and Carl Schachter. 2011. *Harmony and Voice Leading*, 4th ed. Boston, MA: Schirmer.
- Calcott, John Wall. 1810. *Musical Grammar*, 1st American ed. Boston: Manning and Loring.
- Clendinning, Jane Piper, and Elizabeth West Marvin. 2016. *The Musician's Guide to Theory and Analysis*, 3rd ed. New York: W.W. Norton and Company.
- Ellis, Mark. 2010. *A Chord in Time: The Evolution of the Augmented Sixth from Monteverdi to Mahler*. Farnham and Burlington: Ashgate.
- Harrison, Daniel. 1995. “Supplement to the Theory of Augmented-Sixth Chords.” *Music Theory Spectrum* (17, no. 2): 172–195.
- Huron, David. 2016. *Voice Leading: The Science Behind a Musical Art*. Cambridge, MA: MIT Press.
- Kostka, Stefan, Dorothy Payne, and Byron Almén. 2018. *Tonal Harmony with an Introduction to Post-Tonal Music*, 8th ed. New York: McGraw-Hill Education.
- Prout, Ebenezer. 1889. *Harmony: Its Theory and Practice*. London: Augener.

20

APPLY YOURSELF! AN ACTIVE LEARNING LESSON PLAN FOR INTRODUCING SECONDARY DOMINANTS

Patricia A. Burt

Topic: Introduction to secondary dominants.

Goal: Students will be able to recognize secondary dominants in a musical context, spell and resolve secondary dominants, and sing all voice-leading connections between a secondary dominant and its chord of resolution.

Background: Fluency with harmonic analysis in a diatonic setting; ability to sight-sing melodies in solfège using moveable-*do*; knowledge of period structures and lead sheet symbols useful, but not required.

In many music theory curricula, applied chords provide an entrance point into the study of chromatic harmony and, later, modulation. Therefore, it is essential that students fully understand the tonicizing function of applied chords and that students are able to sing and hear these harmonies in a musical context. So as not to overwhelm students in the introductory lessons, I limit the type and number of applied chords, beginning with those found most frequently in the literature: V^7/V and V^7/IV .

The musical examples used to support any lesson can have a strong effect on student engagement, so I include a range of styles and/or works by composers who are underrepresented. This lesson includes an example from the traditional canon, one by a female composer, and a pop music selection. When introducing each musical example, sharing an entertaining detail about the composer's life or a funny anecdote about the piece we're about to examine can simultaneously pique the students' curiosity and help them relate better to the music.

When possible, I include examples that students can perform in class. All three musical examples for this lesson are songs so students not only listen to them, they sing them. The accompaniments are simple so that a non-pianist instructor, or, better yet, a student, might accompany the class. Active music making in the class is one of a number of ways this lesson incorporates active learning techniques. In addition to singing, students will chant chord spellings together, sing voice-leading connections between the applied chord and its chord of resolution, arpeggiate chord progressions, and perform analysis in pairs or small groups. It is of the utmost importance to create an environment where students can't help but be fully focused on the material at hand.

Warm-up

To get the class energized and prime their minds to receive the topic of the day, I usually like to perform warm-up drills. First, have the class stand and chant out spellings of V^7 in every key. While conducting in quadruple meter, name a key on the downbeat. On the next downbeat, the students can chant the note names, one per beat. I begin at a slow tempo and gradually speed up until the student response is almost immediate. An extension of this activity is to give the class a key and play the tonic. When you say, “Go!” the students sing V^7 in that key using the note names.

Tonicizing the Dominant: An Introduction

Perform and Analyze Overall Form

At this point, ask the students to turn to the first example on the handout (available on the Supplemental Materials website). Because some students (or many students) might not know or relate to the operas of Mozart, this is the moment when students might choose to disengage. To prevent this, I like to give them an overview of the plot in as entertaining a fashion as possible, explain what is happening when Don Giovanni sings this passage, translate the text, and then ask the students, “In what key does Don Giovanni ask for Zerlina’s hand?” Give the students a moment to scan the melody. If the class is weak with sight-reading, they can conduct and perform the rhythm either using takadimi or whatever system is typically used in your class. Then they sing the melody in solfège while the instructor or a student plays the accompaniment. After performing the example a couple of times, ask the students to do a pair and share discussing the overall form of the example. After identifying the half cadence at m. 4, the perfect authentic cadence (PAC) in m. 8, and the parallel structure of the two phrases, they should conclude that this is a parallel period (Figure 20.1).

The musical score is for the duet "Là ci darem la mano" from Mozart's opera Don Giovanni, measures 1 through 8. It is written in G major (one sharp) and 2/4 time. The vocal line (bass clef) and piano accompaniment (treble and bass clefs) are shown. The lyrics are: "Là ci da-rem la ma-no, là mi di-rai di si; ve-di, non è lon- ta - no, par - tiam, ben mio, da qui!". The piano accompaniment includes dynamics like *p* (piano) and *cresc.* (crescendo). The score ends with a double bar line in measure 8.

Figure 20.1 W.A. Mozart (1756–1791), “Là ci darem la mano,” from *Don Giovanni*, mm. 1–8.

Review V^7 and Dominant Function

Now is a perfect time to review the V^7 -I relationship so students can extrapolate the idea of dominant function to a new chromatic harmony. Remind them that any dominant seventh chord points toward a specific tonic and allow them to practice this idea by playing various dominant seventh chords and asking them sing the tonic. Ask them how the structure of a major-minor seventh chord allows them to locate the tonic so easily. The students should be able to identify the key-defining tritone, *ti-fa*, which pulls to *do-mi/me*. Return to playing various dominant sevenths and ask students to sing either *ti* or *fa* and then resolve using appropriate voice-leading (*ti-do* or *fa-mi*). Remind students about the strength and forward motion of descending fifths progressions in common practice tonal music. Examine the voice-leading at the final PAC in m. 8 of the Mozart example and review proper resolution of the dominant seventh. Summarize by emphasizing that a major-minor seventh chord has a tonic-identifying function.

***Fi*, V^7/V , and Tonicization**

Let the students form small groups and perform a full Roman numeral analysis for the second phrase. Noting again the parallel structure of the two phrases, ask the students to find where the phrases diverge. They will point to beat 2 of measures 2 and 6. Have them sing the bass line for mm. 1–3: *do-do-fa-fi-sol*. Ask them to explain the musical effect of the chromatic tone (intensified approach to the dominant) and then discuss the function of $D\sharp$ as a chromatic leading tone to scale degree $\hat{5}$. For comparison, the first 2.5 measures can be played without a change of harmony on beat 2 of measure 2. The class should be able to identify that the $D\sharp$ belongs to a BMm^7 in first inversion. Ask the students to locate another instance of this chromatic BMm^7 chord; they should find it in m. 3. Have them break into small groups to determine the connection the BMm^7 has with the chord that follows it. They should conclude that it is the dominant of the dominant. Now is the time to explain the concept of tonicization and have the discussion about the half cadence. Because we still hear the phrase as incomplete, the V/V did not actually change our sense of the tonal center, but rather it intensifies the approach to the dominant. Point out that when tonicizing V , *fa* moves up a half step to *fi*, which acts as a leading tone to *sol*. Mention that other scale degrees can be, and are often tonicized in a similar manner, but that the dominant is the most frequently tonicized chord.

Spelling V^7/V

Now that students understand how V^7/V works, they can practice spelling them in various keys, first with the class as a whole and then in small groups or pairs. They can use the following steps:

1. In the home key locate $\hat{5}$, which is to be tonicized. (In CM this is G.)
2. Find the dominant of $\hat{5}$ by locating the note that is a P5 above. (D is a P5 above G.)
3. Build a major-minor seventh chord using this note as the root. (D-F $\sharp$ -A-C is the Mm^7 built on D. V^7/V in CM is D-F $\sharp$ -A-C.)

Practice Analysis: Identification of Secondary Function Harmonies

Now that the students have discussed the function of applied dominants and can spell them, they should be able to perform a harmonic analysis of a passage that includes a secondary dominant. Again, I start by introducing the text and, in this case, sharing some information about the composer. The story of the song is fairly typical: a sad, love-obsessed gardener is watering the

flowerbeds with his tears because he is not with his loved one. However typical and timeless the character in this song might be, the *composer* of this song is anything but typical! There are plenty of interesting facts to share about Maria Theresia von Paradis; born in Vienna in 1759, Paradis was a female pianist/singer/composer who went blind between the ages of 2 and 5. Mozart, Haydn, and her composition teacher, Salieri, each wrote a keyboard concerto for her. When she was only 26, she helped Valentin Haüy open the first school for the blind in Paris.

Again, any interesting tidbits you can dig up about a composition or composer can help students better connect to a piece (Figure 20.2).

Larghetto

1.Es war ein mal ein Gärt - ner, Der sang ein trau - rig Lied,
 2.Er sang in trü - bem Mu - te Viel lie - be Ta - ge lang,

8

der sang ein trau - rig Lied.
 viel lie - be Ta - ge lang.

Figure 20.2 Maria Theresia von Paradis (1759–1824), *Das Gärtnerliedchen* aus dem *Siegwart*, mm. 1–12.

As with the *Don Giovanni* excerpt, the class should sing through this excerpt in solfège. The accompaniment is easy so perhaps a student can play for the class. Ask students to break into small groups to perform a Roman numeral analysis of this excerpt, identify where the applied chord is, and compare the voice-leading of this chord to the ones in the Mozart example. Students should identify the V^7/V in m. 6 and should note the similarity of the *fa-fi-sol* bass line in mm. 5–6 of the Paradis with the bass line in mm. 2–3 of the Mozart. Ask students to check the resolution of the secondary dominant chord. The temporary leading tone, in this case, “*fi*,” resolves up to the tonicized pitch, and the chordal seventh resolves down by step.

Resolving V^7/V

Now that students can recognize V^7/V in a musical context and spell them, they can learn to resolve them using whatever texture(s) (chorale, keyboard) you use in class. The following two points should be emphasized:

1. Resolve the temporary leading tone up to the scale degree being tonicized (in the case of V^7/V , *fi*→*sol*).
2. Resolve the chordal seventh down (in the case of V^7/V , *do*→*ti*).

Once students have practiced alone and in class, play the chord progression and ask students to sing one of the two tendency tones and resolve it. In addition, these progressions can be inserted

into a progression that established the tonic so students can better hear the tonicizing function of these chords. One possible progression is: $I-I^6-IV-V_5^6/V-V-I$. Students can be asked to sing a line containing one of the tendency tones for the applied harmony, thereby obtaining a sense of the linear aspect of these progressions.

Practice Analysis: Applied Chords Tonicizing a Scale Degree Other Than the Dominant

The opening of “Bohemian Rhapsody” by Queen contains examples of both V^7/V and V^7/IV (see simplified chord progression on the handout available on the Supplemental Materials web-site). The example consists of a vocal line with lead sheet symbols, so students must identify the key of the excerpt and assign Roman numerals to determine harmonic function. Students should identify the key and perform a harmonic analysis of the first four measures: $B\flat M: B\flat-C^7-F^7-B\flat$. Students will discover that C^7 is not diatonic in the key of $B\flat$ because it contains an $E\sharp$. The quality is major-minor; therefore, this is an applied dominant. Because it is V^7 of F , in the key of $B\flat$, students will label it V^7/V .

Students can continue to provide roman numerals for the remainder of the excerpt ($Gm^7-B\flat^7-E\flat^7-Cm^7-F^7$). Ask students to locate the chord that is not diatonic to the key of $B\flat$ major. They should locate the $B\flat^7$ chord, which contains the chromatic pitch, $A\flat$. Once students identify this as a major-minor seventh chord, they will discover that it is the dominant of the $E\flat$ harmony that follows. Because $E\flat$ is IV in the home key of $B\flat$ major, the $B\flat^7$ chord will be labeled V^7/IV .

Spelling and Resolving Any Applied Harmony

Once the students understand that secondary dominants can be used to tonicize any major or minor chord, they can practice how to spell any of them, first as a class, and then in pairs, following these steps:

1. Find the dominant of the scale degree (x) to be tonicized (find the pitch $P5$ above x).
2. With that note as the root, form a major triad (for V/x) or a major-minor seventh chord (for V^7/x).
3. Make sure the necessary accidental(s) are included.

Point out that these are *chromatic* harmonies and, as such, will include accidentals.

Students can also practice resolving any of the applied chords they spell, remembering to resolve the temporary leading tone up and resolving the chordal seventh down.

At-Home Keyboard Integration

If students are accustomed to playing harmonic progressions at the keyboard, an invaluable assignment is to have students write out, in two different keys, a simple progression that uses applied chords. Then they can learn to play them while singing various lines. This ensures that students have the opportunity to get inside this progression, making it more likely that they will be able to hear applied chords when listening without a score.

21

PLOT TWISTS

Narrative Pivots and the Enharmonic Augmented-Sixth Chord

Jena Root

Topic: Augmented-sixth chords as enharmonic pivots and signifiers of narrative shifts in text-setting.

Goal: Students will be able to identify the German-sixth/major-minor-seventh sonority as an enharmonic pivot chord in a variety of repertoire, and understand its potential as a musical signifier for a narrative shift or plot twist.

Background: Fluency with moveable-*do* solfège (scale-degree numbers may be substituted); understanding of secondary functions; ability to build and identify augmented-sixth chords.

“Welcome to grown-up theory.” This is how I begin the third semester of the music theory core at my institution. Most students are entering their sophomore year as music majors, and – ideally – they are well-grounded in the principles of diatonic tonal harmony. As with many theory courses at this level, we begin with functional chromaticism: secondary dominants, and a short time later, secondary leading-tone chords. These harmonies represent a rite of passage in music theory study: students can no longer rely on the passive process of “condense, stack, and name from the root,” but instead must actively make an “adult” decision about the chord’s *function* and *context*, not just its content. (The failure to complete this cognitive leap accounts for the incorrect answers we see all too often: “major II⁷” for V⁷/V, “major III⁷” for V⁷/vi, etc.)

A similar pedagogical challenge accompanies augmented-sixth chords. While it is certainly true that the Italian and German inflections are based on subdominant chords and the French on the supertonic seventh chord, students still commonly overlook context and function, and instead resort to a “childhood” process: (1) arrange the notes in thirds; (2) apply a Roman numeral, sometimes adorned with a motley collection of alterations, or none at all if the student chooses to ignore accidentals.

It stands to reason, then, that understanding the enharmonic relationship of the German augmented-sixth and the major-minor seventh sonority, often in the guise of a secondary-dominant function, requires a higher order of “grown-up” analytical thinking. Consider the prevalent model of the V⁷ of the subdominant resolving as a Gr⁺⁶ to a new key a major third higher (Figure 21.1):

bb: i iv V i
 d: Gr^{+6}
 Cd_6^6
 V VI iv V i

Figure 21.1 V^7/iv resolving as Gr^{+6} .

Even for students who are fluent in analysis, the thought process underlying this type of modulation is complex, and opportunities for missteps abound:

1. The student must recognize the Bb^7 chord¹ as V^7/iv in the home key, even without a resolution to the iv chord present.² Here, we cannot fall back on how the chord looks (content), or even what it does (function). Instead we must consider what it *could* do and what our ears tell us it *should* do – i.e. resolve to an Eb chord.
2. The student must know which notes to reinterpret, and that enharmonic reinterpretation is necessary at all. In Figure 21.1, some students would be content to label the pivot chord as “ VI^7 ” in D minor, without any consideration for the change in chromatic function. Furthermore, when moving from sharp to flat keys, we normally respell the “bottom” notes (i.e. the root and third) of the Mm^7 chord (see Figure 21.2).
3. Finally, the student must be able to think in the new key while the old key signature is still in force – or vice versa, if the key signature change happens in advance of the pivot chord.

This chapter presents a lesson plan to introduce and reinforce the concept of enharmonic modulation via the $\text{Mm}^7 \rightarrow +6$ sonority. Its two parts are ideally suited for two 50-minute class periods, but it may be condensed into one 75-minute period, with some of the practice exercises and repertoire reserved for homework. Moveable-*do* solfège (with *do*-based minor) is used throughout; the instructor may wish to substitute scale-degree numbers. In addition to secondary functions, students will have learned solfège syllables for the three types of augmented-sixth chords.

Part 1: Basics of Enharmonic Modulation Using the Mm^7

Refer to Figure 21.2 for this portion of the lesson; letters below indicate steps in the figure. The progression in step (a) is to be played but not notated; all other steps are to be written on the board.

- a Play the given progression; students should listen without referring to the notation. As you oscillate between I and V^7 , ask students what chords they hear. After completing the modulation, ask them to explain what happened. Some students may be able to use precise terms: the V^7 resolved enharmonically as a Gr^{+6} in a new key. Others will hear the abrupt shift but might not know how to describe it in words. Most students will, at the very least, hear a resolution outward instead of inward, and identify the cadential six-four leading to an authentic cadence in a new key. Further, you may divide the class into high and low voices, have them sing the outer voices using a neutral syllable, and ask them to deduce the solfège they hear in each key.

a. Play:

Repeat as needed.

Chord progression labels below the staff:

E $\flat$: I V ^{7} I V ^{7} D: Gr $^{+6}$ V ^{7} Cd $\frac{6}{4}$ V ^{7} I

b. Build *outward* from the pivot chord (as numbered).

Chord progression labels below the staff:

E $\flat$: I V I D: Gr $^{+6}$ V ^{7} sol - ti - re - fa le - do - me - fi (ri) Cd $\frac{6}{4}$ V I

c. Build the progression starting from an E7 chord.

Chord progression labels below the staff:

5. Establish starting key 1. 3. 2. 4. [A $\flat$: Gr $^{+6}$ Cd $\frac{6}{4}$ V I

d. E7 as a secondary dominant.

Chord progression labels below the staff:

V ^{7} / A ("V ^{7} of A")
 D (d): V ^{7} / V
 E(e): V ^{7} / IV (iv)
 G: V ^{7} / ii
 C: V ^{7} / vi
 A $\flat$ (a $\flat$): Gr $^{+6}$

Figure 21.2 Basics of enharmonic modulation.

- b Notate the progression in simple position, working outward from the pivot chord. This example does not use a key signature, as it is important that students think in literal note names at this stage. Because A $\flat$ resolves upward to A $\sharp$ in the new key, it is more correctly interpreted as G $\sharp$. (If you prefer to point out the “Swiss” spelling of the augmented-sixth in major keys, you may also respell F to E $\sharp$.) Label the pivot with solfège, beginning with the outer voices that the students sang. At the pivot point, we see *sol-ti-re-fa* reinterpreted as *le-do-me-fi* (or *le-do-ri-fi*). Finally, insert a short progression at the beginning to establish the key of E $\flat$ major, and sing the progression as up-and-down arpeggios (*do-mi-sol-mi-do*, etc.). Sing the pivot chord twice, with solfège in both the old and new keys.

- c Repeat the exercise using an E^7 chord as the pivot, and *without* designating a starting key. Resolve the “outsides” of the chord to $A\flat$ major, and note that in this case the root and third (or “bottom notes”) of the original chord must be respelled in order for the chord function as the Gr^{+6} in $A\flat$. Students will then calculate the original key by interpreting the E^7 sonority as V^7 in the key of A (minor or major, as you prefer).
- d Isolate the E^7 chord and discuss its potential as a secondary dominant. (This may double as a brief review of secondary functions.) Because E^7 functions as V^7 in the key of A, we may call it “ V^7 of A.” For related keys, we simply map a roman numeral onto the pitch A. (For example, in D major, $V^7/A = V^7/V$, because V maps to A in the key of D.)

Where solfège is a convenient tool for understanding the Gr^{+6} interpretation of the pivot, it is less effective for the Mm^7 chord, which *might* be V^7 , but could just as easily be a secondary dominant in a number of other keys. A more useful method for memorizing the enharmonic transformation is to say that “root–third–fifth–seventh = *le–do–me–fi*.”

In the Supplemental Materials, please refer to **Worksheet 1** and **Videos 1a and 1b**. Use remaining class time to start the worksheet, which may be finished as homework. Part 1 comprises a series of drills where students build Mm^7 chords and respell and resolve them as Gr^{+6} chords in a new key. The first two answers are provided, and are explained in detail in the videos.

When moving from drills into repertoire analysis (Part 2), it is important for students to understand that the pivot chord normally occurs only once, and so it is only spelled one way. In other words, the student will need to respell the chord mentally or on scrap paper in order to understand both functions. Two examples are provided:

1. The Navy Hymn. Here, the pivot is spelled as a D^7 chord ($D-F\sharp-A-C$). This example is notable because the sonority functions as a Gr^{+6} in the *first* key, and becomes a V^7/IV in the second key. Although this reverses the scenario explained in class, the same chord appears in Part 1, question 1. The Gr^{+6} spelling in $F\sharp$ minor is $D-F\sharp-A-B\sharp$.
2. Schubert, Waltz, Op. 9 No. 2. This short piano piece pivots from E major to $A\flat$ major using the same sonority as Figure 21.2. Here, the chord appears in the Gr^{+6} spelling ($F\flat-A\flat-C\flat-D$). To understand its function in E major, respell the chord as $E-G\sharp-B-D$.

Part 2. Repertoire and Text Painting

Having introduced and drilled the $Mm^7 \rightarrow Gr^{+6}$ pivot, we devote the next class session to repertoire analysis. Each work presented here uses the pivot to underscore a transformation or turning point in the text, and in each of them, a Mm^7 chord resolves as an augmented-sixth chord in a new key.

For this portion of the lesson, please refer to **Worksheet 2** and **Worksheet 2 [Teacher Copy]**, as well as the Links document in the Supplemental Materials. For each repertoire example, empty staff space is provided so that students may sketch and respell the enharmonic pivot in simple position.

1. Review

Begin with a brief review of the previous class session. Students spell V^7 of $A\flat$, and name several keys in which it may occur as a secondary function. Next, respell the chord as a Gr^{+6} and name the keys: G major and G minor. If desired, you may include the “Swiss” spelling for G major. Remember also to review the respelling formula: $R-3-5-7 = le-do-me(ri)-fi$.

2. Rodgers and Hart, “Blue Moon”

This song from 1934 is in AABA song form, where the A section is a repeated fifties progression (I–vi–ii⁷–V⁷) in C major. The bridge (B) moves briefly to E $\flat$ major, from which we emerge on the home dominant (G) via a V⁷/IV $\rightarrow$ Gr⁺⁶ pivot. The shift coincides with the narrator’s first sight of the beloved, and the moon’s transfiguration from blue to gold. The example provided uses only guide lyrics, chord symbols, and a harmonic sketch in simple position. Note that the pivot matches the Review example in Item 1 mentioned earlier.

3. Beethoven, “Credo,” *Mass in C major*, Op. 86, mm. 179–190

Beethoven employs the E $\flat$ ⁷ in a similar manner to Rodgers and Hart, moving from E $\flat$ major to G major via V⁷/IV. G major, in turn, gives way to the home key of C major (not included in the worksheet excerpt) in the subsequent phrase.

This example is distinct from “Blue Moon” in one important regard: the Mm⁷ sonority omits the fifth, resulting in an *Italian* augmented sixth in G major. This is a good time to remind students that the Italian inflection allows for movement directly to the V chord, whereas the German typically moves through the cadential six–four to avoid forbidden parallelism. Here, the pivot accompanies the death and resurrection of Christ, its three iterations (almost too obviously) marking the passing of three days’ time.

4. Adam, “Cantique de Noel,” mm. 7–11

Adolphe Adam’s “Cantique de Noel” uses a reinterpreted V⁷/IV sonority in C major to pivot briefly to E minor. Here, the text painting likely refers to Placide Cappeau’s original French Lyrics, which reference “the wrath of [the] Father.” Following this excerpt, the carol returns immediately to C major, as the narrative turns to the “thrill of hope” brought by the Nativity.³

5. Stephen Sondheim, “In Praise of Women,” from *A Little Night Music*, mm. 3–26.

American musical theater composer Stephen Sondheim is well-known for his clever integration of music and text. In his 1973 score for *A Little Night Music*, Sondheim uses a striking enharmonic pivot to represent hypocrisy in the arrogant, womanizing character Count Carl-Magnus Malcolm. His solo, “In Praise of Women,” begins in F major and quickly progresses through a cycle of descending minor thirds, to D major and then B major. The abrupt and comical tritone pivot back to F major is accomplished through a V⁷/V $\rightarrow$ Gr⁺⁶ reinterpretation. The tonal shift coincides with the Count’s declaration of simultaneous fidelity to *both* his wife and mistress.

The joke is elegantly set up in the preceding phrase, beginning at m. 19: as Carl-Magnus muses aloud about his notions of fidelity, B major is established through plagal motion: the supertonic moves through a modal shift (G $\sharp$ –G $\natural$) to resolve to the tonic, but no dominant occurs (i.e. both the Mm⁷ sonority and a functional dominant chord are absent). His subsequent proclamation about his *own* fidelity leads to the C $\sharp$ ⁷. We expect that this chord will resolve to F $\sharp$, just as we hope that Carl-Magnus will cease his moralizing and get to the point. Finally, the punch line (“and Charlotte, my devoted wife”) redirects the harmony through the unexpected enharmonic shift. Sondheim’s second verse sets up a similar case of pretzel logic as Carl-Magnus decides that it is best to trust his mistress, in the same way that his wife trusts him.⁴

Astute listeners will recognize that the Sondheim example employs more sophisticated voice-leading than the others: A tonic pedal tone persists through the B-major section, causing the V⁷/V chord to occur in third inversion ($\frac{4}{2}$ position). The bass note B then resolves *upward* to C. Depending on available time and the level of your class, you may wish to sketch this voice-leading in the blank staves at the bottom of the page.

Further Thoughts and Conclusion

If class time is limited, I recommend assigning Worksheet Items 3 and 4 as homework. This would leave students to discover Beethoven's incomplete $V^7 \rightarrow It^{+6}$ pivot on their own – a discussion that could begin the subsequent class meeting. If you wish to explore the topic in more depth, consider a small composition project in which students set the text of a short joke, with the punch line occurring on an enharmonic pivot. This could also be assigned after you cover the diminished-seventh pivot, so that students could choose which type of modulation to use. For example:

Three guys walked into a bar ... and the fourth one ducked.

G:I	V^7/vi	$vi V^7/IV$	
		B: Gr^{+6}	$Cd_4^6 \quad V \quad I$

It is my hope that this lesson plan will find a home in one of your theory courses, and that it will encourage your students to connect harmonic motion and narrative trajectory in other works that they might study and/or perform.

Notes

- 1 Throughout, I will refer to specific Mm^7 chords with lead sheet symbols (e.g. B^7).
- 2 Seasoned teachers will be familiar with the student “strategy” of naming the altered chord by what follows it.
- 3 In John Sullivan Dwight's English translation, the pivot chord coincides with the arrival of Christ to a world “in sin and error pining.”
- 4 For a more detailed explanation of this romantic triangle and the others that support the plot of *A Little Night Music*, see Banfield (1993).

Bibliography

Banfield, Stephen. 1993. *Sondheim's Broadway Musicals*. Ann Arbor: University of Michigan Press.

22

CHROMATIC MEDIANTS THROUGH THE CONTEXT OF FILM MUSIC

Erik Heine

Topic: Chromatic mediants through the context of film music.

Goal: Students will be able to aurally and visually recognize chromatic mediant relationships within a given context.

Background: Ability to identify triads; ability to read full orchestral scores will be helpful; strong harmonic dictation skills will be helpful.

American textbooks typically cover the topic of chromatic mediants after mode mixture and other chromatic chords such as the Neapolitan and augmented sixths. Chromatic mediants often appear near the end of tonal sections of textbooks, alongside augmented triads and enharmonic modulation, topics which tend to be somewhat overlooked, glossed over, or even ignored due to time constraints. When chromatic mediants are introduced, it is typically in a sterile way, explaining the basic parameters of the relationship, then providing brief excerpts of music that demonstrate the principle. The musical examples provided in textbooks are often short excerpts, six to eight measures in length, commonly drawn from the middle of works, and which rarely have any context or familiarity to students. The objective of these examples appears to be to simply demonstrate that composers have used chromatic mediants in their music, and as a result, students can easily be fooled into thinking that the relationship between chromatic mediants is just another set of parameters to be tested on at the appropriate time.

Rather than using examples unfamiliar to students to introduce and illustrate chromatic mediants, students can better understand these chords through their use in film music, which provides an immediate narrative context. Selected examples from films, largely science-fiction and fantasy, but not necessarily limited to those genres, can quickly demonstrate the extraordinary nature of the chromatic mediant. Film topics such as magic, mythology, and the “fantastic” occur frequently within science-fiction and fantasy films, but are certainly not limited to them, as I also draw on examples from action, thriller, comedy, and sports genres. I have created terminology associated with the relationships between the two chords – Magic, Hero, Vader, and Palpatine – published as an article titled “Chromatic Mediants and Narrative Context in Film.” Approximately 20 examples, both notated and with hyperlinks to film clips, are available through this article. Through establishment of a narrative context in film, and even examples where the established context is subverted for humorous means, musical examples drawn from film can convey the significance of the relationship between chromatic mediants more efficiently and effectively than typical textbook examples.

I begin the lesson by soliciting the class for all eight possible major and minor triads that are a third away from a given major chord. As an example, FM can be used as a starting point. The eight possible chords are then: D♭M, D♭m, DM, Dm, A♭M, A♭m, AM, and Am. In some instances, enharmonics are easier to use, which is an early way to introduce that concept. For this example, C♯m and G♯m are more likely to be used than D♭m and A♭m, respectively. When all eight triads are on the board, we begin to categorize them. Two of them are diatonic – Dm and Am – and share two common tones. The four that are of the same triadic quality as the given chord – D♭M, DM, A♭M, and AM – are the chromatic mediants and share one common tone. The remaining two triads – D♭m and A♭m – are doubly chromatic mediant, do not share any common tones with the given chord, and are excluded from any further conversation, despite the fascinating harmonic relationship. After categorizing the chords, I then play them on the keyboard, in relation to the given chord, demonstrating their chromatic context, rather than a diatonic one. We do another example, starting from a different given chord, often in the opposite mode to show that minor-mode triads can be related by chromatic mediant as well.

Because it is never a bad idea to use the examples in the textbook, particularly since they are often annotated, I typically play the one or two examples present. I precede this presentation by asking if the students are familiar in any way with the piece, as these examples typically occur in the middle of a work, and not in the opening measures. Typically, the response is a resounding “no.” The students don’t really understand the significance or importance of the chromatic mediant relationship because the musical examples fail to provide the proper context, narrative, or otherwise.

At this point, I return to the chord names present on the board and recategorize the chromatic mediants based on their specific distance of a major or minor third, and then provide them with a label. These labels come from my article. The terminology for the four types of chromatic mediants is outlined in Table 22.1.

Table 22.1 shows the elements of the various relationships between two chords related by chromatic mediant. The first two relationships in the table, Magic and Hero, both involve major triads. The label refers to the triadic quality and the number of half steps between the roots. The label also does not discern a direction, so relative to an A major triad, both F major and C♯ major triads can fulfill a Magic relationship. The bottom two relationships in the table, Vader and Palpatine, both involve minor triads. The labels contain two elements – a chord quality and a distance in half steps between chord roots. An M4 refers to two major triads whose roots are four half steps apart such as GM and BM. An m3 refers to two minor triads whose roots are three half steps apart such as Em and Gm. The Palpatine motion is by far the least common of the four relationships, and earned its name based on its rarity. As Jim Buhler (2000) writes, “only a very powerful sorcerer, perhaps only a god, could animate these chords thus, could make them progress so against their tonal nature” (47).

The first two film clips that I show come from Peter Jackson’s *The Lord of the Rings* films. Howard Shore’s music for the *Lord of the Rings* trilogy offers a wealth of chromatic mediants, but the clearest examples of the M4 and M3 occur in the first film, *The Fellowship of the Ring*. Although

Table 22.1 The Four Types of Chromatic Mediants

<i>Triad qualities</i>	<i>Distance</i>	<i>Label</i>	<i>Relationship</i>
Major	Major third	M4	Magic
Major	Minor third	M3	Hero
Minor	Major third	m4	Vader
Minor	Minor third	m3	Palpatine

these examples are closing in on being 20 years old at the time of this book's printing, they have maintained their relevance with current generations, and continue to be quite familiar to students. I first show the scene between Arwen and Aragorn. (Please see the Supplemental Materials for this, and all media examples.) Aragorn is a mortal being and Arwen is an immortal elf, a possessor of magic. In their scene, Arwen chooses to forgo her immortality and binds herself to Aragorn, willing to endure whatever fate befalls him. Because the Elves are magic, and the scene occurs in their village of Rivendell, the Magic relationship is used between the chords A♭M and F♭M, the M4 Magic pair, emphasizing the magical nature of both Arwen and her relationship.

The next clip I show occurs about five minutes later in the film, and brings the “Fellowship of the Ring” together. In it, the various representatives of the Council of Elrond decide to support Frodo, a Hobbit, in his quest to return the ring to Mount Doom in order to destroy it. The music grows in orchestration and in dynamics as members become part of the Fellowship. The “Fellowship Theme” is initiated with three triads: C major, E♭ major, and back to C major. This group is about to undertake a heroic journey, one that will last for more than two more films. The opening harmonies illustrate the M3 Hero relationship, as each member of the Fellowship will perform heroic actions at some point in the saga.

Once the chromatic mediant codes have been established, I can then draw on a wealth of examples to further confirm the Magic and Hero relationships. Just as major-mode examples from the standard literature are more common than minor-mode examples, the same holds true in film music. The Links document in the Supplemental Materials contains several musical examples of these two relationships, each with video links of the film clips, so teachers can draw on whatever suits them best. Once gestures have become familiar, it is common to take the gesture and manipulate it for comedic reasons, and I like to end this section of the classroom demonstration with one or two humorous examples. One such instance comes from the film *Dirty Rotten Scoundrels*. In the scene, Officer Freddy Benson (Steve Martin) pretends that he cannot walk, and only the power of love can heal him. A young woman, Janet Colgate (Glenn Headley), believes that she is falling in love with Freddy and will prove her love if he can stand up and walk to her. Miles Goodman's cue, titled “Miracle of Life,” uses only five triads. The first three consist of two pairs of Magic, while the final two pairs, after a brief pause, comprise another pair. The five triads all belong to the same whole-tone scale, and in the soundtrack recording, the sixth chord in the scale is also heard, but is not used in the film. The humor is that Benson is a con man who could always walk. This knowledge, along with Martin's facial expressions in the scene, allows the music to function with much more humor than is typically permitted. A clip of this scene is available in the online resources. Table 22.2 provides the chords, transformations, and times heard in the clip.

After presenting the major-mode examples, I then present the minor-mode examples. Both the Vader and Palpatine relationships, like the Magic and Hero, are introduced through the same film series, which in this case is *Star Wars*. The Vader relationship, m4, is far more common than the Palpatine relationship, m3. I begin by showing one of the scenes from *The Empire Strikes Back* that contains the “Imperial March” to demonstrate the Vader, and then follow that with the Palpatine from *Return of the Jedi*, essentially demonstrating the rarity of the m3. Both of these examples are available in the online resources. Throughout the prequels, we learn that Palpatine has had several apprentices, but he has remained as the Sith master. As a result, the m3 is rarer and most disturbing

Table 22.2 Chords and Timings in “Miracle of Life” from *Dirty Rotten Scoundrels*

Relationship	Magic		Magic		Magic		Magic	
Triads	EM	CM	Pause	CM	A♭M	Pause	DM	B♭M
Time	1:45	1:54	2:02	2:10	2:16	2:24	2:59	3:02

than the m4. I follow this introduction with a couple more examples of minor-mode chromatic mediants, and typically, I reach the end of the class period at this point.

The remainder of this lesson plan provides two examples that can be used for work outside of class, or supplemental work within the classroom. *Tron* (1982) is a film where a young programmer, Flynn (Jeff Bridges), is pulled from the real world into a computer world that he helped create. He is what other programs refer to as a “user,” but in this world, Flynn has more power than nearly anyone because he created so many of the programs. In the middle of the film, Flynn and an injured Ram (Dan Shor) encounter a wrecked Recognizer, a flying craft used by the “evil programs.” Flynn takes the controls and the Recognizer reassembles. Wendy Carlos’s cue is titled “Miracle and Magician,” an obvious nod to the abilities that Flynn possesses. The Magic relationship is heard multiple times in the first minute of the cue. After watching the short film clip, students should be able to put the context together without much difficulty, and without needing much explanation from the instructor. This clip, as well as the audio cue, is contained in the Supplemental Resources.

The cue is broken into two parts. The first part, which is the relevant portion for hearing chromatic mediants, lasts approximately 40 seconds. In this passage, a total of ten major triads are heard, with seven of them occurring within the final 15 seconds. The times given in Table 22.3 come from the clip available in the online resources.

Between these major triads, four instances of the M4 Magic relationship occur, as well as one instance of the M3 Hero. The opening triads, BM–E♭M–BM, create two instances of the Magic relationship, accompanying the Recognizer reassembling itself. The M3 Hero is used within the M4 Magic pairs, F♯M–AM, leading into two final M4 Magic instances, B♭M–DM, and DM–F♯M, before the music slides down by half-steps, as the fully reassembled Recognizer shows its damage, and part of the leg falls off. It is clear that what Flynn can do is magic, as we soon learn that he “shouldn’t be able to do that,” and through his abilities, and through the single use of the M3 Hero gesture, he is also the hero of the film. Although the film is named after the character Tron, Flynn is the one who goes through the great sacrifice to allow the good guys to win.

The second example comes from the 1990 film *Total Recall*, directed by Paul Verhoeven, and starring Arnold Schwarzenegger. In the cue “The Reactor,” which segues into the succeeding cue, “The Hologram,” the intensity climbs and the film’s climactic moment is prepared. Within this short cue, three of the four chromatic mediant gestures are used: M4 Magic, M3 Hero, and m3 Palpatine; only the m4 Vader is absent. This clip, as well as an audio example, is available in the online resources, and the harmonies are outlined in Table 22.4.

Several harmonic relationships heard throughout the film are present in this cue as well, including the Neo-Riemannian Parallel relationship at the start of the cue between Cm and CM, as well as the “Major Tritone Progression” (MTTP) between CM and F♯M, a term coined by

Table 22.3 Chords and Timings in “Miracle and Magician” from *Tron*

Relationship	Magic		Hero		Magic		Magic			
Triads	BM	E♭M	BM	F♯M	AM	B♭M	DM	F♯M	FM	EM
Time	0:42	0:50	0:59	1:05	1:07	1:08	1:10	1:11	1:13	1:14

Table 22.4 Chords and Timings in “The Reactor” from *Total Recall*

Relationship	Magic				Hero		Palpatine		Palpatine	
Triads	Cm	CM	F♯M	DM	AM	DM	BM	G♯m	Fm	Dm
Time	0:12	0:16	0:20	0:28	0:37	0:55	1:02	1:10	1:13	1:15

Scott Murphy. The M4 Magic gesture is heard between the F#M and DM triads, as the reactor on Mars is some sort of ancient machine, and no one truly knows what will happen if it is activated. After a sustained AM triad, the M3 Hero gesture is heard between DM and BM, because Quaid's (Schwarzenegger) objective is to activate the reactor and create a breathable atmosphere for Mars. The Hero gesture is followed by a Relative relationship from BM to G#m, and concluding with two m3 Palpatines, G#m-Fm-Dm. The Palpatines are a reference to the Martian President Co-haagen, as he is the villain pulling all of the strings in the film and knowingly not turning on the reactor in an attempt to maintain power and control. The local "bad guy," Richter, would be the equivalent of Darth Vader, but he's not present in this scene, thus explaining the absence of that relationship.

Through the completion of the classroom activities, and also any work assigned outside of class, students should have a far greater understanding of why chromatic mediants are employed by composers, and can begin to aurally recognize them without a score. Concert composers were aware of the power of the chromatic mediant as well, and within the context of a full movement or composition, that progression also contains meaning. However, when isolated out of context in a textbook, that power is not normally conveyed very efficiently. For film composers, the chromatic mediant relationship has acquired narrative meaning, and is used to emphasize that meaning even though audiences may not be acutely aware of it. Through the immediate accessibility and narrative clarity of film, film music provides an appropriate avenue for students to begin to understand why and how chromatic mediants are employed, and convert the lesson plan from a sterile textbook definition to an exciting multimedia experience.

Bibliography

- Buhler, James. "Star Wars, Music, and Myth" in *Music and Cinema*, ed. James Buhler, Caryl Flinn, and David Neumeyer. (Hanover, NH: Wesleyan University Press, 2000), 33–57.
- Heine, Erik. "Chromatic Mediants and Narrative Context in Film." *Music Analysis* 37 (2018): 103–132.

23

HOW TO ANALYZE CHROMATIC LAMENT-BASS HARMONIZATIONS (WITHOUT TEARS)

Jason Britton

Topic: Chromatic harmony and voice-leading in lament-bass progressions.

Goal: Within the context of a chromatic lament-bass harmonization, students will learn to distinguish between structural harmonies and apparent seventh chords arising from combined embellishing tones.

Background: An understanding of passing and suspension dissonances, seventh chords, functional harmonic areas, and cadence; knowledge of counterpoint and ostinato forms (ground bass, passacaglia, chaconne) helpful but not required.

“I labelled the fourth chord ‘#vi^{o7},’ but that seems strange, and I’m not sure how it functions.” Chances are, if you’re a music theory teacher who has assigned “Dido’s Lament” from Purcell’s *Dido and Aeneas*, or the “Crucifixus” from J.S. Bach’s B-minor mass, then you’ve heard responses like this before. When it comes to analyzing harmonizations of lament basses that descend by half step from tonic to dominant, our students are understandably perplexed by the apparent seventh chords that rear their nonfunctional heads.¹ But what if we turn things around and *construct* one of these intricate progressions ourselves from the bottom up? Perhaps our students would then see how such complex harmonizations could be understood as elaborations of simple models. To this end, I like to conduct the following activity in my sophomore-level analysis course after the students have spent some time grappling with the harmony and form of Bach’s “Crucifixus.” Having said that, this exercise is also suitable for first-year theory students familiar with parallel $\frac{6}{3}$ chords, suspensions, and step-descent basses.

Preparatory Assignment

Analyze the chords in measures 1–4 of J.S. Bach’s “Crucifixus” from *Mass in B Minor*, BWV 232. Write lead-sheet symbols above the staff, then indicate the key and provide Roman numerals below the staff.

In-Class Exercise

The instructor quickly goes about the room to see how students did on the Bach analysis assignment. Tell them we will discuss the assignment – and its particular challenges – after the following warm-up activity. *The class should sing each of the examples below.*

1. In E minor, notate the first and last bass notes of an inconclusive basic phrase, with $\hat{1}/do$ descending to $\hat{5}/sol$ in whole notes. For simplicity's sake, use an *alla breve* meter sign and a single treble staff with E4 in measure 1 and B3 in measure 4.² Imply Roman numerals and indicate the functions of the implied harmonies (Figure 23.1).



Figure 23.1 Structural bass of an inconclusive basic phrase.

2. Add diatonic passing tones between $\hat{1}/do$ and $\hat{5}/sol$; write D4 in measure 2 and C4 in measure 3, both as whole notes (Figure 23.2).

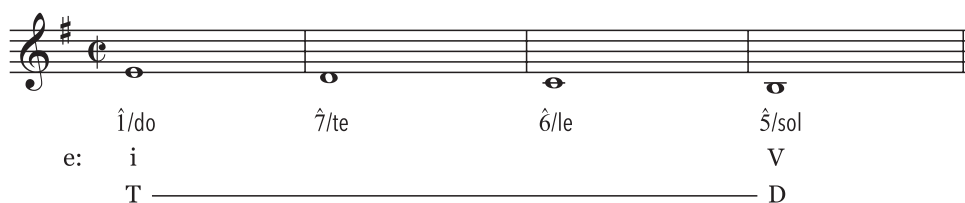


Figure 23.2 With diatonic passing tones.

3. Add an upper voice in parallel thirds (Figure 23.3).



Figure 23.3 With parallel thirds above the bass.

4. Add a soprano voice ($\hat{5}/sol-\hat{5}/sol-\hat{4}/fa-\hat{5}/sol$) to make passing $\frac{6}{3}$ chords between i and V.³ Alternatively, add only the first note in the soprano (B4), and ask students to compose a smooth line. What convention of counterpoint and voice-leading is broken if we simply add a fifth above every bass note? Since parallel root-position triads yield unwanted parallel fifths, let's try close-position parallel $\frac{6}{3}$ chords to elaborate the motion between i and V. Notice also that the soprano must step up to B4 at the end instead of skipping down to F#4 (the chordal fifth of V) in order to avoid a hidden (or direct) fifth in the outer voices (Figure 23.4).

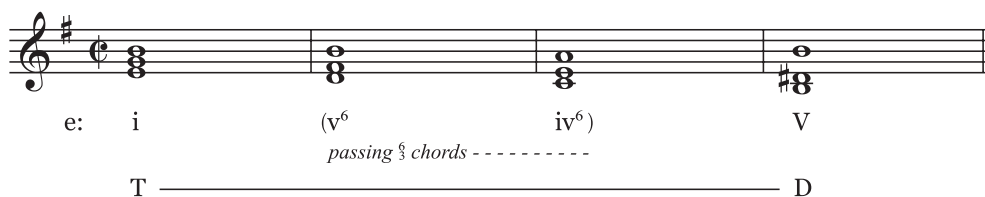


Figure 23.4 With a soprano voice producing parallel $\frac{6}{3}$ chords between i and V.

- Embellish the soprano with a 7–6 suspension in measure 3, and then ask the students how we might do the same thing in the previous measure. Prepare the suspension in measure 2 with 5–6 contrapuntal motion above the bass in measure 1 (Figure 23.5).

Figure 23.5 shows a musical staff in G major with a soprano voice and a bass line. The soprano voice has a 7–6 suspension in measure 3 and a 5–6 suspension in measure 2. The bass line consists of repeated half notes. Roman numerals are provided below the staff:

e: i⁽⁵⁾ — 6) v⁶ iv⁶ V
T ————— D

Figure 23.5 With 7–6 suspensions embellishing the soprano voice.

- Change the lower two voices to repeated half notes, and embellish with accented chromatic passing tones in the bass in measures 2 and 3 (Figure 23.6).

Figure 23.6 shows a musical staff in G major with a soprano voice and a bass line. The soprano voice has a 7–6 suspension in measure 3 and a 5–6 suspension in measure 2. The bass line consists of repeated half notes with accented chromatic passing tones in measures 2 and 3. Roman numerals are provided below the staff:

e: i⁽⁵⁾ — 6) v⁶ iv⁶ V
T ————— D

Figure 23.6 With accented chromatic passing tones embellishing the bass.

- Embellish the concluding dominant with $\frac{6}{4}$ – $\frac{5}{3}$ motion above the bass. Add lead-sheet symbols above the staff to reflect each vertical sonority, including the apparent chords produced by our suspensions, passing tones, and ascending 5–6 motion. Add Roman numerals below the staff for each sonority, but place the apparent chords in parentheses to signal their non-structural, embellishing function (Figure 23.7).

Figure 23.7 shows a musical staff in G major with a soprano voice and a bass line. The soprano voice has a 7–6 suspension in measure 3 and a 5–6 suspension in measure 2. The bass line consists of repeated half notes with accented chromatic passing tones in measures 2 and 3. Lead-sheet symbols and Roman numerals are provided below the staff:

Em C/E D[♯]°7 Bm/D C[♯]°7 Am/C Em/B B
e: i⁽⁵⁾ — 6) (vii°7) v⁶ (♯vi°7) iv⁶ V($\frac{6}{4}$ — $\frac{5}{3}$)
T ————— D

Figure 23.7 With cadential $\frac{6}{4}$ embellishment and chord labels.

- Say nothing more. Go to the audio system and play a recording of Bach’s “Crucifixus.” As the music begins, subtly gesture toward the progression notated on the board, and watch with delight as students experience a truly revelatory moment once they recognize that the embellished progression we just wrote is essentially the same as Bach’s.⁴

Summation to the Class

The sonorities that result from combining our 7–6 chain of suspensions in the upper voice with chromatic passing tones in the bass certainly begin to look and sound like real seventh chords. Our process, however, reveals that these sonorities are the by-product of embellishing a diatonic framework ($i-v^6-iv^6-V$). If we choose to label these voice-leading chords with Roman numerals, let's use parentheses to signal their non-structural, embellishing function.

Note to Teachers

If you sense during this lesson that any students are catching on to the fact that we are gradually constructing Bach's progression, simply say, "If you have an idea where this exercise is heading, please hold your comments for now." It might surprise you to know, however, that I have rarely needed to make such an announcement. Perhaps changing Bach's triple meter to duple helps throw students off the scent.

Questions for Further Discussion

- Is it appropriate to label apparent chords with Roman numerals? What do you think Roman numerals should show?
- *Harmony*: What does Bach do in the rest of the "Crucifixus"? It is no secret that the lament bass repeats over and over. Number the beginning of each appearance of the ostinato bass. If we think of the four-measure instrumental introduction as a model, how does Bach change his sonorities above the bass later on? Can you find other instances of apparent chords that arise from embellishing the basic chords? [Note: this activity requires knowledge of applied (or secondary) chords, augmented-sixth chords, and pivot-chord modulation (for the ending); an understanding of sequence is helpful but not required. A sample assignment is available on the Supplemental Materials website.]
- *Form*: What are the large sections of the movement's form (e.g. Intro, A, A', B)? What aspects of the music will you use to support your answer (text repetition, texture, harmony, cadence, other)?
- *Music and text*: In what ways do the repeating bass line and Bach's harmonization convey the mood and meaning of the text? After nearly modulating to the key of A minor (iv), the movement ends unexpectedly in G major (III). Why do you suppose Bach did this?

Notes

- 1 In this context, "apparent" seventh chords are by-products of voice-leading, and they neither resolve nor function as true sevenths. For more discussion and examples, see Aldwell, Schachter, and Cadwallader's *Harmony & Voice Leading*, Unit 25 ("Remaining Uses of Seventh Chords"), Sections 13–16. See also the authors' brief yet illuminating analysis of apparent seventh chords in Bach's "Crucifixus" in Unit 32 ("Chromatic Voice-Leading Techniques"), Section 2.
- 2 Alternatively, the instructor may match the meter sign to the piece the students were given to analyze.
- 3 In the progression $i-v^6-iv^6-V$, some musicians prefer to interpret v^6 as a single passing chord between i and iv^6 . In this view, iv^6 initiates a Phrygian cadence and may be labeled as having pre-dominant (PD) or intermediate (INT) function.
- 4 In Bach's triple meter, the second violin plays $F\sharp$ ($\hat{2}/re$) on the third beat of measure 3, and the addition of this note to the preceding iv^6 (beat 2) produces $ii^{\flat 3}_3$. Laitz cites this sonority as a substitute for iv^6 in lament-bass harmonizations (see *The Complete Musician*, 4th ed., p. 360). One might argue, however, that the $F\sharp$ is an ascending passing tone between the viola's E in iv^6 and the second violin's G in the cadential six-four (Em/B) on the following downbeat; in this view, the $\frac{4}{3}$ chord is another example of an apparent seventh. An additional difference in Bach's progression is his addition of the chordal seventh to the dominant in measure 4 (beat 3).

Bibliography

- Aldwell, Edward, Carl Schachter, and Allen Cadwallader. 2019. *Harmony & Voice Leading*. 5th ed. Boston, MA: Cengage.
- Biamonte, Nicole. 2012. "Variations on a Scheme: Bach's 'Crucifixus' and Chopin's and Scriabin's E-Minor Preludes." *Intégral* 26: 47–89.
- Rosand, Ellen. 1979. "The Descending Tetrachord: An Emblem of Lament." *Musical Quarterly* 65 (3): 346–359.

24

INTRODUCTION TO COMMON-TONE DIMINISHED-SEVENTH CHORDS

Nicole Biamonte

Topic: Common-tone diminished-seventh chords.

Goal: Students will be able to recognize, construct, and use common-tone diminished-seventh chords in a variety of stylistic contexts, and understand them as part of a larger family of related neighbor chords.

Background: Knowledge of diatonic and basic chromatic harmony, including applied diminished-seventh chords, Neapolitan-sixth and augmented-sixth chords.

Overview

This lesson plan introduces the topic of common-tone diminished-seventh chords, an embellishing harmony used in tonal music from the nineteenth century onward that functions as a chromatic neighbor chord. The lesson demonstrates the essential aspects of this chord type, how to construct and resolve them, and situates them in the context of other typical neighbor chords. Examples are drawn from nineteenth-century art music, jazz, and rock. The lesson is designed to fit into the chromatic harmony unit of an undergraduate core music theory sequence (usually the third or fourth semester), but it could also be used for advanced high school students or in a graduate theory review course.

Introducing the Topic in Class

One way to spark students' curiosity is to begin with a musical example rather than an explanation of the chord, and ask the students to determine, on the basis of the example, how the chord functions. I often begin by presenting the opening measures of the first movement of either Brahms's Symphony No. 3 or Schubert's String Quintet in C major, in a score reduction (for easier harmonic analysis) and a full-score excerpt (to show the voice-leading) shown together on one page of a handout (see the Examples handout in the online Supplemental Materials), and play a recording of the excerpt (see the Links to Recordings in the Supplemental Materials). Both of these works begin with a $I-ct^{o7}-I$ progression that prolongs the initial tonic, and they have the advantage of preparing the dominant chord at the end of the phrase with an applied diminished-seventh chord, vii^{o7}/V (mm. 6–7 in the Brahms, moving to V^6 ; m. 9 in the Schubert exposition and m. 275 in the recapitulation, moving to a root-position V chord but with the small complication that vii^{o7}/V is set over a dominant pedal). This allows students to eventually

differentiate between the chords on the basis of their dissimilar functions, even though they contain the same pitch classes.

Typically, the first student response after adding up the notes of the ct^{o7} chord is to identify it in terms of more familiar harmonies such as vii^{o7}/V . Then I ask the class why the chord moves straight back to the I chord rather than going to V. This question prompts students to notice the different harmonic context of the ct^{o7} chord as compared to vii^{o7}/V , and sometimes elicits the useful observation that $\sharp 4$ does move to $\hat{5}$. This point leads nicely into a closer look at the voice-leading of the chord: not only is $\sharp 4$ a lower chromatic neighbor to $\hat{5}$, but $\sharp 2$ (which is sometimes spelled as $\flat 3$, as in Brahms's 3rd Symphony) acts as a lower chromatic neighbor to $\hat{3}$, in a parallel-third progression. Another important aspect of the voice-leading that I coach students to observe is that one of the notes, $\hat{1}$, does not move and is retained as a common tone. Once these properties have been identified, I tell students the name of the chord and describe its essential characteristics. I list these on a separate handout (so that students can view both at once; see the Overview Handout in the Supplemental Materials), and they are reproduced below, with additional commentary on each point in italics.

Essential aspects of common-tone diminished-seventh chords:

- Common-tone diminished chords usually function as chromatic neighbor chords.
They typically embellish a root-position harmony, in the same way a neighboring $\frac{6}{4}$ chord (also called an “auxiliary” or “pedal” $\frac{6}{4}$) does. Very rarely, they may occur as passing rather than neighboring chords.
- They do not function as dominants, as vii^{o7} typically does.
A defining aspect of a dominant harmony that resolves to a tonic is the upward resolution of the leading tone to $\hat{1}$, the root of the tonic chord. In contrast, ct^{o7} chords already contain the root of the chord they embellish. Although progressions with $cto7$ chords feature upward movement by semitone in two voices, these arrive on the chord third and fifth rather than the chord root.
- They usually occur in major keys.
In a major key, both the third and fifth of a chord embellished by ct^{o7} are approached by lower chromatic neighbors. In a minor key, $cto7$ would have not one but two common tones with the embellishing chord, $\hat{1}$ and $\sharp 2/\flat 3$, which greatly weakens the progression.
- Most often, they embellish I, but they can also embellish V.
The important point here is that ct^{o7} chords embellish structural chords, which are most often in a stable root position.
- The common tone is normally the root of the goal chord.
To compare the chord once again to an applied diminished-seventh chord, none of the notes in a ct^{o7} acts as a leading tone to the chord it embellishes.

After covering these basic points, I reinforce them by presenting and playing some abstract examples of ct^{o7} followed by its goal chord, and compare them to vii^{o7} , as shown in Figure 24.1, the next section of the handout. Each of these instances of ct^{o7} could also be preceded by a version of its goal chord. In the examples, upward resolutions by semitone are marked with diagonal arrows, and the common tone with a thick straight line. The first system shows common-tone diminished-seventh chords embellishing I and V in C major and A major; the second system shows vii^{o7} chords moving to I and vii^{o7}/V chords moving to V, also in C major and A major for easy comparison.

After studying the abstract examples, on the board we practice constructing ct^{o7} chords embellishing I and V in keys other than C major and A major. These chord types can be constructed upward or downward. The common-tone diminished-seventh chord that embellishes I is often

Common-tone diminished-7th chords

- Look for:
- ♦ embellishing function
 - ♦ common tone with surrounding chords
 - ♦ usually parallel motion in other voices

The musical score shows two systems of piano accompaniment. The first system is in C major, with a treble clef and a key signature of one sharp (F#). It consists of four measures. The first measure has a C major triad (C4, E4, G4) in the right hand and a C2, C3 octave in the left hand. The second measure has a common-tone diminished-7th chord (C#4, E4, G#4, Bb4) in the right hand and a C#2, C#3 octave in the left hand. The third measure has a C major triad (C4, E4, G4) in the right hand and a C2, C3 octave in the left hand. The fourth measure has a C major triad (C4, E4, G4) in the right hand and a C2, C3 octave in the left hand. The second system is in A major, with a treble clef and a key signature of three sharps (F#, C#, G#). It also consists of four measures. The first measure has an A major triad (A4, C#4, E4) in the right hand and an A2, A3 octave in the left hand. The second measure has a common-tone diminished-7th chord (A#4, C#4, E#4, Gb4) in the right hand and an A#2, A#3 octave in the left hand. The third measure has an A major triad (A4, C#4, E4) in the right hand and an A2, A3 octave in the left hand. The fourth measure has an A major triad (A4, C#4, E4) in the right hand and an A2, A3 octave in the left hand. Below the score, the chords are labeled: C: ct°7 I ct°7 V A: ct°7 I ct°7 V.

Dominant-function diminished-7th chords

- Look for:
- ♦ dominant function
 - ♦ no common tones with goal chord
 - ♦ usually contrary motion between voices

The musical score shows two systems of piano accompaniment. The first system is in C major, with a treble clef and a key signature of one sharp (F#). It consists of four measures. The first measure has a C major triad (C4, E4, G4) in the right hand and a C2, C3 octave in the left hand. The second measure has a dominant-function diminished-7th chord (C#4, E4, G#4, Bb4) in the right hand and a C#2, C#3 octave in the left hand. The third measure has a C major triad (C4, E4, G4) in the right hand and a C2, C3 octave in the left hand. The fourth measure has a C major triad (C4, E4, G4) in the right hand and a C2, C3 octave in the left hand. The second system is in A major, with a treble clef and a key signature of three sharps (F#, C#, G#). It also consists of four measures. The first measure has an A major triad (A4, C#4, E4) in the right hand and an A2, A3 octave in the left hand. The second measure has a dominant-function diminished-7th chord (A#4, C#4, E#4, Gb4) in the right hand and an A#2, A#3 octave in the left hand. The third measure has an A major triad (A4, C#4, E4) in the right hand and an A2, A3 octave in the left hand. The fourth measure has an A major triad (A4, C#4, E4) in the right hand and an A2, A3 octave in the left hand. Below the score, the chords are labeled: C: vii°6/5 I vii°6/5/V V A: vii°7 I vii°7/V V.

Figure 24.1 Common-tone diminished-seventh chords compared to dominant-function diminished-seventh chords.

spelled as $\sharp ii^{o7}$; the common-tone diminished-seventh chord that embellishes V is usually spelled as $\sharp vi^{o7}$. You can construct these chords in these spellings by counting upward in minor thirds from $\sharp 2$ or $\sharp 6$ (an augmented second above the root of I or V), or more easily, downward in minor thirds from the chord roots of I or V. It's important to remind students that nevertheless, common-tone diminished-seventh chords are not always spelled consistently.

Once students understand how to construct the chords in the abstract, we examine a variety of examples from actual music. This step could precede the abstract chord construction, but I have found that students recognize the chords much more readily once they have practiced building them. A brief list of examples with commentary is below; score excerpts and links to recordings are provided in the Supplemental Materials.

Examples from Art Music

- Mozart's Piano Sonata in C major, K. 545, 2nd mvt., mm. 1–4. The opening tonic is held throughout the first two bars, and then expanded by a diatonic upper-neighbor chord, IV_4^6 , followed by a chromatic lower-neighbor chord, ct^{o7} , both in m. 3, returning to the tonic

harmony in m. 4. This example is useful because it demonstrates the close relationship between ct^{o7} and a more diatonic neighbor chord.

- Tchaikovsky, “Waltz of the Flowers” from *Nutcracker*, mm. 1–8. This is an example of a ct^{o7} embellishing the dominant chord, although the function of this chord isn’t clear until the end of m. 6, when the dominant triad becomes a dominant (major-minor) seventh chord.

Examples from Jazz

- Jobim, “Corcovado,” mm. 1–8 (A phrase). Most fake books show the progression as:

| D9 | D9 | A $\flat^{o7}$ | A $\flat^{o7}$ | Gm ^{7} | C ^{7} G $\flat^7$ | F ^{o7} FM ^{7} | FM ^{7} | in F major.

For students who are not conversant with jazz theory and analysis, it’s important to explain that the basic harmonic unit is no longer the triad, and most chords have sevenths or other extensions (which will likely be covered later on in the core theory sequence). The first diminished-seventh chord, A $\flat^{o7}$, could be interpreted as a back-relating ct^{o7} embellishing the initial D chord, although in practice it behaves more like a passing chord. The other chord that requires special explanation is the G $\flat^7$, a tritone-related expansion of the dominant, C ^{7} . If you have time, you could point out that the notes that form the tritones in these two chords are enharmonically the same, which is the principle behind the jazz-theory concept of tritone substitution. The main point of this example, however, is the approach to the tonic harmony at the end of the phrase, an F major-seventh chord, through a ct^{o7} . If you don’t have much time, discuss only the end of the phrase. The ct^{o7} is usually labeled as an F ^{o7} , but in a classical score would more likely be spelled as G $\sharp^{o7}$.

- Hudson, DeLange, and Mills, “Moonglow,” mm. 5–8 (second half of A phrase). The first half of the A phrase traces a descending-fifth sequence, although it begins as if in C major instead of G major (the second chord is based on F $\sharp$, not F $\sharp$), and the fourth chord breaks the pattern because it is rooted on A rather than some form of E. The progression in mm. 4–8 is:

		Am ^{7}		D7		G B $\flat^{o7}$		Am ^{7} B $\flat^{o7}$		G	
in G:		ii ^{7}		V ^{7}		I ct ^{o7}		ii ^{7} ct ^{o7}		I	

This example is interesting because the ct^{o7} chord functions as a passing chord between the tonic harmony and a larger-scale diatonic neighbor chord, ii ^{7} . The ct^{o7} chord would be more conventionally spelled as A $\sharp^{o7}$.

Examples from Rock Music

- The Beatles, “Because,” introduction. The chord progression is:

		C $\sharp$ m		C $\sharp$ m		D $\sharp^{o7}$		G $\sharp^7$		A		C $\sharp$ m		A ^{7}		A ^{7}		D		D ^{o7}	
in C $\sharp$:		i		i		ii ^{o7}		V ^{7}		VI		i		V $^7/\flat$ II		$\flat$ II		ct ^{o7}			

- This is an example of a back-relating ct^{o7} that embellishes the D chord in the preceding bar. What is unusual about this passage is that in the larger context of the home key, C $\sharp$ minor, D is the $\flat$ II chord. It is preceded by its dominant, A ^{7} ; these two chords taken together can be interpreted as tritone substitutes for D $\sharp^7$ –G $\sharp^7$, a more conventional approach to the C $\sharp$ -minor tonic that begins the verse. Because A ^{7} is enharmonically equivalent to a

German augmented-sixth chord in C# minor, this progression offers an opportunity to re-view augmented-sixth chords and discuss the more conventional resolution of one built on A to the dominant, G# or G#⁷.

- Queen, “Bohemian Rhapsody,” ending (last three bars).

This song changes keys several times, and there is a modulation from E♭ major to F major quite near the end, so it might be most efficient to look at the music after this point, from the C⁷ chord four bars from the end. This dominant resolves to the tonic F, which is then expanded through a chromatic passing progression in the piano part:

	C ⁷	F		B♭/F	F	F ^{o7}	Gm ⁷		F	
in F:	V ⁷	I		IV ₄ ⁶	I	ct ^{o7}	ii ⁷		I	

Like the Mozart example, the Queen example allows comparison of the diatonic upper-neighbor chord IV to the chromatic lower-neighbor chord ct^{o7}. As in “Moonglow,” the ct^{o7} in this passage functions as a chromatic passing chord between I and ii. Here, the ii chord moves directly to I in a kind of alternative plagal cadence.

Having examined various examples of ct^{o7} chords, I explain a few additional details about these chords to the class.

- Chord labeling: The root of the chord and its inversion are not important because the linear (horizontal) motion is the point. This is why the chord is generally not labeled with a Roman numeral, but the more context-neutral ct^{o7}.
- Chord voicing: The common tone is often in an outer voice, and the other outer voice usually moves by step. Leaps (if any) are generally in the inner voices.
- Chord resolution: The common tone holds, becoming the root of the next chord, and two other notes move upward by half step, acting as chromatic lower neighbors to the third and fifth of the goal chord (I or V). Often the other note moves by leap to the chord root (as shown in Figure 24.1), or moves down by step to the chord fifth, resulting in a chord with doubled fifth.

To reinforce students’ understanding of the chord’s function, we compare the ct^{o7} to other common diatonic and chromatic neighbor chords, as shown in Figure 24.2. Like many subdominant-functioning chords, ct^{o7} contains forms of $\hat{2}$, $\hat{4}$, $\hat{6}$, and $\hat{1}$. (If you do not plan to cover common-tone augmented-sixth chords, omit the last bar of this example).

I IV₄⁶ I I iv₄⁶ I I ii₆⁴ I I ct^{o7} I I ct⁺⁶ I

Figure 24.2 Assorted neighbor chords to I, containing $\hat{1}$ and forms of $\hat{2}$, $\hat{4}$, and $\hat{6}$.

Finally, this material is reinforced with a homework assignment, in which students construct and resolve ct^{o7} chords, analyze a few more examples, and use them to embellish a given progression. A sample analysis homework assignment, with key, is available in the Supplemental Materials.

25

“IT’S AN N, BRO”

Teaching Enharmonic Reinterpretations of Fully Diminished Seventh Chords by Ear

David Heetderks

Topic: Enharmonic reinterpretation of fully diminished seventh ($^{\circ}7$) chords.

Goal: Students will understand the multiple ways that a $^{\circ}7$ chord can be used to modulate by focusing on chromatic motions between $^{\circ}7$ and major-minor seventh chords, and recognize these motions by ear and eye.

Background: Chromatic harmony involving $^{\circ}7$ chords, including mixture and applied $\text{vii}^{\circ 7}$. Prior knowledge of common-tone $^{\circ}7$ chords is useful, but they could also be taught as part of this lesson.

The topic of enharmonic reinterpretation of fully diminished seventh chords (henceforth $^{\circ}7$ s) often bewilders students who first encounter it. The challenges of mastering proper spelling and polysyllabic chord labels can make the topic seem arcane and unrelated to musical experience. This lesson plan addresses this problem by focusing on recognizing chords by *ear*, rather than by eye, and focusing on *chromatic* voice-leading patterns, rather than diatonic patterns. These lessons focus specifically on connections between $^{\circ}7$ and major-minor seventh (i.e. dominant seventh) chords, which provide a valuable introduction to principles of chromatic voice-leading, and which are one of the most common ways that $^{\circ}7$ s are used to modulate. Eighteenth- and early nineteenth-century figured-bass instruction supports this approach, at least for major-mode works: according to Byros (forthcoming), resolutions of a $^{\circ}7$ to a major I or I^6 do not occur in treatises by C.P.E. Bach and Albrechtsberger, whereas idioms connecting a $^{\circ}7$ to other chords are more common.

I have divided this class into several short lessons, which could be spread over several classes in short segments, or taught in succession in a single class or two.

Lesson 1. Root-Position Seventh Chords by Ear

I explain:

We are going to learn how to recognize fully diminished seventh and major-minor seventh chords by ear. For simplicity, let’s label them ‘ $^{\circ}7$ ’ and ‘ Mm^7 .’ I will play an example of each chord for you [shown in Figure 25.1a]. After I play it, we will sing the intervals. We sing the first note as ‘bass,’ and then sing an ascending minor third as ‘minor’ and an ascending major third as ‘major.’ In other words, a $^{\circ}7$ will sound like this: [sing] *bass minor minor minor*. And an Mm^7 will sound like this: [sing] *bass major minor minor*.

The students should practice the chords at different transposition levels until their sound and interval patterns become familiar. Possible drills include:

- The instructor plays one of the chords, and the students first arpeggiate it on the neutral syllable “da,” and then on the intervals.
- Students arpeggiate the chords while *contouring* them – that is, showing the intervallic distances with their hand by pointing to locations in space.
- The instructor plays a single note and instructs a student to generate a $\circ 7$ or Mm^7 with the given note as the bass.
- Students are assigned, as homework, the task of playing different transpositions of the two chords at a keyboard and singing through them, and then trying to generate the chords without the aid of the keyboard.
- One student arpeggiates a chord on “da,” and the rest of the class arpeggiates it on intervals.

Lesson 2. All Inversions of $\circ 7$ s Sound the Same

I show Figure 25.1b to the class and explain:

Here are different inversions of an $\circ 7$ chord, written on the same bass note [play]. Do you notice how they all sound the same? Whatever inversion an $\circ 7$ is written as, we will sing it as *bass minor minor minor*, because it sounds exactly like a root-position $\circ 7$. This method lets our singing reflect our hearing. You can make air quotes with your fingers while singing the augmented second if it helps you feel more honest.

The class practices singing different inversions of $\circ 7$ chords as uniform patterns of three semitone intervals, enharmonically equivalent to minor thirds.

Lesson 3. Important Voice-Leading Motions Involving $\circ 7$ s and Mm^7 s

I show the class Figure 25.1c and explain:

Since you learned these two chord-types so well, it’s time for us to learn how $\circ 7$ chords can move smoothly to Mm^7 chords. There are three ways. The bass can stay the same and become the root of an Mm^7 , while the other voices move up by semitone. We call this *common-tone* voice-leading. The bass can move down by semitone and become the root of an Mm^7 , while the other voices stay the same. We call this *neighboring* voice leading. Finally, the bass can move *up* by a semitone and become the root of a major triad. Often, this triad is embellished by a $\begin{smallmatrix} 6-5 \\ 4-3 \end{smallmatrix}$ progression. We call this *applied* voice leading.



Figure 25.1a Root-position seventh chords.

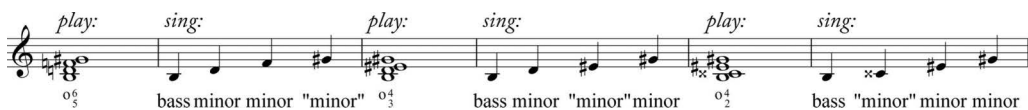


Figure 25.1b Enharmonic equivalence of $\circ 7$ inversions.

Figure 25.1c Voice-leading moves between °7s and Mm7s, with hand symbols.

Figure 25.1d Inversions of Mm7s.

Figure 25.1e Tour of Mm7 inversions.

Figure 25.1f °7s moving to inverted Mm7s.

While the labels for the first and third progressions match most theory textbooks, the second requires explanation. I avoid Roman numerals because the alternate label conveys more specific information about the °7 chord's functional effect. Textbooks generally stress that vii° substitutes for V, so the label "vii°₂-V⁷" conveys the impression that both chords have a dominant function. This impression is partially correct, since both chords contain the dominant leading tone $\hat{7}$. But it is incomplete, because the progression also contains a discharge of the *subdominant* leading tone $\flat\hat{6}$ as it moves to $\hat{5}$. This discharge is especially noticeable in modulatory passages where the key is uncertain while the °7 is sounding. When the °7 leads to a dominant-functioning chord, a listener retrospectively understands that the previous °7 prepared the dominant of the new key. Harrison (1994, 65–70) argues that in some contexts, a °7 can assert a mixture of dominant and subdominant

functions. Although his discussion focuses on instances where a $^{\circ}7$ resolves to a tonic-functioning chord, a subdominant leading tone resolving to a member of a dominant chord is also possible, confirming this hearing.

As there is no consistent term for this $\hat{b}6-\hat{5}$ voice-leading from a $^{\circ}7$, I label it a “neighboring $^{\circ}7$,” or “nbr $^{\circ}7$ ” for convenience. Some of my students mis-parsed the abbreviation as “N Bro 7,” and after one of my classes adopted this misreading en masse, I started using it myself, deciding that the wisdom of the crowd had deemed it more memorable. The label provides teachers the added benefit of affording execrable puns: “what is it? It’s an N, bro!”

For each of the chords in Figure 25.1b, I do not bother with labeling the inversions, nor do I require my students to do so. There are several reasons I adopt this policy: (1) the inversions sound the same anyway; (2) in the case of common-tone $^{\circ}7$ s, there are multiple possible spellings; (3) when a $^{\circ}7$ is reinterpreted enharmonically, the spelling does not reflect its voice-leading behavior with respect to at least one key; and (4) the time students have to expend on deducing the correct inversion is not worth the analytical payoff.

The students should learn to recognize each of the progressions in Figure 25.1c as *voice-leading motions*, rather than a set of chord labels. In order to stress their voice-leading features, the students can represent each of the progressions with their hands, using three fingers in one hand to represent the upper three voices, and the index finger in their other hand to represent the bass. As shown in the photos in Figure 25.1c, the three fingers move up for the $ct^{\circ}7$, the index finger moves down for the $nbr^{\circ}7$, and the index finger moves up for an applied $^{\circ}7$. Students can also think of them as motions in chromatic space, as shown by the “white circle” diagrams in Figure 25.1c.

Possible exercises for helping students recognize these progressions include:

- The students practice playing the progressions on a keyboard or on their instrument.
- The instructor plays one of the progressions. The students show the voice-leading with their fingers.
- The instructor plays one of the progressions. The students arpeggiate both chords and name the progression.
- The instructor plays a recording of a piece that uses one of the progressions and re-plays a closed-position chord reduction on the piano. If the students have trouble following the progression, the instructor can first play either the chord reduction along with the recording or the melody combined with the chord reduction. Students arpeggiate the chords and identify the progression. Three examples, which are included on the Supplemental Materials website, are listed below:

1. $ct^{\circ}7$: Tchaikovsky, “Valse des Fleurs” from *The Nutcracker*, mm. 6–8.
2. $nbr^{\circ}7$: Beethoven, Quartet in E minor Op. 59, No. 2, i, m. 12.
3. applied $^{\circ}7$: Beethoven, Quartet in E minor Op. 59, No. 2, i, m. 18.

Lesson 4. Inverted Mm^7 s

I explain:

Since you did a great job learning the root-position Mm^7 s, it is time for you to learn how to sing inversions of these chords. I am going to play each of the inverted Mm^7 s and sing through their intervals [Figure 25.1d]. We will sing *step* for a whole step, so, for example, a major-minor six/five is [sing] *bass, minor, minor, step*. Now it is your turn to learn them.

While students are likely already familiar with inverted V^7 s, recognizing them as a sequence of intervals might initially feel alien. But a little practice will make these interval patterns familiar,

and being able to sing and precisely identify them helps students recognize chord quality and improve their interval accuracy – skills that will serve them beyond this particular topic. I usually introduce the intervallic content of inverted Mm^7 chords well before the topic of enharmonic reinterpretation in order to give students time to absorb the information. To make the learning process easier, the teacher can begin with only the Mm^6_5 and Mm^4_2 chords, which seem to appear in modulatory passages more often than Mm^4_{3s} .

The same types of exercises shown earlier in Lesson 1 can help students learn the Mm^7 inversions. I often play the chords, ask students to sing them on "da," and then sing on intervals while showing the contour with their hand. Another fun way to practice all of the Mm^7 inversions is to take the "tour" shown in Figure 25.1e. Students arpeggiate each of inversions, using a $^{\circ}7$ as a "pivot" between each chord.

Lesson 5. Modulation Using $^{\circ}7$ Chords

I explain:

Do you remember how all of the inversions of an $^{\circ}7$ sound the same? Because of this equivalence, an $^{\circ}7$ can move to any inversion of an Mm^7 by using the three types of voice leading we learned before. Let's try singing these examples [shown in Figure 25.1f].

Students should understand how the voice-leading motions shown in Figure 25.1c can appear in multiple permutations, leading to inverted Mm^7 s. Once they have practiced these voice-leading pathways, students are prepared to analyze passages that use a $^{\circ}7$ to make a remote modulation. Two examples are shown in Figures 25.2a and 25.2b.

Figure 25.2a shows two musical examples of modulation using diminished seventh chords. The first example, starting at measure 62, is in A minor and features a $^{\circ}7$ chord (F#-C-G-B) that resolves to an inverted Mm^7 chord (F major, i^6). The second example, starting at measure 66, is in C# minor and features a $^{\circ}7$ chord (F#-C-G-B) that resolves to an inverted Mm^7 chord (F major, i^6). Both examples include piano and reduction staves, with dynamic markings such as *pp*, *mf*, and *cresc.* The reduction staves show the harmonic structure with labels like *a: i*, *vii: $^{\circ}7/V?$* , and *i⁶*.

Figure 25.2a Dvorak, String Quartet in F major, Op. 96 (*American*), i.

259

sempre f

reduction:

A:ct^{°7} → V₂ → C:nbr^{°7} → V/IV

265

sf

IV vii^{°6} I

↑ pedal

etc.

Figure 25.2b Beethoven, Violin Concerto in D major, Op. 61, i.

When introducing this topic, I have students analyze by ear first, and then by eye. Before assigning any chord labels, I instruct students to sing the tonic at the beginning and end of the excerpt. I play a recording, starting a few measures earlier than the score excerpt, pause before the modulation, and ask students to sing the tonic. I then restart, pause the recording after the modulation, and ask them to do the same.

Once students have identified the two tonics in the passage, I play a closed-voice reduction of the modulating passage (shown below the score in Figure 25.2a and 25.2b) along with the recording. Finally, I play the reduction without the recording and ask students to sing through each chord and identify the voice-leading. If they find this task difficult, I play the progression more slowly and ask, “is one voice moving up, are three voices moving up, or are three voices moving down? Show me with your fingers.” After they have identified the voice-leading motion, they are finally prepared to look at the score and assign labels to each chord.

Figure 25.2a shows the end of the exposition and beginning of the development in the first movement of Dvorak’s *American Quartet*. The exposition’s second theme is primarily in A major, but the closing theme shifts to A minor in the final two measures. The development gradually transitions to a new key by beginning with a ^{°7} chord. Given the previous tonic of A, the most likely interpretation of the chord is an applied ^{°7} – that is, vii^{°6} of V. But this interpretation is weak and provisional: because the ^{°7} has many possible functions, mm. 64–67 project a hazy, uncertain centrality. Rather than a tonal function, the chromatic voice-leading to the ^{°7} supplies the most persuasive impetus for the chord: the quartet can reach the chord with a smooth E–E^b motion and adding an F[#] bass. In m. 68, the new tonic comes into focus: by using the nbr^{°7} voice-leading, the ^{°7} chord leads to V₂⁴ in the key of C[#] minor, and the rest of the passage continues in this key. This example also shows the value of attending to chromatic voice-leading patterns when determining a modulation, rather than the ^{°7}’s chord spelling. In this case, its spelling seems chosen for ease of reading and reflects neither the original nor new key.

Figure 25.2b, from the first movement of Beethoven’s Violin Concerto, is more complicated, but I have included it because many of my students find the passage especially thrilling. It occurs

at the beginning of the development and revisits a $\circ 7$ chord from the exposition, reinterpreting it in order to make a remote modulation that launches the protracted tonal journey undertaken in the rest of the formal region. In mm. 261–262, an incomplete $\circ 7$ chord leads to an incomplete V_2^4 in the key of A major using a $ct^{\circ 7}$ voice-leading. Although both chords are incomplete, students recognize the voice-leading pattern if they are familiar with the models shown in Figure 25.1c. In the next two measures (263–264), a note is added to the first chord, creating a complete $\circ 7$, which then uses the $nbr^{\circ 7}$ voice-leading to lead to V^7/IV in C major. A key-defining progression over the new tonic pedal follows.

I give several types of homework assignments in order to help students practice connecting these chromatic voice-leading patterns with music that they hear. In some classes, I instruct students to study the passages we have analyzed in class and give them a listening quiz where, after hearing a recorded excerpt, they write down the bass line and label the chords. In aural skills classes, I require students to arpeggiate closed-voice reductions of passages at individual performance tests.

In music theory classes, I instruct students to listen to a passage, identify the keys, and make a closed-position reduction of the modulating passage similar to those shown in Figure 25.2. Because these remote modulations often appear within unstable or dramatic passages within a piece, I also require students to write a paragraph explaining how the modulation is achieved and what effect it has on listener expectation and the ongoing form of the work. A teacher could assign one of the two passages shown in Figure 25.2a and 25.2b, or assign one of the following excerpts:

1. Beethoven, Violin Concerto, Op. 61/iii, mm. 279–295. *This passage appears after the cadenza, which normally ends with an authentic cadence in the home key. Does the passage achieve a cadence? If not, how is the cadence deflected, and what key does it escape to? How do the texture, rhythm, and dynamics contribute to the passage's humor?*
2. Schubert, String Quartet #13 in A minor, I, mm. 138–168. *At m. 139, the quartet prepares a cadence in D minor, the primary key of the development. But the quartet deflects a cadence at m. 140 and substitutes a remarkable passage that wanders through several keys before reaching A minor. Identify the keys this passage suggests, and explain how $\circ 7$ chords are used to both visit them and arrive back home in A minor.*

Other examples abound: the website *musictheoryexamples.com* contains similar examples of modulation by $\circ 7$ chords, and music theory textbooks typically provide a few examples of the topic.

When students are familiar with the possible voice-leading involving $\circ 7$ chords, not only can they more quickly identify enharmonic reinterpretation, but they can also transfer this knowledge to other types of progressions. I have found that examining chromatic voice-leading from $\circ 7$ chords becomes increasingly useful when studying late nineteenth-century harmony. For example, when we studied the prelude to Wagner's *Tristan und Isolde*, I asked students how they might describe the function of the famous "Tristan chord." One student suggested that it was similar to the $nbr^{\circ 7}$ voice-leading, except that it used a slightly altered chord-type: a half-diminished rather than fully diminished seventh. Late nineteenth-century music is replete with examples of half-diminished sevenths – as well as other chords that are minimally displaced from a $\circ 7$ – that lead to dominant-functioning chords. Learning to hear these voice-leading motions in earlier music helps prepare students to understand later harmonic practice, as well as hear historical connections across stylistic periods. In addition, learning chromatic progressions give students tools to analyze passages of extended chromaticism or tonal uncertainty.

By helping students hear °7s and understand their potential chromatic voice-leading, teachers can prepare them for greater flexibility in their understanding of how these chords behave and help them appreciate the imagination with which composers use them.

Bibliography

- Byros, Vasili. forthcoming. “Of ‘Elegant Tones’ and ‘Fantastical Progressions’: A Historical, Schema-Based, and Comprovisational Perspective on Diminished Seventh-Chord Modulation, c. 1720–1830.” In *The Oxford Handbook of Music and Corpus Studies*. Ed. by Daniel Shanahan, Ashley Burgoyne, and Ian Quinn.
- Harrison, Daniel. 1994. *Harmonic Function in Chromatic Music: A Renewed Dualist Theory and an Account of Its Precedents*. Chicago, IL and London: University of Chicago Press.

PART IV

Aural Skills



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

26

DEFENDING THE STRAW MAN

Modulation, Solmization, and What to Do with a Brain

Gary S. Karpinski

In memoriam Robert Ottman

Gosh, it would be awful pleasin'
To reason out the reason
For things I can't explain.

—The Scarecrow
The Wizard of Oz

The Case against Functional Solmization in Modulation

Pitch solmization systems used in Western music fall into two broad categories: (1) functional systems, which label each pitch in terms of its scale degree or position within a diatonic collection; and (2) fixed systems, which label each pitch in terms of its absolute pitch or position on the staff. Colleges and universities in the United States teach functional systems far more often than fixed ones (Nelson 2002, 66; Murphy and McConville 2017, 208–209). Despite this popularity (or perhaps in part because of it), functional solmization has its detractors. Many of the arguments against its use center on the question of its efficacy during modulation. Perhaps the most notable detractor was Tovey (1935), who credited functional solmization with “awakening the sense of local tonality in the young and the musical laity,” but lamented that “if it can inculcate any larger grasp of tonality, I have been unfortunate in the examples I have seen of its treatment of keys and key-relations” (p. 9n). In 1953, *The Juilliard Report on Teaching the Literature and Materials of Music* complained about students who “have been ‘contaminated’ by the very limited ‘moveable do’ system used in public schools and cannot cope with modulations” (Juilliard School of Music 1953, 112). A pair of articles critical of functional solmization appeared in *Theory and Practice* in 1978. First, Multer (1978) argued that the simplest of modulations “tests the moveable-do singer rather severely. What will happen in a passage of greater tonal ambiguity?” (p. 47). Then, Martin (1978) opined that “identifying pitches by scale-degree numbers raises...questions. How does one find the ‘one’ in order to establish the functional hierarchy?...When does a chromatic excursion indicate a modulation and when does it not?” (p. 24). Other similar criticisms of functional solmization’s utility in navigating modulation can be found in other circles. For example, Middleton (1984) advocated using fixed solmization so that “the reader does not have to constantly shift the names of the syllable to fit new keys and modulations” (p. 32).

Any case against functional solmization made solely on the basis of its usefulness during modulation is little more than a straw man, set up by detractors in order to be knocked down hastily. If functional systems are found wanting at certain points during certain modulatory passages, this is not cause for abandoning them in all other passages. To do so would be analogous to giving up on using all Roman numerals in written theory because of *their* inadequacies in certain circumstances. One would be hard pressed to find a music theorist who does not feel strongly that, for analyzing most tonal music, Roman numerals are superior to jazz- and pop-style letter-name chord symbols for the very reason that Roman numerals interpret the tonal functions of chords whereas jazz and pop symbols merely label each chord in absolute, not relative, terms. However, we have all encountered passages in tonal compositions that defy submission to Roman-numeral symbology. A famous example appears in Figure 26.1, taken from the Smith-Beach controversy in the pages of *Music Theory Spectrum* (Smith 1986). Because of difficult passages such as this, should we therefore relinquish the use of Roman numerals in all other passages in favor of letter-name symbols for chords, as shown in Figure 26.2?

Example 3. Beethoven, Op. 53, II, mm. 1–9: pure chordal analysis

F: I I^{#6} VII vii ⁰/₄III⁰ ⁰/₄IV⁰ ⁰/₆IV⁰ ⁰/₆IV⁰ V₄₋₃⁷ vi ii⁶ V⁷ I
 F: I A: iv^{#6} V B: iv vii⁰/₄ I⁶ C: vii⁰/₆ F: iv^{#6} V₄₋₃⁷ vi ii⁶ V⁷ I
 F: I V⁷/IV V/iii vii vii⁰/₂/IV V⁶/vii vii⁰/₆/V iv^{#6} V₄₋₃⁷ vi ii⁶ V⁷ I

Figure 26.1 Example 3 from Smith (1986).

F F^{#6} E Emin A⁶oin/E B/D⁶ Boin/D D⁷ C⁶us4 C⁷ Dmin Gmin/B⁶ C⁷ F

Figure 26.2 The same passage, “analyzed” with letter-name symbols.

Such arguments are specious. Both Roman numerals and functional solmization syllables have their uses. In most tonal music, the tonally stable passages far outlast the periods of modulatory instability. Just because functional solmization is more challenging during these modulations doesn’t mean we should forgo such solmization altogether. It’s clear that any argument against either syllables or Roman numerals based solely on their awkwardness during modulation is indeed a straw man. We shouldn’t throw out the functional baby with the modulatory bathwater.

Although one is usually tempted to leave straw men where their detractors have left them, I will now take on the noble task of propping this one up again in order to defend him.

The Efficacy of Solmization Systems in Music Reading

First, let us consider what research has been done on the efficacy of solmization systems in general. In one set of studies, Lorek and Pembroke (2000) investigated the effects of using moveable-*do*, numbers, fixed *do*, and a neutral syllable on the sight-singing achievement of groups of college students over one- and two-semester periods. All four studies found no statistically significant differences in students' performances on sight-singing tasks, regardless of which solmization system they had been studying (or not studying, in the case of the group using the neutral syllable "lah"). Hung (2012) surveyed a half dozen other empirical studies comparing the effectiveness of fixed and functional systems, and concluded that "most of the studies found no significant difference between the two solfège systems" (p. 23).¹ The implications seem clear: The choice of which solmization system we inflict on our students will have little effect on their accuracy in singing pitches at sight.

So why use any solmization system at all? And why, in particular, might one choose a functional system? I submit that many of the most important musical ideas conveyed in any tonal composition are rooted in the tonal functions of its pitches. To listen to or perform tonal music without a sense of key and tonal function is, to be blunt, unmusical. In his 1956 book, *The Art of French Horn Playing*, the legendary Philip Farkas addressed the issue this way:

Have you ever heard someone read a sentence in a language not completely familiar to him? There is a peculiar lack of inflection in the reading which reveals that, although the individual words are understood, the speaker does not quite understand the thought which the sentence is trying to convey. So it is with a musical phrase. The composer has a musical thought which he can only approximate with a string of individual notes. If the performer plays only these notes, no matter how correctly, without grasping in his own mind the musical idea which the composer had, the phrase is bound to sound as lusterless and unintelligible as a sentence read aloud by an uncomprehending reader.

(Farkas 1956, 54)

With specific regard to the importance of thinking in terms of tonal function, I can think of no better object lesson than an incident once related to me by Michael Anderson, who is now Principal Clarinetist of the Eugene Symphony. Here's the story, as I retold it in Karpinski (2000):

He listened as one of his students played an assigned passage while he puzzled over the fact that — although she performed all the pitches and rhythms accurately — there was still something drastically wrong. On a hunch, he asked, 'What key is that in?' She replied, 'A-flat major.' The passage was in fact in F minor. He spent some time reeducating her to hear the passage with its proper tonal functions, to the ultimate benefit of her performance.

(p. 95)

To think of an E[♯] in such a passage as simply an E[♮] — appearing this way on the staff, fingered that way — and not as a leading tone in F minor, misses something essential. How we think about a passage affects how we perform (and hear) it, and an important aspect of that thinking involves tonal function. Indeed, we typically ask our students to read hundreds and hundreds of pages from harmony texts explicating the tonal functions of scale degrees, triads, seventh chords, non-chord tones, chromatic harmonies, and modulation, specifically because we believe these things are worth knowing, and worth recognizing when we see or hear them.

The benefits of both functional and fixed systems are manifold. Functional systems are best for inculcating scale degrees and tonal structure. Fixed systems are ideal for work in clef reading and transposition.

Addressing the “Difficulty” Argument

Some detractors complain that the cerebration necessary to use functional solmization is simply too difficult. For example, Martin (1978) claimed that “the student taught to read the lines and spaces of the staff by scale-degree numbers is thrown into a state of hopeless confusion at the very start.... The complex mental gymnastics required to sort out this information are mind-boggling” (p. 24). And Hindemith (1949) complained that functional solmization “erects in addition to (or instead of) our normal everyday elementary training other systems of theory, the assimilation of which takes more effort and time than the musician not specializing in theory can well afford” (p. viii). But let us think for a moment about the complexity and effort we ask of our students. Consider what we ask them to do in music theory classes. We ask them to identify not only broad key areas but also the transitions between them, and many individual chords and voice-leading events within these areas. We ask them to think sophisticated thoughts about pivot chords and enharmonic relationships and modal mixture and all sorts of other theoretical concepts. Are the most basic of these – the scale degrees of the notes – too difficult to grasp when sight reading? Are they impossible to hear when listening? If they were, we would have to reconsider whether it’s worthwhile teaching them at all in the first place. But they’re not too difficult. As Cutler (2002) concluded,

modulation is not so advanced as we might tend to think. It is innately connected to the idea of context, which is one of tonal music’s most basic features. And the sooner we can hear it, the sooner we can understand it.

(p. 104)

When functional solmization is approached wholeheartedly and developed rigorously, it becomes a means to deeper understanding, communication, and fluency.

Solmization Before and After a Modulation

So, how *would* we like our students to think when engaging tonal music that modulates? In folk songs, very short tonal compositions, the opening sections of larger tonal works, and the vast array of monotonal passages that make up so much of many sight singing curricula, our students (and any musician for that matter) ought to conceive of the pitches in terms of their tonal functions. A functional solmization system is the only way to explicitly foster this during sight singing. Certainly, if our focus is on clef reading, transposition, fingering, or training absolute-pitch (AP) possessors to concentrate more closely on the absolute pitches they produce or perceive, then a fixed system is most appropriate. But when we want our students – even AP possessors – to think in the language of tonal music, then a functional system is most appropriate. Thus, before a passage modulates, it seems appropriate to use a solmization system that models the tonal functions of the pitches.

Now let’s temporarily jump past the period of tonal instability that in modern terms is usually referred to as “the modulation” and instead consider what comes after that: the tonally stable music in the new key. For example, consider the excerpt in Figure 26.3. Short of reading every successive interval, sight readers must tackle this passage by understanding two things:

First, although the key signature contains only three flats, the diatonic collection has been altered to the seven-flat collection through the addition of accidentals. Second, within that diatonic collection, the tonic is now C $\flat$. No intelligent (nor intelligible) reading of this passage can proceed without cognizance of those facts. To explicitly represent this information, a reader could sing and a listener could auralize this passage as *do-sol-fa-fa-mi* or $\hat{1}-\hat{5}-\hat{4}-\hat{4}-\hat{3}$, and so on.

Compare that passage to the one in Figure 26.4. In contrast to the previous excerpt, some accidentals in this passage result in diatonic pitches whereas others result in chromatic ones. The F $\sharp$ s in measures 58, 59, and 61 are diatonic; all other accidentals in this passage create chromatic passing tones. Sight readers must pick up that information, as well as the fact that the tonic of this passage is G, in order to render a reading with understanding. Readers' abilities to discern which pitches are diatonic and which are chromatic are important to good music reading. My point here is surely nothing new: the diatonic pitches in a passage form a referential collection against which chromatic pitches are conceived of as exceptions, regardless of how they're notated. Once again, functional solmization would represent this knowledge most directly.

Ludwig van Beethoven, Symphony No. 9,
Op. 125, mvt. 3, mm. 91-96 (1824)

Adagio molto e cantabile $\text{♩} = 60$

Figure 26.3 Accidentals that result in a new diatonic collection.

W. A. Mozart, Symphony No. 41, K. 551 ("Jupiter"), mvt. 1, mm. 56-62 (1788)

Allegro vivace

Figure 26.4 Accidentals that result in both diatonic and chromatic pitches.

Navigating Modulations with Solmization

We can now turn to the crux of the matter: the transition from one tonally stable passage to another, what we commonly refer to as "the" modulation. Some are rather sudden. For example, Figure 26.5 shows the first 11 measures of Schubert's "Kennst du das Land." Sight readers would conceive of the opening five measures in A major. However, when they reach m. 6 they would need to reorient their tonal bearings in order to accommodate the change in collection and tonic. Clearly, mm. 8-11 function in C major; any sensitive reading of this passage should evince awareness of that fact. If we wish our students to intuit the change in key only subconsciously, then a fixed solmization system or no system at all would suffice. But an *explicit* reading of the tonal functions of Schubert's pitches would require functional solmization. How, then, to navigate the change from A major to C major? Such sudden modulations typically pose only minor difficulties;

it's merely a question of precisely *when* and *how* to change syllables. As Geary and Komaniecki (2018) put it, “a logical question for students would be to identify a good place to switch tonal centers” (p. 155). In “Kennst du das Land,” upon encountering the accidentals in mm. 6 and 7, readers might immediately grasp the change of key and solmize the first $C^\sharp$ as “*do*”; they might remain in the old key until the new key becomes clearer, staying in A but treating the $C^\sharp$ and $F^\sharp$ as modal mixture; or they might resort to an intervallic strategy for a moment until reaching such clarity, perhaps singing from the end of m. 6 through the downbeat of m. 8 on a neutral syllable until finally coming out on the other side in C major.

Franz Schubert, “Kennst du das Land,” D. 321, mm. 1-11 (1815)

Mässig.

Kennst du das Land, wo die Ci - tro - nen blühn, im dunk - len Laub die
Gold - O ran - gen glühn, ein sanf - ter Wind vom blau - en Him - mel weht,

Figure 26.5 A relatively sudden, distant modulation.

Regardless of how helpful intervals can be in maneuvering through certain knotty passages, it's important to guard against an over-reliance on teaching students to sight read via intervals. There are compelling arguments and experimental findings that dissuade us from using intervals as our main approach to teaching tonal reading and listening.² However, there is also research showing that intermingling interval study with a tonally functional approach can be worthwhile. Marvin (1995) found that “students need to develop a flexible memory retrieval system that is capable of both interval and scale degree information” (p. 44). Lake (1993) concluded that “although some teachers concentrate solely on one or the other approach, the ideal strategy is a flexible one, utilizing intervals and scale degrees depending on the demands of the melody,” observing that an intervallic strategy works best for tonally vague and atonal melodies (p. 58). Even before reaching tonally vague and atonal materials, certain figures (such as a skip to and from a chromatic pitch) might be handled best using an intervallic approach. Nonetheless, despite these occasional expediciencies, scale degrees are the most appropriate approach for tonal music. As Alldahl (1974) noted, “as important as the interval experience is, more important is the understanding of degree functions in a scale” (p. 114).

These skills are used even more frequently in music that makes several successive modulations, such as those in the passage from Hugo Wolf's song “Und steht Ihr früh am Morgen auf” shown in Figure 26.6. From m. 5 to m. 6 (as long as sight readers are still thinking in E major here), the leap from E up to $C^\sharp$ must be conceived as either a lowered sixth scale degree in E, or simply as an ascending minor sixth. This is immediately followed by an $E^\flat$, so that the music must quickly be reconceived in $A^\flat$ major, or the sight reader must continue to think intervallically, at least until the new key becomes more obvious. After four measures in $A^\flat$, the music moves to C major, requiring yet another reorientation. In Wolf's song, and in any music that modulates, each new key requires readers to reorient themselves in this way. But regardless of whether sight readers might use an interval strategy in the moment to execute such modulations, astute musicians begin thinking in the new key as soon as possible.

There are, of course, more gradual modulations that challenge readers in a different way. Consider the excerpt shown in Figure 26.7. Although it's clear that this passage moves from G major at

Hugo Wolf, *Italienisches Liederbuch*, No. 34,
 “Und steht Ihr früh am Morgen auf,” mm. 2–21 (1896)

Ruhig. ♩ = 60.

Und steht Ihr früh am Mor-gen auf vom Bet-te, scheucht Ihr vom Him-mel
 al - le Wol - ken fort, die Son-ne lockt Ihr auf die Ber-ge dort,
 und En - ge-lein er - schei - nen um die Wet - te und
 brin-gen Schuh und Klei - der Euch so-fort.
 Dann, wenn Ihr aus-geht in die heil' - ge Met-te, so weit Ihr al - le Men -
 - schen mit Euch fort, und wenn Ihr naht der be - ne - dei - ten
 Stät - te, so zün-det Eu - er Blick die Lam - pen an.

Figure 26.6 Several modulations in close succession.

Jean Baptiste Loeillet (de Gant), Sonata, Op. 3, No. 4, mvt. 4, mm. 1–22 (1715)

Allegro

Figure 26.7 A more gradual, closely related modulation.

the opening to E minor at the cadence in m. 22, there is a period of tonal instability in mm. 14–19 during which readers might adopt any of the following strategies: (1) Move directly to E minor in m. 14; (2) remain in G major until m. 20; or even perhaps (3) touch on D major momentarily in mm. 18–19 before moving to E in m. 20. There is no single “correct” place or way to change. The sight reader’s job is to find a reasonable strategy that works for a passage, and use it.

Whereas some earlier defenders of functional solmization might have argued for its utility *despite* such changes from key to key, functional solmization is useful precisely *because* of such changes. Functional thinking clarifies, crystallizes, and illuminates the functions of the pitches on either side of a modulation.

Hearing Modulations

We should also examine the relationship between solmization and listening. How do both functional and fixed systems represent, express, and reinforce the mental processes musicians engage in while listening to tonal music? In Karpinski (1990; 2000, 64–91) I observed four broad phases of perceptual and cognitive activities listeners must carry out in order to go from musical sound to music notation: hearing, memory, understanding, and notation. Each phase is distinct from the others in terms of the abilities and skills it requires, and each successive phase is dependent on the previous phase or phases in the process. We need to know which kind of solmization system most closely models the cognitive activity at each phase in this process, allowing us to train students as best as possible and to assess their work in each of these phases.

Both hearing and memory are not assessable via solmization. Hearing is only assessable as a completely separate phase via audiological tests. Musical memory is best assessed through asking listeners to sing back what they have heard, without solmization. In fact, asking listeners to sing back with some form of syllables pollutes memory assessment by involving further phases in the process.

In the pitch domain, tonal musical understanding – the third phase in the process – can only be assessed in non-AP listeners through the use of a functional solmization system. The first and most essential part of this phase is inferring the tonic. However, some students have yet to develop this as an explicit skill by the time they begin their formal studies at the college level. Play a tonal melody and ask incoming freshmen to sing the tonic (or key note, or first note in the scale), and some will do this well whereas others are as likely to sing the last pitch they hear, or the lowest, or something else. This has been part of the diagnostic examination in aural skills at the University of Massachusetts for many years (as reported in Karpinski and Heinzelmann 2018), and the results have been interesting both in their own right and as one very important criterion in placing students in our curriculum. And as students enter the curriculum, we make this an explicit part of their training. This then progresses logically into learning the labels for and learning to aurally identify the other diatonic scale degrees in context. The most appropriate tool for this kind of training is functional solmization. It not only offers us a diagnostic window into students’ thinking during this phase but also provides a means through which to inculcate (some would say indoctrinate) students in the unique character of each scale degree.³

The pitches in the final phase of the process can be modeled via solmization only by using a fixed system. The final result in most dictation and transcription activities is music notation. Placing pitches on the proper lines and spaces in a particular clef is analogous to and can be represented and aided by the labels used in fixed-*do* or letter-name solmization.⁴ Even if instrumental playback is substituted for notation at this stage, fixed solmization corresponds directly to the fixed pitches produced on an instrument.

But what of listening to music that *modulates*? Although Nicholas Cook (1987) concluded that tonal closure seemed to have little influence over listeners’ responses to music spanning longer

than about a minute, Marvin and Brinkman (1999) found that “expert listeners can discriminate between musical passages that begin and end in the tonic key and those that do not” (p. 395). And thus far there has been only one study measuring the effects of solmization on listening skills: Sanja Kiš Žuvela (2018) studied nearly 200 undergraduate music students and found that their “understanding of tonal processes such as modulation and mode mutation relies heavily on the nature of the solfège system they were exposed to in their earlier music education.” Žuvela went on to conclude that “even listeners with absolute pitch showed better results if their training included relative solfège systems in tonal contexts, while participants with relative pitch displayed significantly poor results if trained by methods of absolute pitch intonation.”

Only one study – by Robert Ottman (1956) – directly addressed listeners’ abilities to distinguish the specific relationships between keys in music that modulates. In his “Test of Melodic Modulation,” Ottman asked subjects (students at what was then the North Texas State College) to name the key to which various excerpts modulated. He provided listeners with an initial key and specific instructions to listen for the secondary key. His listeners generally made up their minds after two playings and, although results varied widely, some listeners were able to do quite well at this task.

So, music readers and listeners are able to learn to distinguish one key area from another, and to hear the tonal functions of the pitches within each area. Fixed solmization models the absolute pitches (an important musical feature) regardless of the local tonic, while functional solmization models the scale degrees of those pitches (another important feature) within each area. Thus, we’ve not only propped up the straw man but also given him a voice. So let’s let the straw man speak for himself. Or, rather, sing for himself. The full version of the Scarecrow’s signature song in *The Wizard of Oz*, “If I Only Had a Brain” (the end of which was cut from the official version of the film) begins in one key but modulates up a half step to another key for its final verse. In both keys, the scale degrees of the melody are $\hat{3}-\hat{4}-\hat{5}-\hat{3}-\hat{4}-\hat{2}-\hat{3}-\hat{1}$ (and so on). Most educated listeners – even if they miss the relationship between these two keys – would hear the identical scale-degree functions of the pitches in both sections. And how would we represent these functions via solmization? With a functional system – moveable-*do* or numbers.

Conclusion

Just as we do with Roman numerals, we use functional solmization to represent, communicate, and inculcate a sense of tonal function within every key. Although it can be challenging to navigate certain modulatory passages with syllables or numbers that represent scale degrees, it is precisely because these labels make the functions of pitches explicit that we have an obligation to train our students in their use. We must give our students the knowledge and tools to meet this challenge, and we must ask them to make a conscious effort – to use their brains – to engage modulation forthrightly.

Notes

- 1 Hung (2012) did her own study to compare the effectiveness of fixed and moveable systems, but the fixed and moveable subjects were recruited and trained at different institutions, thereby not controlling for many crucially significant factors.
- 2 In Karpinski (2000, 52–56; 165–166) I surveyed a variety of empirical and philosophical cases against relying primarily on intervals as a means of navigating tonal music.
- 3 For more on the unique character (qualia) of each scale degree, see Huron (2006, 144–147).
- 4 If moveable-*do* syllables have been used for scale degrees, then letter names (not fixed *do*, which uses most of the same syllables for completely different purposes) should be used to represent absolute pitches. For a more complete discussion of pairing fixed and functional systems, see Karpinski (2000) 90–91.

Bibliography

- Alldahl, Per-Gunnar (1974). Teaching music theory: The European conservatory. *Journal of Music Theory* 18: 111–22.
- Cook, Nicholas (1987). The perception of large-scale tonal closure. *Music Perception* 5: 197–205.
- Cutler, Timothy S. (2002). An aural skills approach to context and modulation in tonal music. *Journal of Music Theory Pedagogy* 16: 79–104.
- Farkas, Philip (1956). *The art of French horn playing*. Evanston, IL: Summy-Birchard.
- Geary, David and Komaniecki, Robert (2018). Post-tonal solmization for post-tonal aural skills: Implementing ordered pitch-class intervals. *Journal of Music Theory Pedagogy* 31: 153–175.
- Hindemith, Paul (1949). *Elementary training for musicians*. 2nd ed. New York: Associated Music Publishers.
- Hung, Jou-Lu (2012). An investigation of the influence of fixed-do and movable-do solfège systems on sight-singing pitch accuracy for various levels of diatonic and chromatic complexity. Ph.D. diss., University of San Francisco.
- Huron, David (2006). *Sweet anticipation*. Cambridge, MA: MIT Press.
- Juilliard School of Music (1953). *The Juilliard report on teaching the literature and materials of music*. New York: W. W. Norton.
- Karpinski, Gary S. (1990). A model for music perception and its implications in melodic dictation. *Journal of Music Theory Pedagogy* 4: 191–229.
- (2000). *Aural skills acquisition*. New York: Oxford University Press.
- Karpinski, Gary S. and Heinzelmann, Sigrun (2018). Diagnostic assessment of aural skills based on cognitive principles: Placement testing and curricular ramifications. Paper presented at the joint meeting of the International Conference on Music Perception and Cognition and the European Society for the Cognitive Sciences of Music, Montréal, Canada.
- Kiš Žuvela, Sanja (2018). When the fixed do tends to move: The ambiguity of the solfège syllabary. Paper presented at the joint meeting of the International Conference on Music Perception and Cognition and the European Society for the Cognitive Sciences of Music, Montréal, Canada.
- Lake, William E. (1993). Interval and scale-degree strategies in melodic perception. *Journal of Music Theory Pedagogy* 7: 55–67.
- Lorek, Mary Jo, and Pembroke, Randall G. (2000). To *doh* or not to *doh*: The comparative effectiveness of sightsinging syllable systems. *Journal of Music Theory Pedagogy* 14: 1–14.
- Martin, Louis (1978). Solmization: Getting the facts straight. *Theory and Practice* 3/2: 21–25.
- Marvin, Elizabeth West (1995). Research on tonal perception and memory: What implications for theory pedagogy? *Journal of Music Theory Pedagogy* 9: 31–70.
- Marvin, Elizabeth West and Brinkman, Alexander (1999). The effect of modulation and formal manipulation on perception of tonic closure by expert listeners. *Music Perception* 16: 389–407.
- Middleton, James A. (1984). Develop choral reading skills. *Music Educators Journal* 70/7: 29–32.
- Multer, Walt (1978). Solmization and musical perception. *Theory and Practice* 3/1: 29–51.
- Murphy, Barbara and McConville, Brendan (2017). Music theory undergraduate core curriculum survey: A 2017 update. *Journal of Music Theory Pedagogy* 31: 177–227.
- Nelson, Richard B. (2002). The College Music Society music theory undergraduate core curriculum survey – 2000. *College Music Symposium* 42: 60–75.
- Ottman, Robert (1956). A statistical investigation of the influence of selected factors on the skill of sight-singing. Ph.D. diss., North Texas State College.
- Smith, Charles (1986). The functional extravagance of chromatic chords. *Music Theory Spectrum* 8: 94–139.
- Tovey, Donald Francis (1935). *Essays in musical analysis*. Vol. 1, *Symphonies*. London: Oxford University Press.

SPEAKING MUSIC

Justin Mariner and Peter Schubert

Introduction

It's easier to study Shakespeare if you already speak English, but if you want to study Beethoven, what's the equivalent? What does it mean to "speak music"? We propose that it means being able to respond to a musical idea in music, with the same sort of spontaneity one would use in a spoken conversation. The consequences of this are manifold: becoming a native speaker of music means being able to work without notation, it means using instincts and making mistakes, it means making inferences based on a musical context, and it means building skill through exposure to repertoire in a variety of styles. Each of these consequences calls for a different treatment, but taken together, they constitute musical language training. We propose that speaking music should be the goal of a musicianship/aural skills program, and that this goal be an end in itself, independent of theory courses to which aural skills courses are often linked.

Recent writing about theory pedagogy has stressed the importance of active learning, holding that students learn first and foremost by playing, singing, and making music, more than by listening and looking (Flipcamp.org 2013–2017). Upon first examination, aural skills as a subject would seem to be well aligned with the principles of active learning, since active participation via singing usually plays a large role. But when aural skills assumes a supporting role to theory, the focus can easily shift toward hearing the grammatical elements taught in parallel theory courses, and this can distract from broader goals. We believe that teaching students to speak music is the best way for aural skills courses to help them with their overall growth as musicians, and is, almost incidentally, also the best way to give them the basic perceptual abilities they need in order to truly appreciate what their theory courses can offer them. The following discussion outlines ways of implementing our approach, based primarily on our own experience as educators.

Doing Without Notation

To continue the analogy to spoken language, it should be possible to learn a lot of music, and a lot about music, without notation: children can speak in full sentences before they can spell, or even know what a sentence is. They do this by repeating things they hear said around them, using these utterances with a purpose in a specific context. Likewise, the most basic skill in music training is the ability that most of us have: to echo – i.e. to sing back a short melodic idea we have just heard. Echoing is a powerful instinctive musical tool that should be embraced and developed as a natural starting point. Then, as students improve in aural skills, they can develop an increasing analytical awareness of what they are hearing and singing. The ability to learn music by ear is at once an end

in itself, and is also a basis for many other types of productive exercises. The numerous ways of building upon echoing fall into four main categories: (1) direct expansion; (2) addition of kinesthetic tools; (3) addition of conceptual tools; and (4) improvisation.

1. Direct expansion of echoing. As students gain experience singing back, it is natural to make the material to be echoed longer or more intricate throughout a semester as they are used in various activities described below. This requires students to concentrate and work on musical memory.
2. Kinesthetic tools. Many kinesthetic supports are possible; the ones that are perhaps best suited to university-level aural skills are conducting and keyboard. Conducting can be added to all of the echoing activities that we describe below, and provides a way of marking the pulse as well as its grouping into bars. Conducting may require some separate practice apart from echoing in order to become second-nature. We ask students to have conversations while conducting, and listen to music and conduct along too. Once it becomes natural, conducting while singing is an effective way to “feel” the pulse and meter, especially upbeats and downbeats, without involving notation.

Another kinesthetic way to experience a melody is to echo it on keyboard. Even students without much background in piano are often good at playing back a simple melodic fragment instinctively, especially when it is limited to a five-finger position covering the scale steps from tonic to dominant. Messing around on the keyboard is a great way to improve melodic hearing, as it provides immediate feedback. The feedback is both audible and tangible; they can simultaneously hear and feel if they were a step too high or if a leap was larger than they thought. A subconscious mapping of scale degrees 1–5 and fingers 1–5 in the right hand may occur.

Compared to traditional dictation, playing a melody accurately on piano entails a specific identification of every note, and playing it is more spontaneous and direct, since the identification of notes happens while the music is sounding, not in between playings of a dictation. Instructors often see students silently moving their fingers on an imagined instrument to help them remember how a tune went as they transcribe it. They are thus transcribing their own performance of the tune more than they are transcribing their initial unembodied hearing of it. Promoting the use of a physical/spatial/visual referent is especially valuable to students such as singers who may have little instrumental performance background.

3. Conceptual tools. Once a melody has been sung back intuitively, the singer can “roll it over in their mind” and evaluate it in a number of ways. A fundamental type of evaluation is for scale degrees, in which the student compares the notes of the remembered tune to the remembered major scale. Students can demonstrate their analysis by singing the tune on scale degree numbers or moveable-*do* solfège. A student who has sung back a melody in scale degrees while conducting has gone a long way toward analyzing its pitch and rhythm, without actually writing anything. This type of “proto-dictation” takes much less class time than full-fledged written dictation (Mariner and Schubert 2016). A key to success with this approach is to always begin by echoing with no numbers or solmization, then to repeat with scale degrees. Attempting to use scale degrees right away tends to interfere with initial intuitive memorization, thereby defeating the methodology.
4. Improvisation. An entirely different path is to use echoing as a springboard for improvisation. As a warmup, students can sing back a two-bar motive like that in Figure 27.1a, and then transpose it sequentially up or down in steps. If other students do the same thing but starting four measures later, they will harmonize in parallel thirds. The same sort of motive can be used for improvised melody continuation. A student can sing it back and improvise two more bars like those in Figure 27.1b. Grading is based on participation, and students are free to do whatever they think sounds good (Schubert 2012). The only guideline is that responses should be two bars long. Matching the length of the given motive seems to be instinctive

for many students, but some deliver responses that are shorter or longer (Figure 27.1c). Some people have hypermeter built in; others have to learn it. We ask all students to conduct while they are improvising, and this seems to help reinforce a background awareness of time-keeping.

Improvised melody continuation can grow into something more sophisticated over two semesters. If the student is directed to end on any scale degree other than $\hat{1}$, then this four-bar unit sounds open enough to be an antecedent phrase (Figure 27.1d). The student can then repeat the phrase

(a) A motive to be echoed



(b) The motive with a 2-bar ending



(c) The motive with an early ending



(d) The motive with an open ending (antecedent phrase)



(e) The ending changed to form a consequent phrase



(f) A modulating consequent phrase



(g) A modulating consequent phrase in minor



Figure 27.1 Improvising a continuation.

and make a small change to turn it into consequent ending (Figure 27.1e). Once students are comfortable with this, it is fairly easy to build a convincing modulating period if they simply end the second phrase with $\sharp 4-5$ (Figure 27.1f). Likewise, when starting in minor, simply working a $b7$ into the melody can help the student hear a move into the relative major (Figure 27.1g). Getting comfortable modulating by ear is one of the main goals. We don't use much terminology, and we keep instructions as simple as possible; it's more about the experience of making a modulating tune than analyzing it. The class should always sing back the improvised work, encouraging the improviser to sing intelligibly and to sing for their peers instead of focusing on the teacher all the time. We have found that the rest of the class is extremely attentive during this activity.

We generally don't ask students to sing in scale degree numbers when they improvise, as it tends to make them more hesitant and less spontaneous. Even without singing in scale degrees, they can still successfully hit a specific goal at the end of a phrase without having been completely self-conscious along the way. And when the class sings back an individual's improvisation, they will eventually sing on scale degrees.

Adding Notation

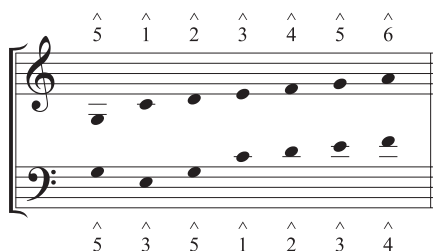
Echoing can also form a useful first step in melodic dictation. The advantages of this approach have already been identified earlier: actively engaging with the melody by performing it, memorizing it early in the process, using conducting to help analyze while singing, and eventually identifying scale degrees. In this approach, instructors lead the class in developing a consistent routine of learning aurally before transcribing, insisting that students set down their pencils while everybody sings. Gary Karpinski has identified a difficulty with this approach, noting that university students do not always sing back melodies accurately (Karpinski 2000, 62–69). The classroom setting offers an opportunity to address this problem, as long as the instructor is willing to go over the tune several times until the class has more or less demonstrated accurate aural learning and memorization. With this technique, students help one another piece together an accurate rendition by singing as a group. This type of peer support is also applicable to two-part dictation, where the class hears two lines but only sings back the bass or the soprano. The two-part context can be maintained if the teacher plays one voice while the class echoes the other. We do not ask students to sing out loud in scale degrees when they are preparing to notate a melodic line, since this would be too much like sharing the written answer.

Notation can be combined with improvisation, so that students are reading a notated part while they make up their own part. A good starting point is horn fifths, where one person performs a notated melody and another person makes up a second horn part below, harmonizing the given tune by rule. The rule, shown in Figure 27.2a, works with simple melodies whose range fits in the span from $\hat{1}$ up to $\hat{6}$ and with $\hat{5}$ below (Figure 27.2b). Many sight-singing books begin with melodies that are suitable for this activity.

Notation can be used as scaffolding for melodic improvisation over a chord progression. A second staff can be added to a ground bass, showing available chord tones spaced out over several octaves to help students visualize various melodic paths through them (see also Mariner and Schubert 2016). Figure 27.2c shows a progression used for recitative-style improv. We use this in the third semester, and give students the progression in advance so they can practice playing the chords and get to know how they sound before they sing an improvised tune at the same time. Unlike many of the other exercises, this one is designed to let students take the time they need to make up a melodic line, since this is a very different experience than working in a strict tempo.

We do not advocate a complete prohibition on notation; of course sight-singing is still a mainstay of the curriculum, and dictation makes an appearance eventually. The point is to include a

- (a) The formula for horn fifths, with melodic notes in the top staff and their corresponding harmonizations in the lower staff



- (b) The traditional French song “Ô St. Hubert” with horn fifths accompaniment



- (c) A short progression for recitative improvisation

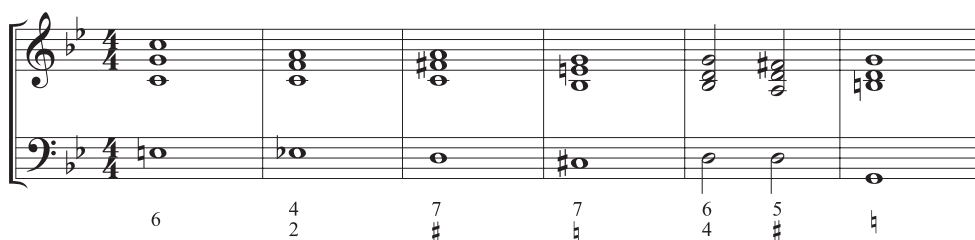


Figure 27.2 Improvising with a notated part.

wide range of activities and formats that help students strengthen their aural musicianship without simultaneously trying to address visual literacy (Campbell et al. 2016). A curriculum that includes a combination of oral and written work gives students more than one way to succeed and build confidence, depending on their individual strengths. Exactly how to combine oral and written modes of work is partly a question of timing. An early emphasis on aural musicianship can be an efficient way to help students with little prior experience in ear training catch up. Proto-dictation can effectively replace written dictation during the first semester, helping to leave more time for singing early on.

Less Talk, More Action: The Role of the Teacher

It is tempting to present students with tactics for hearing or singing whatever they find difficult, but tactical approaches often bring problems. We may tell students “if you’re stuck trying to sing a leap, fill in all the steps between the two notes,” but how do students make the transition to hearing leaps directly, without the tactic? Likewise, we may say “before you sing the chromatically altered

note, try to imagine the note it resolves to first.” Such a trick may be easy enough for us to employ, but for the student it replaces one difficulty (hearing the next note) with another one (hearing more than one note ahead). It may be difficult for the instructor to remember or imagine what it was like to be in the student’s shoes, trying to sight-sing without a lot of skill to rely on. Attempting to fast-track skill development by showing students specific tools often involves assumptions about the role of verbal explanation: *if students just understood how to sing this leap, they would be able to do it!* Various aural skills may be picked up gradually with experience in ways that we cannot fully explain. Facilitating the acquisition of experience (active learning) should be a fundamental part of our approach, taking priority over explanation. An excess of explanatory intervention is an unnatural way of learning to speak in music, encouraging over-thinking instead of using instincts. Explaining how to hear something also supposes that there is one right way to hear it, and we don’t believe there is.

Open-ended instructions, such as “Sing this motive then make up two more bars,” allow students to fool around and decide for themselves what sounds good, and possibly why. This approach can also be applied to activities with more specific goals. Instead of explaining, for example, how to sight-sing a passage better, we could simply point out that a student missed something in measure 2 and ask her to try it again. The less students are told about their mistakes, the more they must listen for themselves. It’s better to see if students can fix something themselves before we try to fix it for them, so they can discover what helps them the most. The experience of struggling and overcoming the difficulty themselves is also valuable in building confidence, an important ingredient in sight-reading. In such an approach, the mistakes themselves are the most important source of feedback, and they are a more direct form of feedback than verbal instructions.

Promoting an instinctive approach requires somewhat easier course materials, especially for sight-singing. If a student makes many mistakes in one short but difficult example, there may be no clear lesson to learn at the end of the experience. Materials that are too difficult may also force students to stop frequently instead of keeping time, and this poses a significant barrier to building fluency.

We would rather move through a larger quantity of easier materials more quickly, so as to gain more practice and to increase the level of success and confidence that it brings. Differing levels of difficulty will be appropriate for different individuals in any given class, even if enrollment has been approximately sorted via placement exams or streaming. While a successful curriculum should have a well-controlled long-term progression, the materials used in class on any given day could also contain a degree of variety so that more difficult examples can be assigned to students who are ready.

Musical Context

One difficulty students often face when reading melodies out of standard sight-singing books is that they don’t infer the harmonies implied by a melody, and do not inwardly hear harmonic changes. It can be tempting to jump in and assist by playing a snippet of accompaniment concocted on the spot to help the student hear the tricky part, but we believe it is preferable to build the accompaniment into the course content, by replacing *a cappella* sight-singing with accompanied sight-singing, as has been suggested by Jones, Shaftel and Chattah: “Melodies presented without harmonic context are often of limited use in class because the harmonic support, the cadential articulation, and even the phrase structure may be unknowable or ambiguous from the melody alone” (2014, xiii). Making music in context helps students learn to speak in music, since the context can provide valuable information that enables them to use their instincts more.

At first, accompaniment helps with simple harmonic contextualization, and it takes on additional value as the curriculum becomes more challenging. Accompaniment helps students find their way through a modulation, letting them hear the changing tonal center instead of having to imagine it, or failing to imagine it and just being surprised by unexpected accidentals that are part of a new scale. In examples with more non-harmonic tones and chromaticism, unaccompanied reading becomes

purely intervallic, and may be tonally unintelligible (see Figure 27.3a). Melodies that have been separated from their harmonic or contrapuntal contexts will often seem abstract, while hearing something that sounds complete is more fun for the performer and for other students who are listening.

Accompaniment for sight-singing can be provided in several different ways. Students can sight-sing duos in pairs, or a student in the hot seat can sight-sing a part solo while an accompanying part is sung by the class or played on piano by the teacher or by a student. Students can also accompany themselves at the piano (play & sing). Simultaneously finding notes kinesthetically on the keyboard and aurally in the voice is a tremendous cognitive workout (Schubert 2018) but it causes many students to work

(a)

Part (a) of the musical score for 'The Little Boat' is written for a single melodic line in treble clef. The key signature is one sharp (F#), and the time signature is 3/4. The piece begins with a piano (*p*) dynamic. The melody consists of eighth and quarter notes, with some measures containing rests. The score is divided into four systems, with measure numbers 10, 18, and 26 indicated at the start of the second, third, and fourth systems respectively. The piece concludes with a double bar line.

(b)

Part (b) of the musical score for 'The Little Boat' is written for piano accompaniment in treble and bass clefs. The key signature is one sharp (F#), and the time signature is 3/4. The piece begins with a piano (*p*) dynamic. The bass line features a steady eighth-note accompaniment pattern, while the treble line provides harmonic support with chords and moving lines. The score is divided into four systems, with measure numbers 10, 18, and 26 indicated at the start of the second, third, and fourth systems respectively. The piece concludes with a double bar line.

Figure 27.3 Brahms, *Liebeslieder Waltz* Op. 52 No. 1, mm. 1–34 (original key: E major). (a) Melody only. (b) Melody and bass line.

more slowly than they would when somebody else accompanies them, so both formats are valuable. Technological solutions facilitate accompanied singing outside of class, which is good because students can work at their own pace, away from the pressure of performing in front of their peers and teacher. SmartMusic software allows students to record themselves singing while the computer plays an accompaniment, then view a visual assessment of their performance and compare multiple takes.

Singing against another part involves different skills than *a cappella* sight-singing. One cannot say that accompanied singing is categorically either easier or more difficult than unaccompanied singing. In higher levels, accompaniment can be used to intentionally introduce challenges. In Figure 27.3b, from a fourth semester play & sing assignment, the melody is dissonant against the accompaniment, but the accompaniment helps make sense of the resolutions, and it guides the singer through several distant keys. In Figure 27.4, part of an accompanied melody that fourth-semester students record in SmartMusic, the accompaniment makes a cross-rhythm against the duplets the student must sing, but it helps with intonation of the chromatic scale. Students in higher levels can also be challenged to make their coordination of rhythmically independent parts more instinctive by tapping one part while they concentrate on singing a melodic line. In a fifth-semester elective in twentieth-century aural skills, they sing Riff's solo from "The Jet Song" from *West Side Story* while tapping the rhythm

Figure 27.4 Tchaikovsky, Symphony No. 5, 2nd movement, mm. 49–57 (authors' reduction for the purposes of SmartMusic playback, original key: D major).

of the instrumental accompaniment, and they sing the theme from *Bolero* while tapping the snare drum part. This is more enjoyable than triplet studies, and they learn some repertoire.

Performing with accompaniment forces students to keep going; if they get lost, the continuity of the other parts may help them jump back in, an important practical skill. The combination of challenges and supports presented by an accompaniment should be welcomed as a complete package, since this sort of reading and hearing in context is most like what students when they sight-read in rehearsals.

There are many ways of incorporating improvisation and other unnotated work into a polyphonic context, starting with parallel thirds, horn fifths, and ground bass as described earlier. By the third semester, we introduce stretto fuga at the fifth. In this type of canon, two students work together to create their own context from scratch as they go along. The student who goes first (the leader) can choose whatever workable melodic intervals she wants, and these choices dictate which vertical sonorities will occur when the follower imitates her line (for a thorough discussion, see Schubert 2018, 15–20). The follower makes the polyphonic implications of the leader's choices audible. The leader's role is creative, and the follower's role is an excellent exercise in listening to another part while performing one's own part. Used in this way, an improvised canon usually continues until somebody messes up and starts to chuckle instead of sing. The whole class tends to be very attentive during this fun activity.

Students who choose to take a fifth-semester aural skills elective in improvisation do stretto fuga in greater depth. After a while, they begin to naturally use melodic idioms that they appear to have memorized, from hearing and singing them repeatedly in different examples they have improvised. It is interesting to see that this occurs without our ever giving students a list of idioms to study and memorize (we would consider this analogous to reciting lists of verb conjugations from memory). Here, memorization of fragmentary building blocks is a natural offshoot of music-making in the larger context formed by these small parts.

In dictation, two-part work is an excellent way of providing context. If students echo the part they are memorizing and writing down, the teacher can play the other part at the same time, so the context is always present. Rather than giving starting notes, we like to play the whole example first to provide an overview before students start memorizing smaller bits.

Social Context

Many of the activities described in this chapter emphasize the social nature of music-making, a basic tenet of constructivism (for a brief discussion, see Schubert and Guido 2016, 131–132). In improvising canons or singing duos, the students have to decide on a tempo before they begin: “Is this too fast; is this ok?” They can also help each other find the right first note. In canon improvisations the leader can “go easy” on their follower by not embellishing too much, or can challenge the follower by skipping wildly. In all of this the teacher stands back, acting only as a session chair, keeping things moving without directing the musical activity.

Another aspect of student empowerment and social responsibility is the need for intelligibility. When the whole class must sing back what the student in the hot seat has sung (whether they're improvising or sight-reading a play & sing example that the rest of the class can't see), there is a certain social pressure to perform with a regular beat and to sing or play notes clearly. The rest of the class will applaud a successful exercise or a particularly creative solution, and will easily forgive a mistake. This applause is a recognition of shared values, of what “good” is, from students who have “been there.” (This seems to be especially true in a music school, where students are always hearing each other play in master classes and competitions, and have few illusions.) For most students it's a game, and it's fun to do well; it is a rare student who doesn't even try, who “blows it off” in front of their peers. Even in the apparently un-social context of SmartMusic assignments,

many students feel a self-imposed desire to “beat the machine.” Even if students get full marks for submitting assignments with computer assessments of 80% or 90%, we have seen many students strive for 100% out of pride in their work or enjoyment of the challenge.

The teacher standing back empowers the students, who take responsibility much more than if the teacher tries to direct them in how to think and behave. However, assessment is an area in which the teacher can’t exactly step back. One solution is to make speaking music a regular part of daily or weekly life, with grades given frequently (in our program, two a week), but counting for correspondingly small percentages. These grades add up to a final grade without the pressure of a midterm or final, and acknowledge the student’s regular attendance, participation, and effort.

We believe that a certain amount of credit has to be given on an aspirational basis; that is, students get credit for trying. Every university student should have tried to sing in parallel thirds without notation, or beat 2 against 3, or sing a whole-tone scale. But they should be able to get decent grades without mastering every single skill; it should be enough if they have tools for continuing to learn later if they want/need to, and many will indeed continue to develop skills after graduation (on other methods of assessment, see Alegant and Sawhill 2013).

Repertoire

In a musicianship course not linked to any theory curriculum, it is possible to include a great variety of repertoire. We believe in using as much as possible real music, not contrived exercises, but do not limit ourselves to the canon routinely covered in theory class, and embrace stylistic promiscuity. The stylistic diversity that results is also an end in itself, especially as students might not be exposed to some of this music otherwise.

Each type of music we have found useful so far addresses some particular problem that it is useful to solve. This includes folk music (Ô St. Hubert, described earlier, is good for harmonization in horn fifths); Renaissance duos (good for C clefs, $\frac{3}{4}$ and more unusual meters, and proportion changes; see Figure 27.5a), parlor songs from the 1890s (useful for dissonance and chromaticism), current pop music (useful for surprising, metrically unclear introductions), and bossa nova (good for concentrated doses of syncopation).

Figure 27.5a shows a musical score for a piece by Ihan Gero, "Povre cueur, tant il m'ennoie" from *Madrigali Italiani et Canzoni Francese a Due Voce* (1541), measures 26–35. The score is written for two voices (treble and bass staves) and includes lyrics in French. The first system (measures 26–35) features a key signature of one flat and a 3/4 time signature. The second system (measures 31–35) features a key signature of one flat and a 3/4 time signature. The lyrics are: "re, a l'a - ven - tu - re; l'a - ven - tu - re; a l'a - ven - tu - re; hé mon a - my! hé mon a - my! hé mon a - my!"

Figure 27.5a Ihan Gero, “Povre cueur, tant il m’ennoie” from *Madrigali Italiani et Canzoni Francese a Due Voce* (1541), mm. 26–35, used for accompanied sight-singing, third semester.

The 1890s songs and the Renaissance duos have a significant practical advantage; they are long-ish examples that are relatively homogenous in terms of level of difficulty. This allows students to work in the context of a complete piece of music instead of always doing excerpts. The addition of rehearsal letters lets us assign passages of appropriate lengths to individual students before beginning, then hear them all read through their own portions of a selection in order without stopping (as in a relay race). The 1890s songs have another practical benefit: they let students experience dissonance and chromaticism in a predictable way before they take on Brahms (see Figure 27.5b).

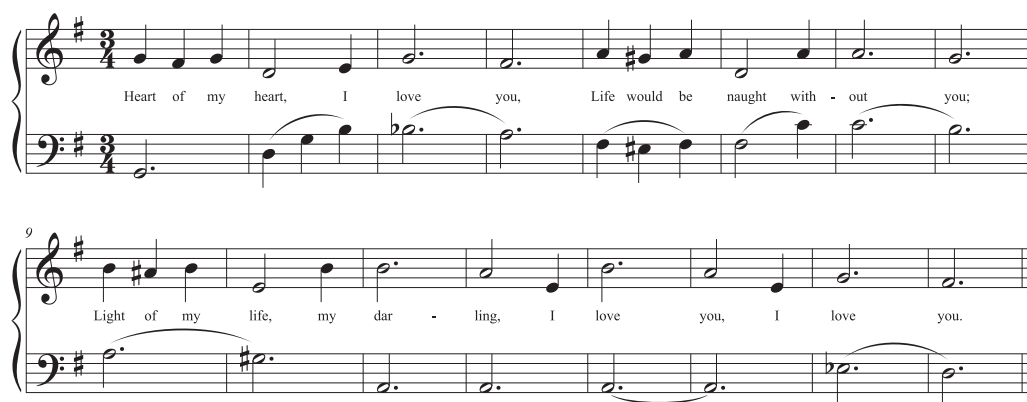


Figure 27.5b Andrew Mack, “The Story of the Rose” (1899), mm. 21–37, from a play & sing assignment in SmartMusic in the third semester.

Someone might object that studying lesser genres, out-of-the-way repertoire, or second-rate music is not appropriate in the university, but the role of aural skills courses need not be to study masterpieces. Returning to the language analogy, we don’t start learning French by studying Molière, but we learn simple, useful phrases like “Où sont les toilettes?”. Our examples are musical things we genuinely like, and class is more fun if the music is enjoyable for both students and teachers. Because this is not a theory class, we don’t explain why music in different styles sounds the way it does, but singing some of it probably helps students develop a degree of comfort with different “dialects.”

Conclusion

An autonomous aural skills program, independent from the theory curriculum, can serve students in all aspects of their musical development. It can equip them to handle fundamental challenges of performance, such as finding one’s note for a choral entrance, tuning to another part, singing a dissonance against another line, or playing a rhythmically independent part. A multifaceted approach to activities and goals also acknowledges that everybody hears things differently. In our program we try to keep our suggestions brief and keep things moving along as in a rehearsal. We cover a variety of activities because we know different ones work better for different students, and we switch activities frequently (we never dwell on any one activity for more than about 15 minutes).

Table 27.1 illustrates how these principles would be implemented in an actual course, showing an outline of class activities for the first three weeks of the third semester as an example. This course has two 50-minute meetings per week, with 12 students in a class. Each class includes approximately 5 minutes of warmup, 15 minutes of individual testing or dictation, 15 minutes of

Table 27.1 Sample Class Schedule

	Week 1			Week 2		Week 3	
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	
5 minutes	Warmup: 1890s songs ^a	Warmup: Renaissance duos with alto clef ^d	Warmup: Singing seventh chords	Warmup: Rhythm with changing subdivisions	Warmup: Singing seventh chords	Warmup: Hindemith rhythm with half-note beat	
15 minutes	Dictation practice: Mystery chords ^b	Dictation practice: Haydn 2-part	Dictation practice: Mystery chords	Dictation practice: Haydn 2-part	Accompanied sight practice: Lassus duos with alto clef	Accompanied sight practice: Lassus duos with alto clef	
15 minutes	Test accompanied sight melody: 1890s songs	Test accompanied sight melody: 1890s songs	Test play & sing: Short snippets ^e	Test play & sing: Short snippets	Test harmonic dictation: Seventh chord identification, mystery chords	Test two-part dictation: Haydn two-part	
15 minutes	Improv for participation grade ^c : Ground bass	Improv for participation grade ^c : Canons	Accompanied sight practice ^f : Renaissance duos with alto clef	Accompanied sight practice: Renaissance duos with alto clef	Improv for participation grade: Ground bass	Improv for participation grade: Canons	
Outside of class (SmartMusic)	Accompanied melody: Mozart Piano Concerto No. 21, second movement, mm. 1–7; Two-part rhythm: sing and tap		Rhythm: triplet study; duo with alto clef	Play & sing: Lassus	Improv: recitative over given chord progression; Accompanied melody: Haydn, “Die verlassene”		

^a For example, “Love’s Old Sweet Song” (J.L. Molloy), “A Bird in a Gilded Cage” (H. von Tilzer), and “The Band Played On” (C.B. Ward), with the instructor playing the accompaniment.

^b Mystery chords focus on the identification of one chord within the context of a short four-voice progression via fill-in-the-blank format, e.g. I___VI.

^c Students get full marks for any reasonable attempt.

^d Lassus duos, two-part madrigals by Thomas Morley and Ihan Gero.

^e Snippets are extremely short bits of two-part tonal music (e.g. five melody notes against three bass notes). Fingerings are provided to help students get started quickly.

^f In one out of every three weeks, extra sight-singing practice replaces improvisation, so there is approximately the same amount of practice in sight-singing and dictation.

improvisation, and 15 minutes of practice for upcoming tests. To keep tests short, we only hear half of the class (six students) do an individual sight-singing test during one class. The other six students perform individually when we get to improvisation. On the next day of class, the six students who improvised in the first class do a sight-singing test, and vice versa. Daily assessment is used instead of high-stakes tests like midterms and finals, to reduce anxiety about grades and to reward frequent performance (the tests themselves become a type of regular practice). Daily testing produces a large number of grades, minimizing the impact of occasional slip-ups or bad days, thereby giving a more accurate picture of a student's overall ability and performance.

Each week, the mode of testing changes: accompanied sight melody one week, play & sing one week, and a pair of short dictation tests another week. Other class activities and assignments follow a similar rotating schedule, with warmup activities often related to whatever is about to be tested on a given day, and practice activities working toward tests for subsequent weeks. After three weeks, a new cycle begins. While the format repeats every three weeks, the repertoire content is redistributed among the different activities. For example, 1890s songs are used for sight-singing, dictation, and play & sing.

In this chapter, we have proposed that developing aural skills should be an end in itself, fostering the ability to deal with sounding music, with no particular connection to theory. Our view is that such a curricular element, sometimes rightly called “musicianship,” should be a self-contained course designed to create good musicians in the broadest sense.

Bibliography

- Alegant, Brian and Barbara Sawhill. 2013. “Making the Grade (Or Not): Thoughts on Self-Design, Self-Assessment, and Self-Grading.” *Engaging Students: Essays in Music Pedagogy*, v. 1. <http://flipcamp.org/engagingstudents/alegantSawhill.html> accessed October 14, 2018.
- Campbell, Patricia Shehan, et al. 2016. “Transforming Music Study from its Foundations: A Manifesto for Progressive Change in the Undergraduate Preparation of Music Majors.” *The College Music Society*.
- Flipcamp.org. 2013–2017. *Engaging Students: Essays in Music Pedagogy*. Vols. 1–5. <http://flipcamp.org/engagingstudents/> accessed October 14, 2018.
- Jones, Evan, Matthew Shaftel, and Juan Chattah. 2014. *Aural Skills in Context: A Comprehensive Approach to Sight Singing, Ear Training, Harmony, and Improvisation*. Oxford: Oxford University Press.
- Karpinski, Gary. 2000. *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians*. Oxford & New York: Oxford University Press.
- Mariner, Justin, and Peter Schubert. 2016. “New Frontiers in SmartMusicianship.” *Engaging Students: Essays in Music Pedagogy*, v. 5.
- Schubert, Peter. 2012. “‘See What an Ass I am’ Improvisation #1.” www.youtube.com/watch?v=1r0-DODEf_po accessed October 14, 2018.
- Schubert, Peter. 2018. “Teaching Historical Counterpoint.” *The Norton Guide to Teaching Music Theory*, 13–25. Edited by Jeffrey Swinkin and Rachel Lumsden. New York: W.W. Norton.
- Schubert, Peter and Massimiliano Guido. 2016. “Back into the Classroom: Learning Music through Historical Improvisation.” *Improvisation and Music Education: Beyond the Classroom*, 131–139. Edited by Ajay Heble and Mark Laver. New York: Routledge.

28

FINDING YOUR WAY HOME

Methods for Finding Tonic

Timothy Chenette

Topic: Tonic perception.

Goal: Students will be able to identify tonic in sounding music.

Background: No background necessary beyond basic fundamentals, though for certain exercises it is helpful to be familiar with an instrument.

Gary Karpinski calls perception of tonic “one of the most basic skills a listener should have,” adding that “we should encourage its development from the first day of training” (1990, 205). Yet Karpinski’s own *Manual for Ear Training and Sight Singing* (2017, 12) devotes only two sentences to a method for finding tonic with no advice on what to do if the process does not work. Many other textbooks give students the starting note and key for dictations, avoiding the development of this skill altogether. This lesson plan will fill this pedagogical void by giving an overview of approaches to the acquisition of this skill and presenting a series of tonic-perception exercises appropriate to the first unit of an aural skills class or individual work with students.

Methods

Textbook approaches to tonic perception – where they exist at all – tend to fall into one of five categories, each of which has advantages and disadvantages.

1. **Tapping into and strengthening students’ pre-existing, innate ability to identify tonic.** One method is described by Karpinski (2000, 47) and under “In-Class Activities” below. This is arguably the most powerful and musical method, but it can be difficult to teach and if the method doesn’t work at all for a given student it is difficult to know – much less communicate – how to develop it.
2. **Teaching students to be aware of the whole step/half step structure of the scale.** This approach can tap into instrumentalists’ awareness of whole and half steps and, unlike Method 1, is not difficult to put into words. Many students, however, are so used to the diatonic scale as primary reference point that they find it difficult to distinguish whole and half steps. In addition, students unable to draw on other methods may have to work through an entire scale before being able to guess at a tonic – and even identifying an entire scale does not unambiguously implicate a *single* tonic.

3. **Familiarizing students with the different “feeling” of each scale degree.** This method is already inherent in any pedagogical system that associates scale degrees with syllables (usually numbers or solfège). In my experience, this works very well for some students and less well for others. In addition, the exact feeling associated with a given scale degree in “real music” can vary based on numerous contextual factors including harmony, location in a phrase, and timbre.
4. **Asking students to memorize “tonalizing” patterns and then identify them in music.** Of all these methods, this is the simplest to teach. Nevertheless, it is unlikely that any list of such patterns could be sophisticated enough to familiarize students with the myriad ways that tonal music expresses tonic function.
5. **Leaving tonic perception unaddressed.** Of course, most textbooks do teach some form of scale degree syllables such as moveable-*do* solfège, implicitly invoking Method 3. Many, however, then consistently provide students with the starting pitch for dictations, allowing students to obtain a high degree of accuracy with guesses based on contour rather than requiring awareness of where tonic is located.

I will begin by dismissing Method 5: in my experience, most aural skills instructors wish to teach “functional” hearing, which involves an awareness of how a given pitch relates to tonic. I will also dismiss Method 4, as I am not convinced that there is any list of patterns diverse enough to accomplish this goal. (Nevertheless, some version of this method may be useful for students who have extreme difficulty in all other methods.)

It probably goes without saying that Method 3 is very useful – and that it is already an integral part of most aural skills classes, through the use of solfège. For students who are unable to reliably find tonic, it is occasionally helpful to make sure they are spending extra time working with their scale degree syllables; however, this does not always work for every student. I have not seen obvious benefits from discussing the “feeling” of each scale degree with students explicitly, leading me to believe that it is most effective to rely on unconscious associations with syllables that arise naturally over time with experience.

Since Method 3 is already integrated into most classes through some kind of solfège, I will focus on detailing the potential contributions of Methods 1 and 2 to beginning aural skills work.

In-Class Activities

I always begin a semester of my Aural Skills 1 class with extensive practice of Method 1, which Gary Karpinski describes thus:

Once listeners have heard a melody, they should choose any relatively high pitch within the passage and begin to sing down by step on any neutral syllable through the pitches of the diatonic collection.... A particularly telling and rewarding sign is the illumination on students’ faces when they slow down and arrive on the tonic, as if guided there by some power outside their control.

(2000, 47)

(If students are unable to produce the correct pitch collection, instructors should consult Karpinski 2000, 39–44.) In a class context (my class typically has more than 50 students), I ask students to get into groups of two to three. I then sing a short melody, ask them to repeat it back once or twice until I am sure they remember it, then ask them to go through the process described by Karpinski within their groups. As they do so, I walk around, observe how individuals are doing, and give feedback as appropriate.

A quick note on Method 1: in my experience, people who have moderate success with this method but are occasionally wrong usually have the most problems when their chosen “high pitch” is low in the scale, particularly scale degree 3. Perhaps because they are lacking context, they often pass scale degree 1 as they descend and start to peter out as the scale stretches on (sadly, usually before they reach the lower scale degree 1 – if they reach this low note, they almost invariably identify it correctly). In many cases, simply bringing students’ attention to this problem is enough to solve it.

I often pair this activity with occasional use of Method 2, making students aware of half and whole steps. The simplest way is by using instruments, which I ask students to bring to class. (Singers and pianists can use pianos in the room, sing on note names, or pull up keyboard apps on their personal electronic devices.) I tell students which concert pitch I will start on, sing or play them a mostly stepwise melody, then ask them to work out on their own how to play it back to me. After about a minute, we play the melody in unison. Now that students have worked out the intervallic relationships between the melody’s pitches, we deduce where tonic is located and apply solfège to the melody.

When I first started using these methods, I dedicated only a few class periods to them, figuring that most students already had the ability to identify tonic and that they would get bored if we spent too long on this skill as a class. I quickly discovered that virtually all of my students – even those who had some ability to identify tonic – benefited from more time improving tonic perception, and I now devote portions of every class period for about four weeks to doing these and similar activities, with great success for the majority of students.

Assessment

It would be possible to use these methods and not worry about testing students’ tonic-perception abilities directly: after all, they must develop this ability anyway in order to be successful at other activities such as dictation. Nevertheless, I have found it useful to test tonic perception in isolation in order to distinguish weaknesses in this area from other problems such as difficulty with musical memory or inability to follow contour. At the same time, students may be self-conscious about their lack of skill in such a seemingly fundamental (yet elusive) ability, and it is important to reduce unnecessary stress and embarrassment as much as possible to foster success for all students.

My solution is a “Basic Skills Hearing,” undertaken for the first time around week 3 of Aural Skills 1, that students must pass to pass the course but that is not otherwise directly graded. (My syllabus states that students who do not pass this hearing by the end of the course may not receive a grade higher than D+, which does not allow them to continue in the aural skills sequence.) In the tonic-perception portion of this hearing (I also test basic musical memory through sing-backs), I sing brief melodies; students indicate the location of tonic (usually by humming it) and then tell me the (moveable-*do*) solfège syllable of the first pitch in the melody. Students who do not pass the hearing may set up individual appointments with me later in the semester to try again. I do not set a limit on the number of times they may try.

This hearing is useful in at least two ways to students who fail the first time. First, it is a mechanism that allows me to encourage students with fundamental weaknesses to begin tutoring early. Second, it motivates students to work explicitly on basic musical memory and tonic perception – since they cannot pass the course until they pass the hearing – without directly impacting their grade. Thanks to this motivation, I have never had a student not pass the hearing, though some do take till the final weeks of class.

Though this is my primary method of assessing tonic perception, for our first month or so of graded melodic dictations, my grading rubric reserves a substantial number of points – starting around 50% of each dictation assignment’s grade and declining slowly to about 25% – for “evidence of correct tonic identification” such as correct starting and ending notes or getting back

on track after an incorrect pitch. This rewards students who spend extra time considering tonic before (or while) writing their response.

Individual Work

Karpinski follows his discussion of what I have called Method 1 with this: “The minority of students who are still incapable of inferring tonics after working on such techniques have a musically fatal shortcoming that must be remedied if they are to pursue further study.” Indeed, I have a few students in every class who advance in this skill very slowly, and a few more who do not seem to make any progress at all with our in-class work. Karpinski’s rather brief advice for such students is to listen intensively to “strongly tonal music” and Method 3: “practice copious amounts of solmization” (2000, 47). There is no problem with these solutions, but many such students already practice solmization extensively, while “listen intensively to strongly tonal music” is a rather vague instruction that students may have difficulty putting into practice. I have found additional activities to be useful either for students to do on their own or in one-on-one settings with our class tutor.

First, it is not particularly difficult for students, and particularly instrumentalists, to work with Method 2 on their own. I advise them to work out some familiar songs on their instrument, applying solfège in their minds as soon as they are able to do so. Most students working with familiar songs are able to detect their errors by ear and are thus able to work on this independently.

Second, I suggest that students try to maintain an awareness of the scale degrees they are performing and hearing outside of class, especially in private lessons and ensembles. This is particularly useful when private instructors are involved: I have found private instructors are quite interested in how their students are doing in aural skills, and when they hear that their students have difficulty in some fundamental skill, they are typically more than happy (and even appreciate the opportunity) to guide their students in this activity.

Of course, as with all difficult skills-related problems, some more ad-hoc tinkering may be necessary. In some cases, it is useful for a tutor to model the process of finding tonic repeatedly in a one-on-one situation for a student having difficulty, or for the tutor and the student to do the task together a few times, led by the tutor, to develop confidence. For other students, a change of sound source may be helpful – for example, some students seem to perceive scale degrees more immediately on one instrument (say, the piano) than another (say, the voice). After becoming comfortable, these students must eventually transfer this skill to a broader timbral palette.

Finally, we must be frank with students that progress on this skill can be very, very slow. Though I recognize that many differ with me on this, I do not believe we should be in the business of deciding who should or should not be a music major (at least, once they have successfully completed the normal admissions process), and I never advise students to do something else with their lives even if they have trouble with such a seemingly fundamental skill as tonic perception. But I am honest with them and say that when skills like this are not initially strong, it may take a lot of work and perseverance to achieve even moderate improvement. This can be hard, especially for students used to getting As in knowledge-based courses, but I have also seen students persevere and achieve – not mastery, but significant improvement.

Bibliography

- Karpinski, Gary S. 2017. *Manual for Ear Training and Sight Singing*, 2nd ed. New York: Norton.
- Karpinski, Gary S. 2000. *Aural Skills Acquisition*. Oxford: Oxford University Press.
- Karpinski, Gary S. 1990. “A Model for Music Perception and Its Implications in Melodic Dictation.” *Journal of Music Theory Pedagogy* 4, 1: 191–230.
- Kleppinger, Stanley V. 2017. “Practical and Philosophical Reflections Regarding Aural Skills Assessment.” *Indiana Theory Review* 33, 1–2: 153–182.

29

ERROR DETECTION IN AURAL SKILLS CLASSES

Alexandrea Jonker

Topic: Aural skills error detection.

Goal: Detect one or more errors in pitch, rhythm, or articulations when comparing two performances, either both heard aurally or one heard and the other seen in notation.

Background: Basic knowledge of solfège, audiation, and listening to one or multiple lines of music.

The goal of these lesson plans is to provide instructors with examples of error detection activities to incorporate into the aural skills classroom. Rather than providing a lesson plan for the entirety of a class, the following will present instructors with three sample ten-minute activities to be included as a part of an aural skills instructor's daily lesson plan at early, middle, and late stages of skill development. Each activity outlines the learning objective, the specific error it focuses on based on trends I observed while teaching my own aural skills classes, and suggestions for customization based on the needs of the students in your classroom. These activities incorporate multiple textures and timbres, align with what students are learning in a four-semester written theory curriculum, and emphasize music from ensemble and folk repertoires.

Error detection activities can be used not only to teach students how to perceive errors in pitch and rhythm but also as a way of improving and exhibiting command over other aural abilities. By demonstrating common errors in singing and ear training activities, such as differentiating between melodic seconds and thirds, students are more likely to notice and avoid making these mistakes in their own work. In addition, the exercises are presented for sound-to-notation activities (where students hear one version and see a different one) and include suggestions for how to complete activities in sound-to-sound formats (where students hear two different versions aurally). This list of pedagogical goals to be achieved and activity formats is not exhaustive, but rather presents instructors with several possibilities that can be further explored and refined based on the specific institution, instructor's objectives, and students' needs in the class.

When utilizing sound-to-notation exercises, it is essential to provide students with enough time to audiate through all parts before presenting them with the first listening. A study by Byo and Sheldon (2000) on the effects of singing while error detecting found that although singing while listening was detrimental, being provided time to learn each part of the score contributed to the success rates, specifically of finding pitch errors. Sound-to-notation exercises rely on audiation to present students with one version of the performance. Without ample time to study the score, students will not have clear expectations established for comparison and will struggle to notice

differences in the two performances. I recommend leaving one to two minutes of audiating time before listening to each activity to ensure students of all abilities can develop a firm understanding of how the score sounds. This time duration can be adjusted according to complexity of the exercise (i.e. how many unique parts are present) and the students' competency with audiating accurately.

The activities presented below incorporate a recommended placement within the aural skills curriculum in correspondence with their level of complexity. For instance, single-timbre melodies with only one or two errors are suggested for the first few weeks of first semester while exercises with multiple parts or multiple timbres are reserved for third and fourth semester. By scaffolding the curriculum in this way, error detection skills can be developed gradually and efficiently. In addition, each exercise suggests a variety of ways it can be customized to allow instructors to scaffold the learning process or adapt to the needs of the students. For example, instructors may choose to sing scores together as a class for the first few weeks of first semester until audiation skills become more practiced. Instructors may also choose to provide prompts for students, such as revealing how many errors or what type of error to listen for, to help guide students through the initial stages of skill development.

The number of listenings students receive is another element of these activities that can be scaffolded. In her 2004 study on the effects of multiple listenings, Deborah Sheldon revealed that error identification was most accurate during the first hearing of the excerpt, with accuracy declining in each subsequent hearing. Although limiting students to only one hearing per exercise would be more authentic to real-life application of this skill, error detection tasks are likely new for most undergraduates and limiting exercises to only one hearing could inflict undue stress and pose problems for different learners. Instead, it is recommended to provide ample listenings until students become more proficient and develop increased aural acuity. Ultimately, the goal of error detection exercises is for students to be able to identify errors in a single listening without any prompts from the instructor. Facilitating the development of this skill through scaffolded instruction will assist students in achieving this learning objective.

Unlike Davis (2010), who took pre-existing error detection exercises and developed them into more effective activities, I have created my own exercises based on tunes familiar to students from folk and ensemble repertoires. The inclusion of ensemble repertoire introduces an additional way these error detection exercises can be customized: rather than using MIDI files to represent multiple timbres, I recommend orchestrating the examples for the instrumentation of the students in the class. The goal of providing multiple textures and timbres is to diverge from the piano-centric customs of many aural skills and theory classes in order to better prepare students for their future lives as composers, performers, adjudicators, and conductors of ensembles. Although MIDI is an easy way to incorporate other sounds into the classroom, it is more authentic to use real instruments and live performances to accomplish this goal. To facilitate this task, instructors could either provide scores to the students ahead of time or request a five-minute rehearsal before class to discuss and prepare the exercise together. Orchestrating activities for the students in the class and having each student perform once or twice per semester permits active involvement in the exercises and the practice of identifying errors in an authentic, live performance setting.

Finally, the suggested exercises also uphold Karpinski's assertion (2000) that error correction is a salient aspect of all error detection activities. After each example is played for students to identify errors, I suggest that instructors require students to communicate the location of the errors and how to correct them, either through written responses or debriefing with class discussion. The ability to use language to effectively describe errors and how to correct them is not always an intuitive skill; however, it is necessary for all musical careers that utilize error detection. By requiring this step as part of the error detection process, instructors are facilitating an interdisciplinary approach to aural skills that will contribute to the creation of knowledgeable, well-rounded, and articulate musicians.

Topic: Differentiating between melodic seconds and thirds.

Goal: Students will relate pitch, rhythm, solfège, and notation by identifying and correcting pitch and rhythm errors in single line, known melodies.

Background: Basic knowledge of the solfège system used at your institution.

Time of Use: First few weeks of the first semester.

One common problem I found my students to have in both sight-singing and melodic dictations was distinguishing between melodic seconds and thirds. The activity targets this specific error, with measure one and measure five being notated a step lower than what is being sung due to a notated second rather than a third between beats one and two. I envision this exercise using solfège syllables and being used in the first four weeks of the semester, while students are still grappling with relating syllables to what they hear and see on the page.

This exercise is based on the folk tune *Oh! Susanna* (see Figure 29.1). The learning objective for this activity – relating pitch, rhythm, solfège, and notation – is one that many instructors have for

STUDENTS SEE:



STUDENT'S HEAR:



Figure 29.1 Sound-to-notation exercise based on the folk tune *Oh! Susanna*. This exercise focuses on relating pitch, solfège, and notation, targeting the error of melodic steps versus skips. The error in this exercise is located on the score (parentheses show location of discrepancy between the two versions) and students hear a correct performance.

their students and is often evaluated through sight-singing and melodic dictation activities. This error detection exercise provides instructors with an alternative method for achieving the same goal.

When using well-known tunes, such as folk or pop songs, it is important to provide students with an incorrect score and correct performance, rather than a correct score and an incorrect performance. In a song as well-known as *Oh! Susannah*, a student would easily be able to identify a heard error by comparing it to their expectations rather than what is written on the score. Incorporating the error into the score and singing a correct version ensures a student is practicing the desired skill of audiation and attending to the learning objective for the activity.

Classroom execution:

1. Provide students with a score showing only **STUDENTS SEE** segment.
2. Allow students one minute to audiate through the exercise and determine solfège syllables. If using very early in the semester, you could allow students to work together to determine solfège or determine how the melody sounds.
3. Sing exercise three times with 30–60 seconds between each listening.
4. Give students one minute to write a sentence or two about where the error is and how to correct it.
5. Discuss as a class or in small groups. Collect written statements as you see fit.

This activity would also work well in a sound-to-sound format by performing both excerpts for students to evaluate without a score, either by singing both excerpts (the first on a neutral syllable, the second with solfège) or playing the first on the piano and singing the second. If completed as a sound-to-sound exercise, the first version heard should be the correct version, and the second should be the one with errors. In this format, more time should be spent on having students commit the first version to memory and determining solfège syllables by ear. Play or sing this excerpt three times and give students 30–60 seconds between each to recall what they heard and memorize the solfège associated with the melody. After asking the class to sing it back to you, sing the second version and ask them:

1. Are the tunes the same or different?
2. If different, where are the differences?
3. If different, what are the differences?

In addition, this activity can be modified so the error is in the solfège syllables rather than in the pitches if the learning objective is to gain fluency with solfège syllables, or the excerpt can be sung on a neutral syllable if you want to focus on pitches rather than solfège.

Topic: Differentiating between melodic seconds and thirds; identifying large leaps.

Goal: Students will discriminate between two voices by identifying and correcting pitch and rhythm errors in multi-timbre duets.

Background: Experience detecting errors in single line melodies.

Time of Use: Second or third semester.

Students in my aural skills classes often struggled with discriminating between multiple voices, which led to frustration and poor results on harmonic dictation activities. Figure 29.2 uses a tune from the wind ensemble repertoire, “Fantasia on the ‘Dargason’” from Holst’s *Second Suite in F for Military Band* and aims to assist students with this skill by presenting the voices in two different timbres. The targeted error of this activity, like the previous, focuses on steps versus skips, and adds another common error to the mix: large leaps. My students were often hesitant when notating

STUDENTS SEE:

The image shows two staves of music. The top staff is for Oboe (Ob.) and the bottom staff is for Euphonium (Euph.). Both are in 6/8 time with a key signature of one flat (B-flat). The Oboe part consists of a continuous melody: G4 (quarter), A4 (quarter), B4 (quarter), A4-G4 (beamed eighth notes), F4 (quarter), E4 (quarter), D4 (half). The Euphonium part provides harmonic support: G3 (half), B2 (half), D3 (quarter), E3 (quarter), F3 (quarter), G3 (quarter), A3 (quarter), B3 (quarter), C4 (half).

STUDENTS HEAR:

The image shows two staves of music, identical to the first section. The Oboe part has two locations where the melody is enclosed in parentheses: the first is around the G4-A4-B4 sequence, and the second is around the F4-E4-D4 sequence. The Euphonium part remains the same as in the first section.

Figure 29.2 This exercise uses a tune from the band repertoire, “Fantasia on the Dargason” from Holst’s *Second Suite in F for Military Band*, and targets the errors of melodic steps versus skips and large leaps. In this activity, the error is on the students’ score (parentheses show location of discrepancy between the two versions) and they hear a correct performance.

and singing large leaps, with some students overshooting the interval, and others underestimating it, especially when singing. Since this activity utilizes two timbres and two independent lines, it will likely be more difficult for students to master, so I recommend reserving this type of activity for second or third semester.

When using a tune from the repertoire, I recommend alternating exercises between hearing the errors and having the errors on the score. Although students may be able to aurally identify

the errors based on their expectations rather than by comparing it to the score if the error is in the heard performance, it is more authentic to a real-life application of this skill if the error is in the performance rather than on the score. Conductors, educators, and adjudicators must be able to look at a correct score and identify errors in their students' performance. By practicing error detection in this format, students will be better equipped for this task in their future careers.

Classroom execution:

1. Provide students with a score showing only **STUDENTS SEE** segment.
2. Allow students two minutes to audiate through the exercise and determine solfège syllables.
3. Play exercise three times with 30–60 seconds between each listening.
4. Give students one minute to write a sentence or two about where the error is and how to correct it.
5. Discuss as a class or in small groups. Collect written statements as you see fit.

This exercise would benefit from a live performance from students in your class. A MIDI file can be found in the online Supplemental Materials but arranging the exercise to suit the students in your class will allow for students to be more engaged with the materials and get more practice detecting errors in a live performance setting.

Topic: Distinguishing rhythm and articulation in lower voice.

Goal: Students will develop aural acuity for expressive musical elements by identifying errors in pitch, rhythm, articulation, dynamics, accents, and ornamentation in multi-timbre duets.

Background: Experience detecting errors in single line melodies.

Time of Use: Third or fourth semester.

Figure 29.3 focuses on rhythm and articulation errors in a lower voice from *Shepherd's Hey* by Percy Grainger. Due to the complexity of having multiple timbres and errors in the bass voice, this activity should be reserved for third or fourth semester. All multi-timbre exercises would benefit from being arranged and performed live by the students in the class, but it is especially essential for the tasks focusing on expressive musical elements such as dynamics, articulations, accents, and ornamentation, which are often difficult to perceive in MIDI realizations. By asking students to perform for each other, they can exaggerate these differences that are difficult to perceive in electronic performances.

Classroom execution:

1. Provide students with a score showing only **STUDENTS SEE** segment.
2. Allow students two minutes to audiate through the exercise and determine solfège syllables.
3. Play exercise three times with 30–60 seconds between each listening.
4. Give students one minute to write a sentence or two about where the error is and how to correct it.
5. Discuss as a class or in small groups. Collect written statements as you see fit.

Error detection activities are a beneficial addition to the aural skills classroom. While other common activities focus on either turning symbol into sound (sight-singing) or sound into symbol (dictation), error detection synthesizes sound and notation and offers a deeper understanding of the relationship between the two. Incorporating these error detection activities or creating your own will allow students to grapple with common mistakes made in sight-singing and dictation and practice a skill that is directly applicable to their future lives as performers, conductors, and educators.

STUDENTS SEE:

Flute

Bass Clarinet
in Bb

Fl.

B. Cl.

STUDENTS HEAR:

Fl.

B. Cl.

Fl.

B. Cl.

Figure 29.3 This exercise uses *Shepherd's Hey* by Percy Grainger and focuses on rhythm and articulation errors. The errors in this exercise are located on the students' score (parentheses show location of discrepancy between the two versions) while they hear a correct performance.

Bibliography

- Byo, James L. and Deborah A. Sheldon. 2000. "The Effect of Singing While Listening on Undergraduate Music Majors' Ability to Detect Pitch and Rhythm Errors." *Journal of Band Research* 36 (1): 26–46.
- Davis, Stacey. 2010. "Error Detection in the Aural Skills Class: Research and Pedagogy." *Journal of Music Theory Pedagogy* 24: 37–67.
- Karpinski, Gary. 2000. *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians*. New York: Oxford University Press.
- Sheldon, Deborah A. 2004. "Effects of Multiple Listenings on Error-Detection Acuity in Multivoice, Multitimbral Musial Examples." *Journal of Research in Music Education* 53 (1): 102–115.

30

IN SEARCH OF HIDDEN TREASURES

An Exercise in Symphonic Hearing

Daniel B. Stevens

Topic: Apply active listening techniques to perceive large-scale harmonic design.

Goal: Students will be able to identify chromatic harmonies and modulations, large-scale harmonic structure, and pose meaningful questions about a whole piece or movement.

Background: Competency in chromatic harmonies (spelling and function) and the ability to sing simple patterns while listening are prerequisites to this activity. Ability to aurally perceive formal design is useful but not necessary.

Harmonic listening in aural skills classes often focuses on phrase-length progressions. By contrast, this lesson plan focuses on the harmonic design of whole pieces, which can be as important and meaningful as the harmonies at the surface. I present an active-listening exercise in which students sing along with music they hear, participating in the music as an orchestra member might. By engaging creatively in the musical experience and matching external sounds to internal patterns that they understand, students can develop the ability to follow by ear the large-scale harmonic structure of whole pieces or movements. While developing this technique takes significant time and practice, this exercise in “symphonic hearing” (Stevens 2016a) provides a blueprint that instructors and students can build from in other classes and listening experiences.

The listening strategy utilized in this lesson builds on the Do/Ti Test, by which students identify diatonic harmonies based on the guide tone (GT) (*Do*, *Ti*, or *Re*) with which they are consonant (Rahn and McKay 1988).¹ When students sing GTs while listening to major-mode pieces, the resulting GT line provides a linear construct for identifying and organizing *Do*-chords (I, IV, vi), *Ti*-chords (V, vii^o, iii), and the *Re*-chord (ii).² Students who can also perceive chord quality and function while singing GTs can often identify diatonic harmonies quickly and accurately without needing to dictate outer voices. Consequently, this technique is applicable to hearing real music, whose outer voices may be too ornate or inaudible to be useful for identifying harmonies. The use of GTs can also be readily adapted to hearing chromatic harmonies and modulations, as I demonstrate in Stages I and II of this lesson.

The Andante from Mozart’s Piano Concerto No. 21 in C Major, K. 467 is the exquisite centerpiece of this lesson.³ The movement’s slow tempo provides students adequate time to practice singing the GT figurations developed in Stage I, and the harmonic twist that occurs at the return of the opening theme, discovered in Stage II, raises questions about musical structure and meaning that we will consider in Stage III. Accompanying this chapter are several online Supplemental Materials, including an annotated score of the movement with hideable layers containing harmonic

and GT analyses, a student handout, and additional analytical figures. The timepoints given in this chapter refer to Artur Schnabel's 1937 recording of the movement, made with the London Symphony Orchestra under the baton of Malcolm Sargent. A recording with time counter (in seconds) is found at <https://vimeo.com/320347015>.

Stage I: Identifying Chromatic Harmonies Using GT Figurations

GT figurations are simple, improvised patterns that students can use to identify and distinguish diatonic and chromatic harmonies. I instruct students to build GT figurations around the GT line by starting and ending the pattern on the pertinent GT. GT figurations should incorporate the most distinctive note(s) of the chromatic harmony in a manner that is concise, musical, memorable, and singable. In Stage I, students can use the space provided on the handout to notate figurations for each of the chromatic harmonies. I encourage my students to use both staff notation and solfège so they can train their ears to hear both the unique pitch collections that form each harmony and their relationship to the local tonic. Figure 30.1 provides suggested GT figurations for the first four chromatic harmonies of the movement; more GT figurations are provided on the annotated score in the Supplemental Materials.

solfège: *Do Te Do* *Do La Fi Do Me Do* *Do Me Do* *Ti La Si Ti*

notation: 

F: V/IV vii°/V V vii°/vi

Figure 30.1 Selected guide-tone figurations.

This stage of the learning process is directly relevant to hearing and interpreting the large-scale harmonic design of the movement. For students to be able to navigate the modulations in Stage II, they must first develop the ability to recognize and identify the pitch collections of chromatic harmonies.

When implementing this method over the course of several weeks and musical works, instructors may wish to start with movements that feature fewer chromatic harmonies and unusual modulations than Mozart's *Andante* from K. 467. This movement contains a moderate amount of chromatic harmony and modal mixture and should not be considered an entry-level work. Less-complex works are suggested in the Supplemental Materials. If class time is at a premium, it is sufficient to work through the chromatic harmonies in the first section of the piece (0–168s; mm. 1–35).

As students create GT figurations, I walk around and check whether their improvised figurations fit the harmony they are hearing and provide corrections when needed. If their figuration is correct but incomplete, I encourage them to layer new improvisations over their original until they have discovered and incorporated that harmony's unique pitches into their pattern (see Figure 30.2 in the Supplemental Materials).

At this stage of the listening process, students may already notice some interesting harmonic and formal features of Mozart's movement, including the prevalence of mode mixture and the elimination of the ritornello's minor-inflected dominant expansion (48–77s; mm. 12–16) and closing subphrase (77–101s; mm 17–22) from the piano's repetition of the opening.

Stage II: Identifying Modulations and Harmonic Design Using GT Modulations

In Stage II, students build on the GT figurations developed in Stage I by reassigning scale-degree designations to specific notes of their figurations (often a GT in the home key) in order to move from one tonal center to the next. I call this technique “GT modulation” in order to distinguish it from the modulation schemes they may have learned in harmony class. The goal of this stage is for students to develop and master all the GT modulations required to follow the modulations that occur in the middle section of Mozart’s *Andante*.

Before we begin, I remind students that middle, development sections of three-part structures are usually the most harmonically adventurous.⁴ These sections can reinforce, expand, explore, or destabilize the opening tonic by moving through tonal centers that are closely or distantly related to the home key. As listeners, their job is to be prepared for anything, including getting lost! Despite their best efforts to follow the trail created by the composer, they should expect to lose the harmonic scent every once in a while. Rather than be discouraged, they should realize that these challenges are part of the game. The harmonic surprises that are most difficult to track can help them identify places in the score that are worthy of close study.

The fact that modulations occur frequently in middle sections justifies treating chromatic chords as pivots to new key areas *unless* the music provides signals to remain attached to a particular tonic for an extended time. These signals may include thematic returns (mm. 66–67), increased energy or harmonic-textural instability (mm. 37–40), a sudden shift away from a modulatory pattern or gesture (mm. 62–65), or the use of harmonic expansions (mm. 45–49) or cadential gestures (mm. 41–44) in a particular tonal area. Students should also note that GT modulations are heuristic listening strategies and do not necessarily imply “textbook” modulations, which typically need to be confirmed with a cadence. Rather, students should use GT modulations to track their changing perception of pitch and scale-degree relationships while listening. Later, students might return to the observations made while listening to develop an interpretation of the section’s formal and harmonic design.

While middle sections can leave many listeners feeling adrift in a strange sea, listening strategies can help them find a tonal mooring. First, students should develop the habit of preparing for the modulation often made at the very beginning of the middle section. Over time, students should memorize a collection of GT-modulation schemes that they can apply at this critical formal juncture so that they do not lose track of the local tonic right from the start!

solfège: *Do* *Ti→Re* *Do* *Ti* *Do*

notation: 

F: I d: vii° i

Figure 30.2 Suggested guide-tone modulation for m. 36.

Figure 30.2 shows a GT modulation that students can use to track the modulation at the transition to the development (165–177s; mm. 35–37). In this modulation, the note that is *Ti* in the home key (E) becomes (“→”) *Re* in the new key, effecting a modulation to the submediant (D minor). I recommend constructing GT modulations around tonic-centric GTs in the home key (*Do*, *Ti*, *Re*, *Te*, *Di*, *Ra*), but there are times when it is musically advantageous to do otherwise (e.g. 266–276s and 329–329s; mm. 57 and 72). Suggested GT figurations and modulations

for the entire movement are annotated on the score in the Supplemental Materials. Throughout this stage, I encourage students to develop their own GT figurations and modulations, as there are many possible ways of hearing through the development's harmonic plan. Like other Classical-era composers, Mozart uses a limited number of modulation schemes to move between tonal centers. Thus, mastering a handful of modulation schemes allows students to follow the tonic through the development section of this piece and others like it. As students use active listening to map out the harmonic design of this section, they can usually annotate the thematic structure as well.

Finally, students can learn a third strategy: the harmonic area that signals the middle section's close and the impending return to the opening theme and key area (the retransition) is usually in the dominant of the home key. This fact has a high strategic value, given how commonly composers include their most complicated or surprising harmonic moves at or near the retransition.

It is at the retransition's end that we find the first hidden treasure in Mozart's Andante. Students who have tracked the harmonic design of the middle section to this point will find themselves in the expected place: a short harmonic repose on C major, the dominant of the home key (330–332s; m. 71). However, after reducing the texture down to a melodic line around the dominant pitch C, Mozart adds a chromatic turn whose upper neighbor (D $\flat$) pivots the tonal center to the flat submediant (A $\flat$ major) at the reprise of the opening section. This unexpected key center is highly unusual and profoundly startling; yet, it is often lost to listeners who do not have absolute pitch, as it was to me for many years.

The off-tonic return creates an additional challenge for students, who may be used to relaxing back into the original tonic at this moment. How does Mozart effect a modulation from A $\flat$ major back to F major? As students apply the GT modulations in the modulatory passage (366–380s; mm. 79–82), they may discover that this passage also summons the repetition of the dominant-prolongation and closing subphrase originally omitted from the piano (380–430s; mm. 83–87). Having not entirely worked out the darker elements associated with the mode mixture, the piano repeats the chromatic ascent in the bass before proceeding directly to the final perfect authentic cadence (PAC) in the home key. Having fully addressed and resolved the tension between major and minor, the piece is able to achieve closure with a short coda (460–487s; mm. 99–104).

Once students have navigated through the modulations of the Andante's middle section and discovered the harmonic twist at the reprise, they are ready to embark on the final stage of their journey: to search for answers to the many interpretive questions this moment raises. Why does the movement recapitulate in A $\flat$ major? How is this tonal area prepared, and how does it relate to other elements of the piece? What musical problems or processes precipitate this non-tonic reprise, and how does the reprise address them?

Questions such as these are a powerful springboard for further discussion. By raising them, students indicate that they understand the harmonic structure and are ready to pursue deeper analysis. These questions are unlikely to be raised and difficult to address if students lack listening strategies applicable to movement-length works. Providing time within a curriculum to develop contextual listening can enable students to develop meaningful questions and interpretive insights that situate salient moments in broader contexts.

Stage III: Musical Detective Work

In the final stage, students are challenged to explore *why* Mozart breaks expectation with a non-tonic reprise. Because structural deviations from the norm typically admit a variety of explanations, I encourage students to be creative and generate as many possible explanations as they can by considering various elements (e.g. form, texture, themes, motives, chromaticism, register) in isolation and in combination. Like inquisitive musical detectives, students search for clues that can help them find the treasures buried deep in Mozart's Andante.

Motivating students to move beyond reductionistic explanations of the A♭ major return can be the biggest challenge for instructors at this stage. How might instructors help students move beyond simplistic explanations (e.g. “A♭ major is *just* the relative of F minor,” or “The A♭ major reprise is *only* another use of mixture”) toward more holistic interpretations? One way is to map out the main key areas and structural dominants on a bass staff to show how the A♭ major return creates a large-scale bass arpeggiation through F minor (see Figure 30.3; all remaining figures are in the Supplemental Materials).⁵ This deep-level arpeggiation represents a motivic repetition of the surface-level arpeggios in the opening bass line and theme, a repetition that sharpens the contrast between major and minor modes from the musical surface to its deepest background. In other words, the A♭ major return subverts the easy-going major modality of the opening at the deepest structural level.

Further inquiry may be motivated by the idea that pieces do not usually create sources of musical tension, such as a multi-level modal conflict, without establishing some process by which tension can be resolved and a satisfying close achieved. In Mozart’s Andante, the A♭ major return is motivated in part by a process that begins in the movement’s opening measures.

As Figure 30.4 illustrates, Mozart’s theme opens the space of a fifth with an ascending arpeggio, then fills this space with a descending scale, and then reverses direction with a chromatic scalar ascent that continues until m. 7 (F5–F♯5–G5–G♯5–A5). Remarkably, this ascent is interrupted at A5. The theme continues by touching briefly on C6, the presumed goal of the chromatic ascent, before continuing the ascent a full two octaves lower (A2–B♭2–B♯2–C3). When the piano repeats the theme, Mozart widens this register gap, inserting three octaves between the beginning and end of the chromatic ascent. In mm. 12–17, the chromatic ascent is followed by descent from 6̂ to 1̂ in the parallel minor. The broken chromatic line (mm. 2–11) and mixture (mm. 12–17) suggests subtle musical problems of significant consequence: how will the theme manage to fill in the tonal space from A5 to C6 to complete the chromatic ascent in the correct register, and how will Mozart resolve the tension between F major and minor?

Once presented with these questions, students are often able to discover a new reason for the A♭ major reprise, namely that it makes it possible for Mozart to fill the gap with a chromatic ascent from A♭5 to C6. This insight provides students an opportunity to rethink the tonal relationships they have considered throughout the process. For instance, students may see the A♭ major return as caused by a thematic process set in motion long before the reprise. Others may recognize that the GT modulation leading into the reprise, in which *Sol* (C) in F major becomes *Mi* in A♭ major, sets in place the conditions by which C6 can serve as the goal of a chromatic ascent from A♭.

Still more delightful treasures await. Having set up a perfect way to complete the chromatic ascent by a repetition of the opening theme in A♭ major, Mozart coyly avoids the ascent from B♭5 to C6 by modifying the theme (338–363s; Figure 30.5). The diversion amounts only to a delay, as the remainder of the ascent occurs during the following modulation back to F major (364–380s). The GT modulations from A♭ major back to F major mirror the structural chromatic ascent in the melody.

Having accomplished the chromatic ascent from F5 to C6 that began at the movement’s opening, Mozart gives the piano a sequential pattern over the minor-inflected dominant pedal (384–407s). He breaks the pattern at 405s, extending the long process of thematic completion with a charming gesture foreshadowed in m. 19: a chromatic ascent from C5 up to F5, which completes the entire chromatic scale!

Conclusion

If we want our students to go beyond the basics of simple harmonic analysis to find the hidden treasure in the music they study, perform, or hear, we must provide them the tools applicable to entire movements, not just short didactic examples.⁶ This example lesson is intended to illustrate

techniques and strategies that students can apply to understanding large-scale harmonic design by ear. This approach enables students to perceive tonal structure not as a set of harmonic building blocks but as a dynamic space within which they can explore unique musical pathways. Applying these techniques, students can learn to practice *listening* through passages much as they might practice *performing* them. I have found that, given tools appropriate to the task and time to master them, students are quite capable of hearing and understanding large-scale harmonic design. Their reward is the ability to pose and address the deeper questions that will inform their artistic decisions and enrich their listening for the rest of their lives.

Notes

- 1 The Do/Ti Test resources in the bibliography provide a useful introduction to the guide-tone method on which this lesson is based. While these materials are recommended to readers unfamiliar with this harmonic-dictation method, this chapter can be implemented and understood without reference to them. The Do/Ti Test presumes moveable-*do* solmization and *do*-based minor.
- 2 When applying the Do/Ti Test in the minor mode, the guide-tone *Te* is introduced to identify VII, III, and v.
- 3 Charles Rosen writes rhapsodically about this movement, noting that its form “is so individualized that we have no words with which to categorize it” (Rosen 1997, 238). While I agree with Rosen that the movement’s formal design does not wholly fit any of the traditional archetypes, I will nevertheless refer to the middle section as a development.
- 4 The development of Mozart’s Andante, K. 467, is particularly lovely in that he introduces two new themes (mm. 37–44 and 62–65).
- 5 While considering deep-level bass arpeggiations may be foreign to many students, it is quite natural for students who are well experienced at tracking large-scale design.
- 6 For information and strategies for aligning course design and assessment with overarching objectives, see Wiggins and McTighe (2005).

Bibliography

- Alegant, Brian. 2014. “On ‘Scuba-diving,’ or the Advantages of a Less-is-More Approach.” *Engaging Students: Essays in Music Pedagogy* 2.
- Rahn, Jay, and James R. McKay. 1988. “The Guide-Tone Method: An Approach to Harmonic Dictation.” *Journal of Music Theory Pedagogy*, no. 2: 101–111.
- Rosen, Charles. 1997. *The Classical Style: Haydn, Mozart, Beethoven*. Expanded Edition. New York: W.W. Norton & Company.
- Stevens, Daniel. 2016a. “Symphonic Hearing: Mastering Harmonic Dictation Using the Do/Ti Test.” *Journal of Music Theory Pedagogy*, no. 30: 111–174. <https://jmtpp.appstate.edu/symphonic-hearing-mastering-harmonic-dictation-using-doti-test>.
- Stevens, Daniel. 2016b. “The Do/Ti Test Handouts.” *Journal of Music Theory Pedagogy Resources*. <https://jmtpp.appstate.edu/doti-test-handouts>.
- Wiggins, Grant, and Jay McTighe. 2005. *Understanding by Design*. 2nd ed. Alexandria: Association for Supervision and Curriculum Development.

31

AN AURAL SKILLS INTRODUCTION TO TWELVE-TONE MUSIC

Dallapiccola's "Vespro, Tutto Riporti"

David Geary

Topic: Twelve-tone analysis.

Goal: Students will be able to analyze dodecaphonic pieces through a three-step process: determine the row, identify its prominent features, and examine its musical realization.

Background: Students should be familiar with basic set theory, pitch transformations, and the elevated role of intervals in much twentieth-century music.

The diversity of musical styles from 1900 to present offers post-tonal music theory instructors the opportunity to expose students to a variety of repertoire and techniques within a single semester. Comprehensive exposure, though, entails keeping a number of more traditional topics such as set theory and twelve-tone analysis among the group. In an effort to make the latter more intellectually accessible and musically relevant, this lesson plan is an introduction to dodecaphony with zero score analysis. Instead, activities such as contextual listening and melodic dictation provide the input for identifying pitch and formal features that, in turn, become the foundation for narrative analysis. Though originally created for an aural skills course, the lesson can also be implemented in the written theory classroom – since aural analysis and contextual listening have a place in both settings.

Centered around Luigi Dallapiccola's "Vespro, tutto riporti" from his *Cinque Frammenti di Saffo* (1942), the day's goal is a piece-specific analysis through a three-step process that can be readily applied to other twelve-tone works. As a song with two rows each containing tonal references, one for the soprano soloist and another for the orchestra, it is an ideal exposition to the musical possibilities of serialism. I typically complete this lesson in 30–40 minutes – and, therefore, precede it with a few atonal warm-up activities – but it can easily be expanded to an entire 50-minute session. In order for students to be most successful, it is recommended that they are already familiar with basic set theory and pitch transformations. Another particularly important prerequisite is that students grasp the elevated role intervals play in a variety of atonal repertoires. Awareness of the presence, absence, continuity, and change of specific intervals and motivic cells in post-tonal music is analogous, though not identical, to identifying chords and tracing harmonic syntax in tonal works.¹

After announcing the lesson's new topic, I begin class by asking students to define and describe what they know about twelve-tone music. This allows me to correct any common misconceptions from the outset – most often that dodecaphony is mechanical and unmusical – and approach the

subject with a clean slate. I then define serialism for the group as a *technique* where a predetermined order of the 12 chromatic pitches serves as the basis for compositional choices. This establishes serialism as a creative method, not a musical style. In other words, many different styles can be written with the single technique. I often cite a few composers such as Schoenberg, Carter, Dallapiccola, Stravinsky, Webern, and Babbitt as examples of how musicians can adopt the single compositional approach and create unique pieces. Some even cast doubt on the all-encompassing accuracy of my admittedly broad definition!

In order to set up the remainder of the lesson, I quickly outline the three-step process that we will use to analyze twelve-tone music in class, today Dallapiccola's "Vespro, tutto riporti," as well as on homework assignments and exams. I also tell students that my pedagogical goal is for the method to help provide them tools for analysis, strategies for listening, grounds for making performance decisions, ideas for their future teaching, and possibilities for their own compositions. Step one is to determine the piece's row. This can be accomplished either aurally through dictation or visually with a score – both important skills to develop. Step two is to examine the row and identify any interesting attributes, including recurring intervals, repeated trichordal or tetrachordal prime forms, and contour patterns. Recognizing non-pitch characteristics is also encouraged, such as "Vespro, tutto riporti" having two rows performed by separate instrumental groups. The third step is to explore how the row's features are or are not highlighted throughout the particular work. Similar to step one, this can include both contextual listening and score analysis. In sum, the student's analytical task is to identify the musical possibilities of the row and investigate how they are realized in the composition.

I have found that providing a few hypothetical examples helps students better grasp the analytical method and its potential utility. For instance, a row can be constructed entirely with half steps and major thirds. Those two intervals have very different sounds, and a composer can choose to emphasize one, the other, both, or neither for an entire piece or in different formal areas. Another possibility is that a row can divide the aggregate into the two whole-tone collections, using notes from WT_0 in the first hexachord and notes from WT_1 in the second. A composer can state the row melodically, sounding like a regular alternation of the two collections. Alternatively, a composer can set the row as a contrapuntal duet where the two hexachords are played simultaneously, creating a dramatically different soundscape. The point to emphasize with these hypotheticals is that there are few limits to the makeup of a row and its compositional execution.

Defining serialism and describing the analytical steps should be thorough but brief. I take about five minutes in my class. The remainder of the lesson is a group analysis of Dallapiccola's "Vespro, tutto riporti," where we practice the process as a whole before students are asked to replicate the process individually with other pieces in the future.² In my experience, it is always best to demonstrate successful analysis before placing the same expectations on students individually. We first read the text and English translation together in order to grasp the general narrative of the song:

<i>Vespro, tutto riporti,</i>	Evening, you bring back everything
<i>Quanto disperse la lucente aurora:</i>	That shining dawn dispersed:
<i>Riporti la pecora,</i>	You bring back the lamb,
<i>Riporti la capra,</i>	You bring back the goat,
<i>Riporti il figlio alla madre.</i>	You bring back the son to his mother.

Asked to describe the general plot of the poem, the students identify a pastoral setting where the protagonist, a mother, sings to the evening as the lamb, goat, and son return home.

Next, we listen to the whole two-minute song while the text and a few guiding questions are projected on the screen. (Figure 31.1 is a piano-vocal reduction of the score for the reader's consultation.) I have found that including concrete listening objectives, as opposed to no specific

Largo (♩=38-40)

CANTO

espressive, ma semplice
mf *< p*

Ves - pro, tut - to ri - por - ti quan - to di - sper - se la lu -

espressive, ma semplice
(imitando) **mp** *m.s.* *m.d.* **p** **p**

Riduzione per PIANOFORTE

poco f; sost *(poco)* **mf** **mp** **p** **p**

(poco)

6 **mf** **p**

ce - - - te au - ro - ra: ri -

tr (leggeriss.) *sost.* **p** **mp** **p**

10 **mf**

por - ti la pe - co - ra, ri - por - ti la cap - ra, ri - port - ti, ri - por - ti il

p ; imitando **ppp** **pp** **mp** **mf**

dolce **mp** *(poco)* *cresc.*

14 **f** *meno f* **p** **pp**

fi - glio, ri - por - ti il fi - glio al - la ma - dre.

express. **f** *meno f* **p** **pp**

quasi f *dim. molto* *molto p* *(poco)* **p** **pp**

Figure 31.1 Piano-vocal reduction of Dallapiccola's "Vespro, tutto riporti."

directives, makes optimal use of class time and proves to be highly rewarding for the students. I provide three prompts:

1. What is the song's overall form? (*Hint: pay attention to how the text is segmented*)
2. What instrument pairs with the soprano in the beginning, and what is the compositional technique? Is this technique repeated later in the song; and if so, with what instrument(s)?
3. There are two rows in this song – one for the soprano and one for the orchestra. What interval is emphasized in each row?

After the recording is complete, we discuss their responses. Most students can answer question one and the first half of question two, fewer students can answer the second half of question two, and often none can answer question three. The song's form is a five-part rondo with two sung sections surrounded by a repeating instrumental ritornello: mm. 1–2 (A), 3–7 (B), 8–9 (A), 10–16 (C), 17–20 (A). Aligning with the poem's grammatical division, the first vocal phrase states lines one and two of the text and the second phrase declaims the remaining three. For question two, section B has a canon between the soprano and flute. The group typically agrees that the canon continues in section C but they understandably struggle to identify all the specific instruments – the oboe, E♭ clarinet, violin, B♭ clarinet, viola, and flute. Posing question three is typically met with silence in my classes. It is a purposefully challenging question, and in many ways their inability to correctly identify intervallic features of the two rows is preferable. It incites curiosity. I use this as a segue to suggest that we dictate the beginning soprano melody in mm. 3–5 in order to figure it out.

Dictations can be tricky; atonal dictations can be very tricky. Therefore, it is important to strike an appropriate balance between difficulty and achievability. It is also important to keep the primary learning objectives in mind. Since this lesson is an introduction to twelve-tone analysis, not a workshop on melodic dictation, I gravitate toward making the activity more accessible through guiding prompts before hearings and gradually revealing parts of the melody. Prior to the first hearing, for example, I provide the pitches, but not their rhythms, for the downbeats of m. 3 and m. 5. After a first hearing with the recording and one or two more at the piano, I often notate the excerpt's rhythm above the staff in order to steer focus toward the notes. After the third or fourth hearing, at which point the students tend to have the melody memorized, I ask them to sing back the final measure on “la” and identify the type of sonority they arpeggiated – a diminished triad. Once the harmony is established, I play the first and second measures in isolation in order to aurally highlight how they, too, are fully diminished seventh chords. Playing in time and sustaining the notes, I omit the fourth pitch in m. 3 to create the C–E♭–G♭–A harmony, pause for a moment, and then play the E–G–B♭–D♭ tetrachord in m. 4. Once students realize that the melody is composed of diminished triads and fully diminished seventh chords, I play two more hearings for them to transfer this realization into the actual pitches. We conclude by performing the melody as a two-part canon on ordered pitch-class intervals (OPCIs) in order to mimic the soprano-flute duet. OPCIs is an intervallic solmization system where students sing the number of half steps between adjacent notes in pitch-class space. (If students are unfamiliar with an atonal solmization system, such as OPCIs, they can sing on a neutral syllable.)

The abovementioned steps for guiding students through the dictation are also purposeful in order to foreshadow our second step for twelve-tone analysis – identifying unique features of the row. When asked to pinpoint its prominent features, students quickly and confidently verbalize what they have already aurally identified and vocally produced: the soprano's row emphasizes minor thirds and diminished sonorities. Next, we switch focus to the orchestral row in order to determine its key attributes. Instead of leading students through another dictation, though, I play the instrumental introduction in mm. 1–2 at the piano twice and ask them to articulate its most aurally salient pitch feature. The first hearing is played as it sounds on the recording. Then,

prompting the students to identify its repeating interval, I play the first ten notes as isolated pairs. Often happily surprised by the task’s accessibility, students quickly recognize that the row is a series of perfect-fifth dyads.

At this point, I project Figure 31.2 on the screen which shows annotated versions of both rows. This allows students to visually refine their aurally identified observations. Seven of the soprano’s eleven adjacent intervals are interval-class (IC) 3 and its three-part partitioning creates two sc(0369) tetrachords and one sc(036) trichord. The orchestra’s row has six, not five, perfect-fifth dyads, where the sixth is formed between A $\sharp$ and E $\sharp$. Seeing Figure 31.2 also helps students identify more features. First, the orchestral sonority on beat 4 in m. 2 – which concludes all of the instrumental ritornelli – is three stacked fifths, which can also be interpreted as a C $\sharp^{9/13}$ chord. Second, students may also notice, though it is not annotated, that the soprano row has octatonic subsets: the first five pitches from OCT $_{2,3}$ and the remaining seven from OCT $_{1,2}$. Third, both rows have a single “embellishing” pitch. The soprano’s B is an upper-neighbor to the first fully diminished seventh chord’s A, and the orchestra’s E is a lower-neighbor to the sixth perfect-fifth dyad’s E $\sharp$. Another attribute highlighted through the annotations is that two of the soprano’s four non-IC3 intervals are perfect fourths, the inversive equivalent of the orchestra’s perfect fifths. It is likely that students will not notice all of these characteristics. Teachers can choose to let the students’ observations alone drive the analysis or to highlight them as a way to further underscore Dallapiccola’s craftsmanship.

Steps one and two are now complete. Students know the two rows in “Vespro, tutto riporti” along with their main pitch attributes. Step three prompts students to take this knowledge and treat it as the foundation for creating a more holistic narrative analysis. Adding the song’s text and translation to Figure 31.2 on the screen, I ask students to form small groups and find ways to match features of the rows with aspects of the song. I typically provide a few guiding questions to get them started: how are the two rows stated formally throughout the piece; can the two rows be interpreted as representing different characters or elements of the poem; and do the specific intervals emphasized in each row aurally depict these images, people, or ideas? In addition, if groups develop their interpretations quickly, I ask them to take their analysis a step further and request that they link their theoretical ideas with how they might choose to perform, conduct, or teach this piece.

Soprano Row:

Orchestra Row:

Ordered Pitch-Class Intervals:

3 3 5 2 5 3 3 3 11 3 3

Measure 2, Beat 4:

C $\sharp^{9/13}$

Figure 31.2 Annotated soprano and orchestra rows in Dallapiccola’s “Vespro, tutto riporti.”

After about five minutes of discussion, we reconvene as a whole and each group shares some of their ideas. Their creative and insightful analyses often carry the entire discussion and I act as a moderator – perhaps rephrasing a few statements or playing an excerpt of the song to reinforce a point. If the class needs some analytical reinforcement, however, here are three ideas that all come from my past students. First, the formal divisions of the song parallel the presence of the two rows, alternating the orchestral and soprano rows for each section of the five-part rondo. The song's cyclic form is analogous to the regular, daily alternation of day and night. Second, the soprano row can be interpreted as representing the narrating mother and the orchestral row embodying the evening – the intangible “audience” of the parent's soliloquy. The diminished sonorities appropriately symbolize the mother because she is anxiously awaiting the return of her son. Alternatively, the perfect fifth's openness and hollowness aptly correspond with the eerie, quiet, and spacious night. Finally, the canon between the soprano and other instruments can be thought of as either a metaphorical or literal chase between the mother and son – not an uncommon occurrence with small children.

These are just a few of many possible analytical interpretations for “Vespro, tutto riporti.” There are equally as many ways that these readings can inform performance decisions, conducting choices, and teaching strategies specific to the song as well as provoke ideas that can influence student's compositions, improvisations, and audio mixes. When the groups are providing their analytical ideas, I often ask them to describe how their insights can positively influence these other musical activities. As a single example, a musical theater major in one of my classes once presented a detailed series of staging directions for the song. He was so captivated by the activity that he analyzed the remaining four songs of *Cinque Frammenti di Saffo* in order to continue his creation.

I conclude the lesson by summarizing the day's two main points. First, dodecaphony is a compositional technique, not a musical style, and Dallapiccola is just one of many twentieth-century composers who exemplifies serialism's creative potential. Second, the three-step analytical process – identify the row, identify its features, and identify its musical realization – is an effective way to study twelve-tone pieces. Not only can it help illuminate individual works, it also generates insights that can inform other musical activities such as listening, performing, conducting, teaching, and composing. Hopefully today's class helped clarify or illuminate for the first time these points and future classes of our twelve-tone module will continue to strengthen them both.³

Notes

- 1 See other chapters of this book for more information on post-tonal instruction, including Chapters 32–37 and Chapter 68.
- 2 I choose Dallapiccola's song as my first twelve-tone example for two reasons. First, it aims to correct any student biases that, to put it in terms I have heard firsthand, all serial music is dissonant, inaccessible, and bad. To the contrary, Dallapiccola explicitly and regularly draws upon tonal expectations and references in his post-tonal works. Relatedly, the second reason is for pedagogical practicality. Beginning with an aurally familiar piece gives students the ability to focus explicitly on absorbing the new analytical process. As a result, students are more likely to be successful with future analyses of less aurally familiar pieces after they become comfortable with the method.
- 3 The following three pieces are appropriate for more twelve-tone analysis using this lesson's three-step process: Luigi Dallapiccola, *Goethe Lieder*, No. 2, “Die Sonne kommt”; Alban Berg, *Kammerkonzert*, Second Movement; and Arnold Schoenberg, Op. 27, No. 1, “Unentrinnbar.”

PART V

Post-Tonal Theory



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

32

SETTING SETS ASIDE

Prioritizing Motive, Text, and Diversity in Post-Tonal Analysis Courses

Michael Buchler

This chapter is divided into three parts: in the first, I identify some potential issues with common pedagogical approaches to twentieth- and twenty-first-century (especially atonal) concert music; in the second part, I share a sample assignment (on the fifteenth song from Schoenberg's *Pierrot Lunaire*) that offers a variety of interpretive questions aimed at leading our students to productively explore atonal music. The third part offers additional thoughts about how broadening our methodologies can also help us broaden the repertoire we cover. Perhaps ironically, a re-examination of how we teach Arnold Schoenberg's early atonal music will serve as my catalyst for discussing curricular diversity and expansiveness.

Part I: What Is (and Isn't) Commonly Practiced after the Common Practice?

"Nacht," the eighth song from *Pierrot Lunaire*, is surely one of the most frequently taught compositions in post-tonal analysis courses (and in the units of our core theory courses devoted to atonality). It is easy to see why this song is such a popular pedagogical choice: with extraordinary motivic and harmonic consistency, "Nacht" affords us a nearly ideal springboard to demonstrate pervasive organic unity in a short song. But a rarely acknowledged problem with teaching "Nacht" is that the song's obsessive use of a single melodic motive (intervallically, $\langle +3, -4 \rangle$; emblematically $\langle E, G, Eb \rangle$) in various permutations reflects neither Schoenberg's 1912 typical compositional practice nor even a pervasive musical technique exhibited by *any* of the other 20 songs of *Pierrot Lunaire*. Students whose *Pierrot* exposure is limited to "Nacht" often come away with erroneous stereotypes about *Pierrot Lunaire* in particular and Schoenberg's (and perhaps all) early atonal music in general.

Moreover, as I argued in Buchler (2017), when our analytical methodology primarily engages set theoretical – especially prime form/set class – labeling, we feed overly rigid conceptions of musical equivalence and relatability. I won't recapitulate all of my earlier arguments on why teaching set classes to undergraduates can be a mistake, but when students come away thinking of "Nacht" as an "[014] piece" or even an "[014] and [016] piece," they often miss the specific musical relationships: that [014] is usually expressed melodically as $\langle +3, -4 \rangle$ ($\langle +m3, -M3 \rangle$) or $\langle +3, -8 \rangle$ or even $\langle -4, +3 \rangle$ (all of which are permutationally related) and that [016] is generally realized harmonically as so-called "Viennese fourth chords" (three-note harmonies with one perfect fourth and one augmented fourth).¹

One problem of teaching set classes too soon is that many students gravitate toward clear labels and they often apply these easy-to-construct designations before truly understanding what musical information/material we forfeit when we make the a priori decision (or assumption) that

transposition and inversion form musical equivalences and that register, instrumentation, and a host of other musical properties do not (or even should not) affect our labels.

When I teach “Nacht” (and I still do), I ask students to look for the most specific way they can relate various musical gestures to one another, engaging as many musical parameters as possible. Absent the “[014]” label, it is easy to draw connections between “Nacht” and earlier imitative music (e.g. J.S. Bach’s inventions) or even to presage the permutational techniques that Schoenberg took up more than a decade later when he started composing musical serially.

But I recently stopped assigning written homework on “Nacht” exactly because it is such a textbook example – a textbook example of an uncommon compositional practice.² Other musically exceptional theory-class chestnuts include “Diminished Fifth” and “From the Isle of Bali” from *Mikrokosmos* or the violin duet “Song of the Harvest,” which are all that some students know of Bartók, who, in fact, rarely wrote octatonic music. And “Mode de valeurs et d’intensités” from *Quatre Études de Rythme* forms some students’ ideas of Messiaen, who rarely employed serial and permutational techniques. Ives’s song “The Cage” is almost singularly systematic in his output, using primarily quartal and quintal harmonies and whole-tone melodic segments while avoiding quotation. The third movement of Ruth Crawford Seeger’s String Quartet 1931 is far more static than most of her repertoire.

These are all fine teaching pieces, but I would wager that they are typically selected more to demonstrate exceedingly clear examples of their signature compositional techniques than to expose students to their respective composer’s style (or range of styles). Of course, there is nothing inherently wrong with choosing pieces to clearly demonstrate compositional techniques: most people who teach tonal music analysis classes also do exactly that. We all cherry-pick. But shouldn’t we tell students when we cherry-pick or when composers we study undergo stylistic shifts in later (or earlier) periods? Are we primarily concerned with teaching systematic compositional technique distilled to its purest forms or with preparing our students to navigate the broad and often confusing landscape of modern and contemporary music?

I have two primary pedagogical concerns regarding the units or courses we teach on modern music. First, courses that entirely examine music where all the compositional pieces seemingly fall into place will not effectively teach students to navigate today’s broad compositional landscape, where organic unity is arguably venerated less than it was. (And, in my mind, the “arguably” can dually apply to the questions of whether today’s music is less organically constructed and, more so, to whether organic unity was *ever* a predominant compositional preference during the twentieth century.) Second, courses that focus heavily on pitch and pitch class likely will not sufficiently lead students to understand the manifold ways in which musical structure can be read.

I have one other concern: does the predominance of set-class analysis and its concomitant bias toward organic unity feed the ever-strengthening academic/administrative push to create courses with clear assessment strategies and testable content?³ Michiel Schuijjer raised this important point in the last chapter of his 2008 book, *Analyzing Atonal Music: Pitch-Class Set Theory and Its Contexts*. Schuijjer reads the introduction of pcset theory to the undergraduate classroom as a distinctly American project that resonates with our cultural/scholarly reverence for systematic and even “scientistic” methodologies (Schuijjer 2008, 268). If my own campus is at all emblematic, I believe that the American academy’s (read: administrations’) desire for pedagogical content that can be tested and evaluated with relative objectivity has only increased in the decade since Schuijjer wrote his book. And perhaps that will continue to lead us away from teaching the more humanistic aspects of our field.

Pcset theory employs clear labels and is neatly testable, which is a double-edged sword. It can be beneficial if enough class time is spent to contextualize the subjective musical decisions that one tacitly makes when creating set classes. But who has enough time to do that in what always seems to be a busy and packed undergraduate theory curriculum? Without proper context, set-class labeling squelches analytical discussion. I will return to this point in the third part of this chapter.

Part II: A Model Assignment for Schoenberg's "Heimweh" from *Pierrot Lunaire*

In setting the scene for my assignment on *Pierrot*, I usually do something like this: in class, I play "Nacht" for my students and ask them to locate and track the central $\langle +3, -4 \rangle$ motive. Twenty minutes of group work is plenty of time to allow students to discover the motive's ubiquity and it is easy to explain how concepts of pitch and pitch class are necessary to fold together all the manifestations/permutations of $\langle +3, -4 \rangle$ and to formally explain their readily heard relatedness. We also talk about text: students always enjoy hearing about those giant black butterflies that obliterate the sun's light. I mention that Schoenberg was fascinated with numerology and that he thought of the 21 songs of *Pierrot Lunaire*, his op. 21, as forming three sets of seven and that the first song of each set acts as something of a pillar. "Nacht" holds a special place as the first song of the second set of seven. So what did he do for the first song of the third set? "Heimweh" ("Homesickness") is the fifteenth song in *Pierrot* and, though it shares stylistic similarities with "Nacht," it lacks that song's systematization. *Pierrot Lunaire* is an expressionist landmark and I tell my students that one of the goals of the expressionism was to produce unfiltered expressions of the deepest and darkest corners of our soul – not exactly an objective that jibes with musical systematization or the employment of well-worn formal models (Haimo 1996, 168–169). Schoenberg often wrote quickly in this period, but that does not mean that his work lacked formal shape or his motives were unrelated. However, motives, harmonies, and gestures throughout his early atonal period tend to be more loosely associated than in "Nacht."

Here are the five central questions from the assignment on "Heimweh" that is due the class after I introduce *Pierrot Lunaire*:

1. What are some characteristic gestures/motives in this song? Define at least three distinct gestures/motives and cite at least six instances of each of them. It is fine to cite non-literal repetitions as long as you say what is different.

Note: Gestures or motives can be defined by a distinct set of pitches (or pitch classes), intervals (or interval classes), contour, rhythms, articulations, or perhaps by some other salient musical feature. The more musical parameters you can use to define the motives or gestures you identify, the better.

2. Are each of your motives/gestures native to a single instrument or the voice or do they get passed from musician to musician like a dialog? In a few sentences, describe Schoenberg's orchestration of the motives/gestures.
3. What two or three intervals are most salient in Schoenberg's piano chords? Cite at least ten examples of harmonies (not limited to those performed on piano) that clearly project these intervals.
4. Describe some ways in which Schoenberg specifically set (painted) the text and mood of this poem. Feel free to discuss any musical parameter (pitch, timbre, register, rhythm,...).
5. This poem features some textual recurrences, but the poetic repetitions are not set with exact musical repetitions. What changes and what does not? Describe the similarities and differences. Do the changing musical settings alter the poetic meaning? If so, how?

Before sending students off to complete the assignment on their own, we particularly discuss question #1 in class. Neither "motive" nor "gesture" is defined consistently or authoritatively in the analytical literature (and especially not in the pedagogical literature), but they are both terms that are intuitively familiar to students and both connote short ideas.⁴ I find that some students respond more readily to one term than the other. I do not claim that they are entirely synonymous: "gesture," for example, probably connotes some degree of embodiment. However, students often harbor a more restrictive notion of what a motive is or can be (e.g. they often think of it one

dimensionally, including only pitch or pitch class or rhythm) and they often struggle with how to define a motive, whereas “gesture” seems to suggest a greater degree of interpretive freedom. While I generally prefer my definitions to be crisp in a theory class, there is also something to be said for those ambiguities that elicit a greater range of student responses.

As a helpful hint, I point my students toward the violin’s first three *arco* notes in the first full measure, telling them that this is surely one such recurring gesture (motive). On the first score page alone (Figure 32.1) this gesture appears multiple times. How might we describe this gesture in order to bolster what seems like an obvious claim of relatedness? Students invariably point out the rhythmic profile of <♩, ♪, and then a longer note>, the contour <high, low, medium> (or <2,0,1>), and the fact that this gesture generally serves an initiating role, occurring at the beginnings of longer melodic segments.

In abwechslungsreicher Bewegung (♩ = 56-70)

Klarinette in A.

Geige.

Rezitation.

Klavier.

frei

etwas rasch

stave.

weaker example of the motive

zögernd.

initiating motive

arco

pizz.

f

p

pp

In abwechslungsreicher Bewegung (♩ = 56-70)

In abwechslungsreicher Bewegung (♩ = 56-70)

f

p

Kl. (A)

G.

p dolce

p

sehr zart

Lieblich kla - gend - ⑤ ein krystall - nes Seuf - zen aus I -

pp

Figure 32.1 Schoenberg, *Pierrot Lunaire*, “Heimweh,” mm. 1–5.

These characteristics are all good analytical facilitators. I try not to do too much detailed analysis on the day I introduce *Pierrot*, preferring to see what observations students bring to the next class. Both rhythm and contour invite student debates over how to define that initiating motive. Rhythmically, is it okay simply to leave the length of the third note undetermined? Most students answer that question in the affirmative. After all, on the first page of the score, the long note (see the dark boxes on Figure 32.1) is 6.5 beats (violin), then 1.5 beats (voice), then 1.5 beats (violin), then 1.25 beats (clarinet).

Another question the students debate is whether the clarinet's initiating gesture (end of m. 1) forms an instance of the motive. It has the right contour (<high, low, medium>), but both the rhythm and articulation differ from the other instances in mm. 1–5. What about the first three vocal notes in m. 5 (“ein Krystall[nes]”), which retrogrades the initial <♩, ♪> rhythm? I encourage us not to settle on a single definitive answer. If some students counted one or both of them and others didn't, it simply means that they defined the motive differently. This, after all, is why I have them define the motivic features rather than doing it for them.

When we speak about contour, students often suggest a kind of hybrid motivic definition that includes contour and interval, the likes of which would be difficult to formalize. To wit: in each of the first four clear instances of the motive, the first interval differs, with leaps down by 8, 2, 9, and 7 semitones, respectively. However, in most of the cases the third note lies a whole step below the first note (only in the vocal instance does the third note lie a semitone below the first note – but how seriously must we take intervals in the voice part when *Sprechstimme* offers performers license to approximate?). Indeed, throughout the piece the first and third notes of this motive are usually separated by one or more often two semitones. So, perhaps entering a pure contour space (where only relative intervals matter) underdetermines the character of this motive. Again, three of the reasons that I have stopped teaching set classes (prime forms) to undergraduates are that (1) I want them to argue over what constitutes motivic equivalence; (2) I want them to have fluid ideas of the various musical categories we teach; and (3) if a student approached this piece and immediately started naming set classes, they would discover that the initiating gestures discussed (including the clarinet's) are members of [026], [024], [012], [013], and [027], respectively. These five (of the twelve) different trichord classes project a range of different interval classes, which does nothing to reflect the musical similarities that are readily apparent by ear and by eye.

This particular motive is manifest in a wide variety of ways in “Heimweh,” not all of them as clear as what happens at the beginning. Figure 32.2 shows mm. 8–9; the voice part in m. 8 begins with the familiar <♩, ♪> rhythm, but the pitch contour is retrograded to <medium, low, high>. One measure later, Schoenberg's setting of the word “sentimental” could be heard as a melismatic form of the retrograded motive, but that requires being flexible enough to understand the C# between the initiating note and the nadir as effectively passing, a claim that is especially easy to support given the *portamento* marking.

Ironically, the less specifically I articulate an analytical methodology for atonal music, the more robustly my students tend to discuss assigned pieces in detail. Identifying central motives and their variants is an especially good way to have students explore surface features, which they can then parlay into form analyses. Of course, questions 4 and 5, which inquire about Schoenberg's text setting, also have formal implications. Indeed, song texts often suggest formal readings more strongly than do motivic concerns, though both are important to discuss and they are frequently correlated. Likewise, question 2, which invites students to consider the ways that musical material is used in a dialogical style, should also lead to considerations of overall structure. Importantly, focusing on motive, text, and their interaction can help emphasize that form may be construed in a variety of different ways and that those are not always reducible to block sections with capital letters (**A-B-A** being the favorite). Casting clear formal categories as neither

8

Kl. (A)

G.

G-Saite - - - - - D-Saite -

f molto *espress.* *p* *s*

rot so höl - zern, so mo - dern sen - ti - men - tal

contour reversed contour reversed; intermediate note

Figure 32.2 Schoenberg, *Pierrot Lunaire*, “Heimweh,” mm. 8–9.

integral nor necessarily desirable to modern music analysis is, to my thinking, both reflective of the expressionist aesthetic and it opens a fruitful path forward toward understanding the varied music of our own time.

Part III: Thinking Outside the Box? Stop Thinking about Boxes

To many of our students, music theory is inextricably linked with taxonomy. We often put things into boxes: harmonies, sets, and large- and small-scale forms all come in pre-packaged types. To a certain degree, categorizing and naming is what we do as music theorists and it is valuable work inasmuch as taxonomy allows us to draw connections between and among the musical works we study. However, a class like post-tonal analysis is also an ideal place to let students know that not all pieces can be neatly categorized and, furthermore, that categorization does not fulfill all the goals of analysis.

I am not advocating that we radically rethink and entirely reject our collection of boxes. I do *not* believe that set theory is (necessarily) an example of what Paulo Freire famously called a *Pedagogy of the Oppressed*, where students are viewed as mere vessels for information and true discourse and creative thought is discouraged. But if we are not careful, set theory *can become* the oppressor that Freire warned us about. Despite the all-too-frequent administrative calls for clear assessment strategies, we should be wary of pedagogies that ask questions whose answers are too easily evaluated as right or wrong. We should guard against instantiating (especially with multiple confirming examples) forms and ideals of organic unity that are not pervasive in the literature. It is easier to advocate for these things than to put them into action, but we should be mindful that critical thinking is squelched when answers are too clear.⁵

For me, one of the central goals of music analysis is arriving at a carefully crafted reading of a composition: what are its most salient or interesting elements and how do they work with and in opposition to one another to create larger structures? My favorite class meetings are the ones where I enter thinking that we’ll discuss *a*, *b*, and *c* and instead the students steer the class toward, say, *a*, *d*, and *e*. The balance between holding the reins to keep a class “on track” and ceding complete creative control is difficult to get right – as is the balance between asking questions with clear answers and those that rely upon subjective interpretation. The more advanced my class, the less I feel the need to steer it (both in class and within assignments), but it is important to recognize that

beginning students can also contribute richly, especially when they are not explicitly told what elements are most important.

By putting less emphasis on both organic unity as an expectation and on the kinds of methodologies that venerate the “work of genius” aesthetic, where a piece of music is shown to be brilliantly interconnected, with all the pieces of the puzzle fitting just so, we can also facilitate a far more important goal: that of diversifying our repertoire and the composers we cover.⁶ So-called modern music classes often place tremendous weight on the beginning of the twentieth century: especially on carefully selected works by Debussy, Schoenberg, Bartók, and Stravinsky, and on their traced lineages and movements. Two decades into the twenty-first century, shouldn’t students be learning considerably more music written during their lifetimes? Studying recent music is surely a way to increase its presence in concert halls.⁷

Happily, the compositional landscape is more diverse now than at probably any other time in modern history and it is diverse both musically and in the genders, races, ethnicities, identities, and nationalities of people who now exercise their compositional voices. We owe it to our students to teach courses that project a broad compositional landscape. It is not only musically honest and more reflective of the times in which we live but also critical in sending the implicit message that anyone can be a composer (or a theorist... or simply a musician).

Reducing or eliminating the obsession with organicism is facilitated by reducing or eliminating set-class theory from our undergraduate curriculum – or, at least, contextualizing it carefully so that students don’t see it as a neutral technique but rather an analytical decision to fold together a host of musical parameters in an effort to find deep-level similarities that might not be obvious on the musical surface. Where such similarities *are* obvious, one ought to be able to express them more specifically. We can employ familiar musical expressions to reflect the manifold ways that two musical segments resemble one another. Students often instinctively see set classes and prime forms as mathy (conflating math with numerical representation) and therefore highly specific. But set-class specificity is not – and is not intended to reflect – surface-level musical specificity. If, like me, you feel that you cannot carefully contextualize set classes in an introductory undergraduate class without omitting topics and repertoire, you might be better off leaving this technique for another course.

Though the upper-level undergraduate analysis course at Florida State University is called “Twentieth-Century Styles,” each time I teach it I incorporate a greater amount of twenty-first-century music (now about one quarter of the course). My graduate-level Advanced Atonal Theory and Analysis course, which uses but de-emphasizes pcset theory (which is a mainstay of the course’s pre-requisite), examines entirely twenty-first-century music. Again, this is not simply a matter of staying current, but of including the greatest possible diversity of composers. I used to be guilty of tokenism: of teaching one or two pieces by women and/or non-white composers; shifting toward current compositional practice (and away from organic unity) makes it far easier to better represent the current population of composers. There is no better or easier place for us to expose students to compositional diversity than in our courses on “modern” and post-common-practice music.

Notes

- 1 For a particularly good example of how the central melodic motive in “Nacht” can be taught without set classes, see Straus (2016, 28–31).
- 2 See Haimo (1996), especially pp. 168–69 for a more detailed discussion of Schoenberg’s compositional practice during his early atonal period.
- 3 I further discuss the relationship between set-class analysis and organicism in Buchler (2017).
- 4 I do not, for example, take this opportunity to expose them to Robert Hatten’s (2004) excellent, but tonally oriented, writing on (and definitions of) gesture.

- 5 For broader suggestions about creating an “engaged pedagogy,” see bell hooks (2010), particularly Chapter 3 (19–22).
- 6 Diversification of repertoire is a goal we see discussed often, most recently in Joseph Straus’s excellent and helpful essay in *The Norton Guide to Teaching Music Theory* (Straus 2018, 80–81), an essay I largely agree with, notwithstanding the aspects of pcset theory that he weaves in and I would purge. Indeed, I believe that lowering our expectation of organic unity helps us achieve a number of the other goals that Straus suggests: “Less theory, more music;” “talk less, do more;” expand the aural components; relating analysis to performance; and “plung[ing] right in.”
- 7 Nancy Rao (2018) also compellingly made the case that one of the best ways to foster a more diverse population of music theorists is to diversify the methodologies we employ and the repertoire we examine. She referred to the “exterior and interior of diversity” as, respectively, the people who do music theory and the content of our curricula. Perhaps one of the reasons music theory (or, more broadly, “classical” concert music) is disproportionately white and male is that our curricula often reinforce notions of what music and what approaches to music matter.

Bibliography

- Buchler, Michael. 2017. “A Case Against Teaching Set Classes to Undergraduates.” *Engaging Students* 5. (<http://flipcamp.org/engagingstudents5/essays/buchler.html>)
- Haimo, Ethan. 1996. “Atonality, Analysis, and the Intentional Fallacy.” *Music Theory Spectrum* 18(2): 167–199.
- Hatten, Robert S. 2004. *Interpreting Musical Gestures, Topics, and Tropes: Mozart, Beethoven, Schubert*. Bloomington: Indiana University Press.
- hooks, bell. 2010. *Teaching Critical Thinking: Practical Wisdom*. New York: Routledge.
- Rao, Nancy Yunhwa. 2018. “The Difference that Difference Makes” (Faculty Roundtable), Diversifying Music Academia: Strengthening the Pipeline Conference, San Antonio, TX.
- Roig-Francolí, Miguel A. 2017. “A Pedagogical and Psychological Challenge: Teaching Post-Tonal Music to Twenty-First-Century Students.” *Indiana Theory Review* 33/1–2: 36–68.
- Schuijjer, Michiel. 2008. *Analyzing Atonal Music: Pitch-Class Set Theory and its Contexts*. Rochester, NY: University of Rochester Press.
- Straus, Joseph N. 2016. *Introduction to Post-Tonal Theory*, Fourth Edition. New York: W.W. Norton.
- Straus, Joseph N. 2018. “Ten Tips for Teaching Post-Tonal Theory” in *The Norton Guide to Teaching Music Theory*, edited by Rachel Lumsden and Jeffrey Swinkin, 79–87. New York: W.W. Norton.

TEACHING AND LEARNING EARLY TWENTIETH-CENTURY TECHNIQUES AT THE KEYBOARD

Lynnsey J. Lambrecht

Topic: Keyboarding activities for early twentieth-century techniques courses.

Goal: Provide students with an aural and kinesthetic understanding of concepts.

Background: Understanding of keyboard and typical post-tonal prerequisite knowledge.

Learning music theory by experiencing concepts through sound and active music making is essential to current pedagogical approaches. Assimilating music making activities to enrich student learning, specifically at the keyboard, can be accomplished in a course that focuses on early twentieth-century techniques and analysis as part of the undergraduate core curriculum or an introductory graduate-level course. The application of keyboarding activities that address early twentieth-century topics will deepen student learning and retention, as well as make techniques more attainable to students of diverse learning preferences by providing an aural and tactile reference. Approaching early twentieth-century concepts with the keyboard creates a musical alternative to the numeric, abstract combinations that are so common in a post-tonal classroom.

Michael Callahan's article, "Teaching and Learning Undergraduate Music Theory at the Keyboard: Challenges, Solutions, and Impacts," demonstrates successful implementation of the integration of keyboarding activities in the undergraduate curriculum (Callahan 2015). Callahan writes that

keyboard work stands to make the learning process active, aural, and creative; to pave, for students with aural and kinesthetic learning preferences, paths to success in a subject laden with visual and logical structures; and to draw explicit links between music-theoretical learning and the performance, listening, and compositional activities that it informs.

Callahan argues that keyboarding activities must be designed around pedagogically worthwhile tasks that are not only playable by non-primary pianists but also technically simple enough to enable them to focus on the concepts rather than hand facility. This approach to the incorporation of keyboarding activities provides a foundation and justification for the creation and application of keyboarding assignments in a post-tonal classroom.

The following examples are keyboarding activities an instructor can assign as homework to introduce and reinforce concepts in the early twentieth-century curriculum, and they are just a sample used to demonstrate the viability of using the keyboard in a post-tonal course. Students should play and record the exercises, and submit their recordings for assessment. Each activity can be tailored to meet your specific goals for student learning, and many of the activities, such as scales, idioms, and improvisation, are meant for student engagement without any notation.

Rather, students are encouraged to look at the keyboard as a means to gain a visual, kinesthetic, and aural understanding of the concepts. These representative activities at the keyboard provide students with the opportunity to creatively explore and apply post-tonal techniques.

Several aspects from the scholarship of teaching and learning have influenced the development, design, and sequencing of these materials, including Bloom's Taxonomy of Learning, Universal Design for Learning, and educational scaffolding. Objectives are set for each keyboarding activity to foster optimal student learning. These keyboarding activities provide students with multi-modal access to early twentieth-century concepts, as students will be able to access the techniques through sound, image, and tactile feeling. All of the activities can be adjusted to enable students with physical disabilities to complete the tasks. For example, the idioms can be arpeggiated or rolled, and students may sing one line while playing the other. These keyboarding activities can work with a flipped model approach by serving as the introduction in which students would have their first engagement with a concept by playing it at the keyboard. For instance, once students have interacted with the material at the piano, and this understanding would be built into a large project that applies the concept, such as model composition or analysis, during class time.

Six primary concept areas of an early twentieth-century techniques course lend themselves particularly well to keyboarding activities: diatonic collections, harmonic textures, symmetrical collections, set theory, twelve-tone serialism, and characteristic composer techniques.

Scales and idioms at the keyboard are incorporated for diatonic and symmetrical collections. Simply hearing and gaining command over playing modes and symmetrical collections can help students become familiar with the melodic content of centric organization in early post-tonal music. The learning objective for the incorporation of scales and related exercises is that students will build tactile and aural assimilation with diverse post-tonal pitch collections. If students are primary pianists or motivated students, they are encouraged to play octaves in each hand for scales and sing along with one of the lines. Figure 33.1 includes scaffolded exercises derived from the



Figure 33.1 Whole-tone scales and idioms including scale played in octaves, augmented triads, and alteration of augmented triads with complete whole-tone collections.

whole-tone collection that students play without seeing any notation. They will gain command over the whole-tone scale, progress to augmented triads built on the scale, and then alternate between playing augmented triads and the complete whole-tone collections. Once students gain command over the melodic and vertical sonorities included in the whole-tone collection, they can transfer their knowledge to analysis of repertoire that uses the symmetrical pitch collection, such as Charles Ives' "The Cage" #64, from *114 Songs*.

Recomposition at the keyboard can take many approaches, including melody reinterpretation and harmonization using new concepts from the early post-tonal curriculum. This type of activity will draw upon short phrases that can be familiar or new to students. Students manipulate and reconstruct the melodies to incorporate concepts learned through idioms and improvisation activities. Figure 33.2 includes the melody of *Simple Gifts* that an instructor provides to students. Students then can reconstruct the melody and add counterpoint or a chordal accompaniment that utilizes one of the pitch collections studied in the course. Two sample solutions are provided; one is recomposed using a whole-tone collection (WT_0) and one is realized with an accompaniment using a hexatonic collection ($HEX_{3,4}$). A learning objective for this activity is that students will recompose familiar melodies using post-tonal pitch collections. Following this activity, students can address what went into the process of recomposition in a reflection paper or small group discussion. The instructor can provide prompts to facilitate thoughtful reflection, including topics



Figure 33.2 *Simple Gifts* recomposition activity prompt and potential student solutions using symmetrical collections and melody harmonization activity utilizing WT_0 and $HEX_{3,4}$.

such as how the preservation of contour balanced with the choice of collection for pitch content or what effect the collection had on their perception of tonic. This type of reflection can help students connect the recomposition activity with other analysis and listening that they are doing in the course.

Below is a list that can be distributed as a handout to students that includes scales and idioms based on the octatonic collection. These are sequenced and scaffolded to enable students to successfully progress to more challenging keyboarding activities. A printable handout of this assignment is included in the Supplemental Materials as Online Figure 33.3, and notated realizations of the following exercises based upon the octatonic collection can be found in the Supplemental Materials as Online Figure 33.4.

Select one of the unique octatonic scales (OCT_{01} , OCT_{12} , or OCT_{23}). Record all of the following activities in separate tracks on your chosen octatonic scale without writing out any notation.

- a. Play the octatonic scale starting on any pitch in parallel octaves, ascending and descending one octave.
- b. Play the octatonic scale beginning with a different starting pitch than used in the previous exercise and sing the pitches at the same time using pitch-class integers.
- c. Play the octatonic scale in contrary motion between the two hands, ascending and descending one octave from the starting pitch.
- d. Play the octatonic scale starting on any pitch in canon between two hands, at the interval of a tenth.
- e. Play all of the minor thirds formed by the octatonic scale starting on any pitch, ascending and descending one octave. Double the lowest note of the minor thirds with your second hand or by singing the note.
- f. Play all of the major thirds formed by the octatonic scale starting on any pitch, ascending and descending one octave. Double the lowest note of the major thirds with your second hand or by singing the note.
- g. Play all of the minor triads formed by the octatonic scale starting on any pitch, ascending and descending one octave. Double the lowest note of the minor triad with your second hand or by singing the note. Feel free to add a repeating figuration or rhythm to your triads.
- h. Play all of the major triads formed by the octatonic scale starting on any pitch, ascending and descending one octave. Double the lowest note of the major triad with your second hand or by singing the note. Feel free to add a repeating figuration or rhythm to your triads.
- i. In one hand, alternate minor triads and first inversion major triads formed by the octatonic scale, ascending and descending one octave. Double the root of each triad in your second hand or by singing the note. Feel free to add a repeating figuration or rhythm to your triads.
- j. Play all of the diminished seventh chords formed by the octatonic scale starting on any pitch, ascending and descending one octave. Double the lowest note of the seventh chords with your second hand or by singing the note. Feel free to add a repeating figuration or rhythm to your triads.

Chord idioms provide students with the opportunity to develop an aural and tactile image of harmonic techniques used in early twentieth-century music. Students will see an example of a harmonic technique and be asked to transpose it to a set number of starting pitches. Early twentieth-century concepts that work well as keyboard idioms include quartal harmonies, quintal harmonies, extended tertian chords, altered dominants, split-member chords, added-note chords, polychords, and parsimonious chord transformations. A learning objective for keyboarding idioms is that students will build tactile and aural assimilation with diverse post-tonal harmonic textures. Several post-tonal textbooks are organized to have chapters devoted to these topics, which easily

allows these keyboarding idioms to be seamlessly incorporated into topics already taught. Primary pianists and motivated students can add rhythmic figurations to the harmonies and play them beginning on all twelve pitches. These keyboard activities include transposition to enable students to assimilate techniques and concepts built upon many notes, as opposed to just learning a melody or harmonic structure in an isolated event. Notated realizations of these chord idioms can be found in the Supplemental Materials as Online Figure 33.5.

Guided improvisation provides students with opportunities to apply the concepts they have internalized and to create new music without creating an overwhelming challenge. Improvisation relies on the scaffolding of activities such as scales and harmonic idioms to enable the students to be successful. For guided improvisation, establish parameters such as length and texture (chords in one hand and melody in the other hand). Provide a few measures of a potential ostinato and motivic melody so that the students can continue their study of harmonic textures or pitch collections.

Students should be directed to first play through the provided examples. Following this, they improvise their own melodies of eight to twelve measures over the provided left-hand accompaniment. Students have the option to create their own ostinato patterns that fit within the same framework, and they are encouraged to add other musical elements such as changing meters, different registers, dynamic shadings, and various tempo changes. A learning objective for these activities is that students will improvise an eight to twelve measure melody over a repeated ostinato in the left hand within the bitonal framework. Students should be encouraged to maintain a steady tempo and go directly into consecutive strains of improvisation without delay. Students who are well-versed in improvisation can be encouraged to shape large-scale forms over the repeated strains, create their own ostinato patterns below the improvisation, or to vary the provided ostinatos. An example of a guided improvisation prompt that you can provide to students can be found in the online resources as Online Figure 33.6.

Another aspect of keyboarding in the early twentieth-century curriculum includes playing pieces that are accessible to non-primary pianists and feature techniques used by prominent composers. Bartók's *Mikrokosmos* etudes, such as #81 "Wandering" from Vol. 3 and #101 "Diminished Fifth" from *Mikrokosmos* Vol. 4, are representative of different styles and are accessible to students. Selected works can build into an analysis, debate, and discussion during class time, or these pieces can fold into a discussion of a larger piece that utilizes the techniques featured in the smaller, accessible composition. An instructor can tailor and build upon these compositions by having the students play both parts and sing one part on letter names, solfège, or pitch-class integers. A learning objective for playing repertoire pieces is that students will build aural and tactile assimilation with selected repertoire of the post-tonal canon that demonstrates targeted techniques. By playing selected compositions, students can use this as a way of answering analytical questions about the pieces such as form, melodic content, and alterations.

Model composition at the keyboard provides students with an opportunity to creatively explore post-tonal collections and generate a musical creation that demonstrates their command of techniques. To guide a model composition activity, an instructor can analyze a composition with students such as Bartók's "Diminished Fifth" from *Mikrokosmos* Vol. 4, #101. As a group, students can extract features of the composition that are indicative of the piece and then use these features/aspects in their own compositions. The instructor can direct the efforts of the students to consider providing their own tempo, introduction, phrase extensions, additional phrases, motivic repetition/development, or coda. Reserving class time to feature and perform model compositions will motivate students to create substantial projects and expand their command of the concepts. In addition to playing and reviewing the compositions together as a class, students could be asked to present, write, or discuss what features they modeled and which ones they changed. An instructor must provide musical license to the students by acknowledging degrees of freedom for student

expression without undermining the basic aesthetic values of the techniques and concepts that are being studied. Enabling students to incorporate and understand license in model composition will help them realize the relationship between stylistic compositional rules and free composition, as well as provide a context for the appearance of creative licenses in repertoire that is utilized throughout the course.

Keyboarding activities can also aid in students' understanding of sets and twelve-tone row serialism. Playing sets at the keyboard ensures that students are hearing the melodic line and contour, rather than just counting pitch-classes. This hands-on approach, coupled with the auditory image created by playing the sets, enables the students to obtain a deeper understanding of the techniques used. One accessible example that contains an inverted set is Bartók's "Subject and Reflection" from *Mikrokosmos*, #141. By playing the first phrase at the piano, students will see and feel the mirroring effect between the two hands for a tactile and visual understanding of how the inversion process works. A potential keyboarding activity to aid in the understanding of twelve-tone serialism is to provide the students with a tone row and have them play through transformations of the row. The tone row should be extracted from a piece that the class will analyze together to allow for the direct application of the row. Another example from the repertoire to help students develop an understanding of twelve-tone techniques is movement II from Webern's *Variations*. Students can play through the pitches slowly by reducing the notes in each hand to one octave, removing the rhythm, and maintaining the inversional relationship of the lines. After doing this, they can play the melodies simultaneously to discover the relationship of the two rows.

The value of incorporating keyboarding activities into the early twentieth-century classroom is evident. Student learning and proficiency are heightened through music making, multi-modal approaches, as well as lasting aural and tactile references. All of the materials assembled for keyboarding activities in an early twentieth-century course can be tailored to meet the needs of individual students and each unique cohort. The materials can be adapted to computer software based on the resources available at each university, and these materials can be applied to composition seminars and individual lessons for students. Students invest time working with the concepts which enables them to gain command of techniques that are applicable to larger analysis and composition projects.

Bibliography

- Callahan, Michael. 2015. "Teaching and Learning Undergraduate Music Theory at the Keyboard: Challenges, Solutions, and Impacts." *Music Theory Online* 21, no. 3. www.mtosmt.org/issues/mto.15.21.3/mto.15.21.3.callahan.html.

34

STARTING THE TWENTIETH CENTURY WITH A BANG!

A Lesson Plan for Whole-Tone Scales in *Tosca*

Christopher Doll

Topic: Introduction to whole-tone scales, and layering of differently sized scales.

Goal: Students will learn what a whole-tone scale is and how to recognize one in real music. They will also learn how whole-tone, diatonic, and chromatic scales can be integrated simultaneously, and how such integration works in relation to the dramatic elements of the first act of *Tosca*. This lesson may also be used to set up discussion of integer notation and equal division of the octave.

Background: Ability to recognize keys, diatonic scales, chromatic scales, triads, seventh chords, harmonic functions, and enharmonic equivalents, and a basic understanding of prolongation (or equivalent term).

Giacomo Puccini's *Tosca* serves as a natural introduction to a post-1900 theory class, where I have used it repeatedly (or as a closing to a pre-1900 theory class). The opera premiered in Rome in January 1900, making it one of the first musical masterpieces of the twentieth century. Although Puccini's immensely popular (populist?) work has not always been among the most highly regarded by critics – Joseph Kerman (1988) said of the “shabby” (205) *Tosca* that its “musical texture...is consistently...of café-music banality” (15) – the work does in fact display some of the more progressive experimental techniques associated with twentieth-century art music, in particular the combination of diatonic and chromatic scales with whole-tone scales.

This lesson plan presents two brief sections from the first act of *Tosca*, its opening five measures and its last seventeen. Attention is given first to the opening, where incomplete whole-tone and chromatic elements combine, set in juxtaposition with an ensuing diatonic passage. When the leitmotif returns at the end of Act I, its whole-tone scale is completed, and it is fully integrated into a diatonic context.

I begin the class by framing the twentieth century as a new era in musical techniques, and though *Tosca* is a popular canonical piece, with roots still very much in the nineteenth-century, it also exhibits some newer ideas. I then play an excerpt for them of the very opening of the opera, accompanied with the score, which is reduced in Figure 34.1 to just the string parts. I focus solely on the strings and vocal lines throughout this class, leaving off the wind, brass, and percussion doublings, so that students have an easier time following the score. (A copy of the reduction is available in the Supplemental Materials, along with links to recordings.)

Next, I ask students about the story the music has painted so far, despite there having been no words. Either by eliciting from them, or providing them with, the observation that the score

Andante molto sosto. $\text{♩} = 69$ chromatic: D-E-B-E *tutta forza* E *Vivacissimo con violenza* $\text{♩} = 168$

Violini

Violen

Violincelli

Contrabbassi

BbM AbM EM

whole-tone scale in boxes: C-D-E-(missing G $\flat$)-Ab-Bb

diatonic G minor

uniti

Figure 34.1 Tosca, Act I, Opening, Strings.

presents two contrasting ideas, I point out the relative conventionality of the G minor section (two flats being the key signature from the very opening), then the unconventionality of the preceding three chords, B $\flat$ M–A $\flat$ M–EM. The initial, loud, powerful three-chord gesture is in fact a leitmotif for the villainous chief of police, Scarpia, while the hurried, agitated G minor music depicts an escaped political prisoner on the run, Angelotti. A link to a synopsis of the entire opera is provided in the Supplemental Materials.

Just as Scarpia operates outside the law, so too does his leitmotif break the diatonic laws of a key with two flats – or any key, for that matter. I have students identify this tonal problem with regard to the bass roots B $\flat$ –A $\flat$ –E: even if the first two chords were part of one key (with at least three flats), they still would not fit with E. Rather, these bass roots articulate part of a whole-tone scale, the entire six-note set being C, D, E, G $\flat$, A $\flat$, B $\flat$. The chordal thirds, D–C–G $\sharp$, nearly complete this set, but since G $\sharp$ doubles as A $\flat$, we are still one note shy; more on the missing G $\flat$ /F $\sharp$ later. (The missing note, G $\flat$ /F $\sharp$, does appear in measure 5, but by that point we are no longer in a whole-tone context.) The chordal fifths, F–E $\flat$ –B, might be considered part of a different (complementary) whole-tone scale, but this is never fully realized, and is never made salient in the passage. Rather, the fifths seem to fulfill a role in defining the individual chords themselves, shaping these sonorities into familiar triads even without grounding in a diatonic setting.

Once the contrast between diatonic and whole-tone scales has been established, I have the students look further into the melodic aspects of the Scarpia leitmotif. In Figure 34.1, the top instrumental voice articulates D (the third of B $\flat$ M)–E $\flat$ (the fifth of A $\flat$ M)–E (the root of EM). This prominent ascent (with registral shift, or timbral shift from violins to cellos) adds a distinctively chromatic flavor to the passage, even though there is nothing like a complete chromatic scale present. Along with the whole-tone elements, this little chromatic line participates in the sinister side; it is set apart from the prisoner’s more virtuous diatonicism starting in measure 4. The emphasis on musical contrast here – whole-tone and chromatic sounds on the one hand, and diatonic on the other hand – helps convey the power dynamic between the dominant Scarpia and his vulnerable prey.

At this point in the class, I skip to the end of Act I, where Scarpia delivers a monological aria detailing his dastardly plans to kill the painter Cavaradossi and to bed his beloved, the singer Tosca; this part begins around 38:25 in the YouTube recording linked in the Supplemental Materials. Scarpia’s monolog occurs in a cathedral while a choral performance of the “Te Deum” begins around him, sung by a procession of clergymen. See the reduction in Figure 34.2 (this very ending part starts around 41:44 in the YouTube recording). The procession’s sacred, monophonic tune is pure E $\flat$ major (note the three flats in the key signature), but when it comes to rest on the dominant

"Te Deum" (choir and brass)

chromatic: G#---A---Bb

Scarpia leitmotif

tritone transposition

EM---DM---BbM

diatonic EbM: V-----V7---I!

completion of whole-tone scale: C-D-E-F#-Ab-Bb

Figure 34.2 Tosca, Act I, Closing, Reduction.

pitch B $\flat$, Scarpia's profane leitmotif interrupts, temporarily suspending the unambiguous diatonism with the three whole-tone/chromatic triads B $\flat$ M–A $\flat$ M–EM. Students can easily identify this gesture here, and will notice that it now is heard three times, twice in its original form, and the last time transposed by a tritone, forming EM–DM–B $\flat$ M. Asking what this transposition does to the original whole-tone collection, I lead students to the realization that the previously incomplete C, D, E, G $\flat$, A $\flat$, B $\flat$ scale has now become fully realized: the missing G $\flat$ /F $\sharp$ from the original transposition of the leitmotif arrives as the chordal third of DM, while the remaining roots and thirds are duplicates of the roots and thirds of the initial version. In other words, the roots and thirds of all of Scarpia's triads stick to a complete C whole-tone scale. With this tritone transposition also comes a new chromatic ascent in the upper instrumental voice: G $\sharp$ –A–B $\flat$.

Just as remarkable as the completion of the whole-tone scale is the recontextualization of the leitmotif into the diatonic framework of E $\flat$ major. Because the leitmotif begins on a B $\flat$ M triad just as the “Te Deum” descends to the dominant pitch B $\flat$, and the leitmotif *ends* on a B $\flat$ M triad with the tritone transposition, the entire non-diatonic excursion can be understood as a prolongation of (or “standing on”) the dominant of E $\flat$ major. To further emphasize the new diatonic context of the leitmotif, the last B $\flat$ M triad is repeated as a dominant seventh (playing off the leitmotif's bass motion of B $\flat$ –A $\flat$), which gives way to an accented, *sforzando*, *tremolo*, quadruple-*forte* crash of the resolving E $\flat$ M tonic. A shower of audience applause usually follows this over-the-top ending. (Populist indeed!)

Given the immense popularity of this “café music,” and the typically favorable reactions to these excerpts by students in my classes, I find value in dwelling on how Puccini is able to integrate these whole-tone, chromatic, and diatonic elements without making it all sound incoherent and strange. The answer lies in the careful layering of these scales. On the surface are the short chromatic fragments of D–E $\flat$ –E and G $\sharp$ –A–B $\flat$, both landing on important chordal roots in the highest voicings. In a more abstract middleground of chordal roots and thirds resides the complete C whole-tone scale. Operating at the background is the E $\flat$ major diatonic scale, asserting control over everything else. No doubt, it is the familiarity of the governing diatonism that makes the entire package so comfortable for listeners.

Regarding dramatic purpose, it is less clear *why* these three scalar types combine at this precise moment. Since their juxtaposition at the beginning of the opera is so clearly suited to conveying contrast between two characters, it is reasonable to speculate that something different is happening with regard to character at the end of the act. Yet there is only one main character present during the scalar combination, Scarpia himself. I find that students will often feel free to speculate themselves as to the dramatic purpose, and I like to cultivate the idea that there is no single correct interpretation of this passage. However, if discussion falters (or if the instructor feels compelled to offer an answer), I suggest reading the religiosity of the diatonism as a foreshadowing of the event ending Act II – to wit Scarpia's murder at the hands of the righteous Tosca, who famously

covers his corpse with a cross. This is to say, Scarpia's whole-tone and chromatic scales at the end of Act I are pressed into the service of the heavenly "Te Deum" in order to suggest that Scarpia must ultimately answer to his maker, conflicting with the last line of his monolog (right before Figure 34.2 begins): "Tosca, you make me forget God!"¹

While the opening bit of music from Act I occurs before there is anything on stage, the procession at the end of Act I is quite a visual spectacle. I therefore like to show a video of a staged production of this portion in class (YouTube link starting at 42:13). Time remaining, I also play the *Tosca* scene from the 2008 James Bond film *Quantum of Solace*, in which Act I's ending statement of Scarpia's ominous leitmotif is intercut with Bond's first face-to-face encounter with the movie's main villain, Mr Greene. (As seen in the YouTube clip, the end of Act I is followed immediately by the end of Act II, when Tosca murders Scarpia, intercut with a gunfight between Bond and the villains.) This is not simply a fun distraction; I use this clip as a way to show students that twentieth-century art music still has relevance to popular culture, and that it is possible to be entertaining and intellectually stimulating simultaneously – *Tosca* with its whole-tone adventures, and *Quantum of Solace* with its intertextual quotation. My goal here is to encourage students to stay open-minded toward the music we will be studying in the months ahead, since one of the chief difficulties in teaching post-1900 theory, in my experience, is convincing students that this unfamiliar, often-weird music has value.

In the class following our discussion of *Tosca*, I take time to review the issue of pitch-spelling in Scarpia's leitmotif. In its very first iteration, we see A $\flat$ and G $\sharp$ together; later in the tritone transposition, F $\sharp$ arrives instead of the G $\flat$ that would have fit better with the initial B $\flat$ –A $\flat$ bass line. In the first chromatic line, D moves to E via E $\flat$ rather than an upwardly mobile D $\sharp$. While all these spellings are clearly dictated by the demands of whatever triad is heard at that given moment, unpredictability of spelling is of course inherent generally to scales that do not conform to seven-note (i.e. diatonic) notation. In the absence of a 1-to-1 correspondence between the notes of a particular scale on the one hand, and the seven slots of the staff and letter names (A, B, C, D, E, F, G) on the other hand, there will be a certain amount of arbitrariness built in to any attempt to force them together. I present this fact to my students as motivation for delving into fixed-*do* integer notation for pitch classes (where C always is 0). This strategy has been very successful for me; I find that students are much more willing to entertain a complex new theory, like converting long-established letter designations to new-fangled numbers, when it is presented as a solution to an issue already encountered in actual musical practice, as opposed to it being a hypothetical abstraction that only later might seem musically helpful. Depicting the two whole-tone scales as either all odds or evens (1, 3, 5, 7, 9, 11, or 0, 2, 4, 6, 8, 10) has clear advantages that will be apparent to students if they have already seen the enharmonically confusing alternatives.

In addition, I use this discussion of whole-tone and chromatic scales in *Tosca* as a way to introduce equal divisions of the octave, important to many a twentieth-century composer looking for alternatives to diatonicism. The one twelve-note chromatic scale (1 $\times$ 12) and two six-note whole-tone scales (2 $\times$ 6) represent one end of the spectrum, while the twelve individual pitch classes (12 $\times$ 1) and six intervals of a tritone (6 $\times$ 2) represent the other end. In the middle are the three fully diminished seventh chords (3 $\times$ 4) and the four augmented triads (4 $\times$ 3). In the first class following *Tosca*, I use integers to depict each of these, to further advance the idea that when diatonicism becomes less pervasive, letter notation actually obscures what are really simple mathematical relationships.

Studying the blend of diatonicism, chromaticism, and whole-tone writing in *Tosca* is a reliable way to generate student interest in theoretical material that otherwise might be perceived as dry and irrelevant. Deriving the theory from these bombastic portions of a cherished opera allows me to start off my post-1900 semesters with a bang!

Note

- 1 Instructors may find informative the analysis of Act I in Parker (1985).

Bibliography

- Joseph Kerman. 1988 [1956]. *Opera as Drama*. New and Revised Edition. Berkeley: University of California Press.
- Roger Parker. 1985. “Analysis: Act I in Perspective.” In *Giacomo Puccini: Tosca*, Cambridge Opera Handbook, Mosco Carner, 117–42. Cambridge: Cambridge University Press.

35

TWENTIETH-CENTURY POLYMODALITY

Scalar Layering, Chromatic Mismatch, and Symmetry

José Oliveira Martins

Topic: Polymodal scalar layering and chromaticism in twentieth-century music.

Goal: This lesson plan gives students the necessary analytical, theoretical, and compositional skills to recognize, understand, and compose passages or short pieces using some twentieth-century techniques of polymodality, modeled after the style of Bartók and applicable to the styles of other composers.

Background: This lesson benefits from students' previous exposure to basic operations of pcset theory, such as transposition and inversion, and the formation of scales based on patterns of interval adjacencies. Also useful is knowledge of basic simple formal types such as binary and ternary forms.

Many early twentieth-century composers reacted to the increasing harmonic complexity of late nineteenth-century chromatic music by adopting simplified compositional materials and means, including the use of a variety of different scales and their combinations. This aesthetic and compositional attitude (sometimes called the “scalar tradition”) searched for novel pitch organizations that allowed for flexibility of expression, while avoiding the “tyranny” of major–minor tonality as well as the more radically atonal pitch configurations characteristic of the Second Viennese School. That was the case of composers such as Béla Bartók (1881–1945), who rooted his modern musical language in the modal musical heritage of old Hungarian peasant folksongs (and other surrounding territories), which he researched extensively.¹ In particular, Bartók developed a compositional technique or strategy of scale layering, which he referred to as *polymodal chromaticism*.²

This lesson plan provides students with the analytical, theoretical, and compositional tools to recognize, understand, and compose short passages or pieces using the principles of twentieth-century polymodality characteristic of the music of Bartók; however, these principles can also be applicable to other compositional practices or styles. The approach consists of engaging students in three mutually reinforcing stages: (1) in the *analytical* stage, students are guided through the process of scale (or scale-segment) layering in a few short pieces by Bartók, and learn to frame this layering as a *polymode*, which is a representational reduction for the interaction of scales; (2) in the *theoretical* stage, students expand their understanding of polymodes by constructing different symmetrical arrangements from a single scale-segment source, and also

by disassembling (or partitioning) larger symmetrical sets into constituent segments; and finally, (3) in the *compositional* stage, students can apply the results obtained at stage (2) in compositional strategies based on various combinations of layered segments.

Analysis

The first part of the lesson introduces students to the analysis of scalar layering and the concept of polymodality in short piano pieces by Bartók. The overall goal is to promote analytical discovery leading to the following observations: the pitch material in each layer is limited to scale-segments (or scales), which can be combined in a representational reduction called a *polymode*; layer interaction results in relationships between scale-segments of the polymode, such as chromatic mismatch (due to conflicting scale steps), the potential assimilation of pitch elements of one layer by another, and the harmonic “fusion” of layers; and finally, scale-segments are related by pitch (and pitch class) inversion, resulting in layouts of symmetrical polymodes, with or without common tones.

Students should have access to scores and recordings of nos. 70 and 103 from the *Mikrokosmos* (1926–1939) and the first of the *Fourteen Bagatelles* op. 6 (1908), available on the Supplemental Materials website. Have students listen to the *Mikrokosmos* no. 70, “Melody against Double Notes.” Ask students for observations regarding the formal layout of the piece and the interaction of pitch materials between hands.³ Students often notice that the right hand (RH) and left hand (LH) project rhythmically and texturally independent layers, setting up a melodic theme against a chordal accompaniment as indicated by the title of the piece. In terms of formal layout, students should recognize that the piece has a binary scheme organized in two complementary phrases (mm. 1–9, 10–18) that switch melody-accompaniment roles, plus a closing section (mm. 19–24) that gradually abandons the independence of layers and fuses them harmonically in a succession of chords. Students may also notice that the melody is inverted in the second phrase.

In order to construct a polymode for the piece, focus the discussion on the scalar contents of each hand/layer. While the RH and LH have different textures and are assigned different key signatures, students should notice that up to m. 16 both hands present tetrachords related by transposition ((0257) tetrachords related by T_4). These “gapped” segments of D–E–G–A and F#–G#–B–C# can be illustrated using different staves as in Figure 35.1a. Next have the students investigate the scalar contents starting with m. 17. They should identify that the gaps in the tetrachords are “filled” by the notes F and A#, resulting in “minor” and “major” pentachords related by inversion ((02357) related by I_3): D–E–F–G–A and F#–G#–A#–B–C#, as shown in Figure 35.1b).

A traditional classificatory approach to polytonality would affiliate each layer/tetrachord into distinct diatonic modes or keys. However, there’s an added analytical payoff by examining the interaction of the modally distinct layers rather than merely classifying materials as modes/keys. One interaction to highlight is Bartók’s use of *chromatic mismatch*; this term refers to the interaction of scales or segments in distinct layers such that notes of a given layer conflict chromatically with steps between adjacent notes in another layer. For example, in the opening tetrachord there are chromatic mismatches as the G in the first tetrachord fills in the step between F# and G# in the second, and the G# in the second tetrachord fills in the step between G and A in the first. This G/G# chromatic mismatch creates a sense of friction between the opening tetrachords, which is increased by the additional chromatic mismatches in the closing pentachords after m. 17 (F/F#, G/G#, and A/A#).

Other subtler relations require an attentive hearing such as a certain degree of assimilation between layers. As illustrated in the pitch reduction of Figure 35.1a, the interaction of hands in the first phrase suggests we hear the “major” pentachord D–E–(F#)–G–A as a result of the prominent F# of the RH filling in the step gap in the LH tetrachord. The second phrase inverts the process, suggesting we hear the RH being filled in by the prominent LH melodic note A, producing the

“minor” pentachord “F $\sharp$ –G $\sharp$ –(A)–B–C $\sharp$.” This hearing suggests each of the hands assimilates prominent notes of the other layer; with the assimilated notes included, the LH and RH form a symmetrical polymode invariant under I_3 , just as in the closing section. This reading creates a closer relationship between the scalar contents of the first and second half of the piece.

Finally, ask students to consider how the succession of the three final chords ({F, A $\sharp$ }, {E, G, G $\sharp$, B}, and {D, F $\sharp$, A, C $\sharp$ }) might contribute to a sense of closure in the piece. When discussing the form, students should have noticed that this section is marked by the layers gradually becoming harmonically fused. While these three chords contain dissonances, the final progression provides a sense of “resolution,” moving from an enharmonically spelled perfect fourth to a “minor-major tetrachord” to the final “seventh chord.” In addition, each of the chords draws from I_3 -inversionally related notes in the polymode (shown using dotted lines in Figure 35.1b), suggesting an expanding wedge motion via the symmetrical frame.

After completing the discussion, students should understand the concept of polymodality, and how the concept sets up a process of differentiation and interaction of modally distinct and mismatched layers, which can nevertheless also engage with partial assimilation, and a harmonic fusion of layers.

Figure 35.1 consists of four musical notation examples labeled (a) through (d).
 (a) Bartók's "Melody against Double Notes," *Mikrokosmos* no. 70. It shows a piano score with two staves. The right hand (RH) plays a sequence of notes labeled "minor" (F $\sharp$, G $\sharp$, A, B, C $\sharp$). The left hand (LH) plays a sequence of notes labeled "major" (F, A $\sharp$, B, C $\sharp$, D). A bracket labeled "T4" indicates the interaction between the two tetra-chords.
 (b) Resultant symmetrical polymode for the whole piece. It shows a single staff with two layers of notes. Dotted lines connect notes between the two layers, illustrating the I_3 relationship.
 (c) Bartók's "Minor and Major," *Mikrokosmos* no. 103. It shows a piano score with two staves. The right hand (RH) plays a sequence of notes labeled "B-major" (B, C $\sharp$, D $\sharp$, E $\sharp$, F $\sharp$). The left hand (LH) plays a sequence of notes labeled "A-minor" (A, B, C, D, E). Dotted lines connect notes between the two layers, illustrating the I_3 relationship.
 (d) Symmetrical polymode between E minor and E major. It shows a single staff with two layers of notes. Dotted lines connect notes between the two layers, illustrating the I_3 relationship.

Figure 35.1 (a) Bartók's "Melody against Double Notes," *Mikrokosmos* no. 70: Interaction between tetra-chords of right hand and left hand (mm. 1–16); (b) resultant symmetrical polymode for the whole piece; (c) Bartók's "Minor and Major," *Mikrokosmos* no. 103: contrapuntal imitation between A minor and B major pentachords; (d) symmetrical polymode between E minor and E major.

Given the analytical framework set up above, ask students to examine "Minor and Major" (no. 103), first attending to changes in melodic character, imitative procedures, and texture that shape the formal layout of the piece. A possible reading is to consider a ternary formal scheme (ABA') according to changes in tempo and texture: mm. 1–18 (section A) emphasizes imitative and parallel movements between hands; the contrasting *Lento* passage (section B) in mm. 19–28 explores a freer counterpoint that emphasizes triadic arpeggiation; and mm. 29–44 (section A') returns to the imitation between hands, including a *stretto* separated by just two eighth notes in mm. 33–39.

Next, have students study the pitch materials in the RH and LH using the methodology presented in the prior analysis. They should observe the piece assigns distinct pentachords to each

of the hands, A–B–C–D–E (LH) and B–C#–D#–E–F# (RH), producing two layers. The students should consider the polymodality of these two pentachords; they share the common tones {E, B}, and they should find that the pentachords contain the chromatic mismatches of C/C# and D/D#.

Once these aspects of form and layer content are established, open a discussion about what might constitute a plausible interpretation of the piece's title, noting that there are at least two possible readings. One interpretation might consider the mismatched LH and RH as the lower pentachordal segments of A minor and B major, as suggested in Figure 35.1c. This polytonal interpretation assumes different pitch-centers ("tonics") for each layer, which is reinforced by the parallelism (imitation) between hands in the opening of sections A and A'.

The second interpretation posits a single "tonic" for both layers. In order to convey this hearing, notice the melodic inversion at the piece's closing, which converge on the common tones E (in the LH) and B (in the RH) (see especially mm. 41–44).⁴ This inversional relation is captured by the symmetrical polymode of Figure 35.1d. By considering E as a common tonic and B as fifth for both layers (circled in the figure), the LH pentachord then corresponds to the upper scale segment of E minor (Aeolian/Phrygian) and the RH to the upper segment of E major (Ionian/Lydian). This reading is reinforced by the metrically and rhythmically emphasized common tones E and B in the opening of section A (see especially mm. 2–5) and throughout section A'.

As a third analysis example, a discussion of Bartók's *Bagatelle* Op. 6 no. 1 is available in the Supplemental Materials; however, this analysis can be skipped without compromising the overall understanding of the subject.

Theory

After learning to recognize simple processes of scalar layering and represent them as polymodes, students benefit from learning to construct symmetrical polymodes to better understand some of their theoretical properties. The rationale for this exercise is to observe how the combination of a given scale segment with its pitch-class inversions produces different values of chromatic mismatch (or friction) and number of common tones in sets related by inversion. Provide the students with a segment, for example the pentachord C–D♭–E♭–F–G, set class (01357), and ask them to combine the segment with all of its 12 inversions (I_0 to I_{11}) in order to observe the range of symmetrical polymodes possible. I usually have the class working in small groups for this exercise. Students should represent the polymode and indicate all common tones between segments and each inversion. For illustrative purposes, Figure 35.2a shows the combination of the pentachordal segment with its I_7 , I_8 , I_9 , and I_{10} inversions. These combinations yield symmetrical polymodes with 2, 4, 0, and 3 common tones, respectively, (circled in the figure), and constitute the entire range of common tones possible for combinations of this particular segment with its inversions.⁵ Inversions I_7 and I_9 produce the maximum chromatic mismatch between pentachords. If time allows, ask students to propose other scale segments for polymodal construction; students could also investigate a scale segment of their choosing as an assignment.

As a complement to the construction of polymodes, students should also learn to deconstruct (or disassemble) a symmetrical set into two inversionally related segments/scales. However, the possibilities for disassembling a symmetrical set are significantly enlarged by the number of common tones we wish to include between combined segments. A good strategy is to first partition a symmetrical set into non-overlapping subsets (without common tones) and later, common tones between the segments can be added. For instance, ask students to consider the inversionally and transpositionally invariant set class (01236789) to be partitioned into two (0167) tetrachords. For illustrative purposes, Figure 35.2b shows one possible realization for the partition of the larger set into two tetrachords that share no common tones: C–D♭–F#–G and E–F–A#–B, related by I_{11} . Then, explain that in order to produce more scalar sounding layers, we can incorporate in

each segment a few notes derived from the opposite tetrachord, thus producing common tones.⁶ Figure 35.2c suggests a solution for a combination of six-note scalar segments with four common tones using the indicated tetrachordal partition as a basis: C–D $\flat$ –E–F $\sharp$ –G–A $\sharp$ and D $\flat$ –E–F–G–A $\sharp$ –B. Notice that other common tones could have been chosen for this particular partition, or other partitions could have been chosen altogether. For instance, you can assign students to partition (01236789) into two non-overlapping tetrachords of set class (0268), or two of set class (0158), and then use common tones between tetrachords to create scalar segments (or scales) in each layer. Another assignment could ask for the partition of other symmetrical sets.⁷

Figure 35.2 consists of three musical examples labeled (a), (b), and (c).
 (a) shows four staves of music. The top staff has a sequence of notes with a bracket labeled I₇. The second staff has a bracket labeled I₈. The third staff has a bracket labeled I₉. The bottom staff has a bracket labeled I₁₀.
 (b) shows two staves. The top staff has a bracket labeled (0167). The bottom staff has a bracket labeled (0167). The set (01236789) is indicated between the staves.
 (c) shows two staves. The top staff has a bracket labeled I₁₁. The bottom staff has a bracket labeled I₁₁.

Figure 35.2 (a) Polymodes resulting from the combination of C–D $\flat$ –E–F–G with its I₇, I₈, I₉, and I₁₀ inversions; (b) a possible partition of the set (01236789) into (0167) tetrachords; (c) a symmetrical polymode of I₁₁ related segments with four common tones between layers.

Composition

The theoretical activities developed earlier can next be reframed as part of pre-compositional strategies for pitch organization in scalar layering contexts. For instance, students could engage in compositional exercises of short binary or ternary formal schemes, exploring distinct inversion values between scales/segments as a way to control the chromatic mismatch between layers, or how a given large symmetrical set can be disassembled into distinct sets/segments with or without common tones.

While the general stylistic aspects of the composition might be inspired by their analysis of Bartók's pieces, the student has a considerable degree of freedom. These pre-compositional strategies can be worked out to explore aspects of contrast and continuity, texture, use of register, and instrumentation in ways that engage with form. Specifically, the student should think about how to design different phrases/sections so as to bring out similarities/contrasts (thematic, polyphonic/homophonic, different contrapuntal relations, such as contrary/parallel motions, imitation by transposition or inversion, etc.). It is also important to pay particular attention to the preparation of cadential moments (perhaps by fragmenting the theme right before the cadence), and to be inventive in the use of register, and the assignment of musical markings (dynamics, articulation, and phrasing). A potential assignment prompt is provided in the online Supplemental Materials.

To conclude, the polymodal principles of layering, mismatch, and symmetry can be addressed in the context of aspects of pitch-centricity, layer assimilation, and fusion. Also, while these aspects were examined in some of Bartók's short pieces, these techniques are often found in more complex works of the composer. Finally, it is important to bear in mind that scalar layering is widely used in the music of other early twentieth-century composers (though often in non-symmetrical configurations). Some illustrative examples include Darius Milhaud's *Saudades do Brazil* (1922), Igor Stravinsky's *Three Pieces for String Quartet* (1914), and Alfred Casella *11 Pezzi Infantili* op. 35 (1920).

Notes

- 1 See for instance Bartók's discussion of levels of use and appropriation of folk music by the modern composer in "The Influence of Peasant Music on Modern Music."
- 2 Bartók introduces and discusses the notion of polymodal chromaticism in his "Harvard Lectures," see esp. 366–371.
- 3 This analysis is expanded in Martins (2015).
- 4 There's a subtler point to be conveyed here: notice that the melodic arrival at common tones E and B in the closing passage of inverted pentachords reframes the modally transposed opening motives by switching the roles of E and B for melodic arrival within the respective pentachords.
- 5 You can consult the *index vector* values to check student results, which is a set-theoretical tool that calculates the number of common tones between any set and its 12 inversions; for the set class (01357) the values are (from I_0 to I_{11}) $\langle 322222324030 \rangle$.
- 6 The notion of *chromatic mismatch* between sets seems to be more perceptually relevant when applied to scalar contexts, i.e. when the interval between adjacent notes in a scale/segment is smaller or equal to a minor third. For a discussion of the conditions and measurement of scalar mismatch and porosity see Martins (2019).
- 7 You can use the index vector table to find symmetrical set classes by checking those entries in the table that equal the cardinality of the set class. For this exercise, it is advisable to use large sets of even cardinality (6, 8, or 10) so the partition can also produce (non-overlapping) subsets of equal cardinality.

Bibliography

- Bartók, Béla. "Harvard Lectures." In *Béla Bartók Essays*, edited by Benjamin Suchoff, 354–392. Lincoln: University of Nebraska Press, [1943] 1992.
- Bartók, Béla. "Introduction to *Béla Bartók Masterpieces for Piano*." In *Béla Bartók Essays*, edited by Benjamin Suchoff, 432–433. Lincoln: University of Nebraska Press, [1943] 1992.
- Bartók, Béla. "The Influence of Peasant Music on Modern Music." In *Béla Bartók Essays*, edited by Benjamin Suchoff, 340–344. Lincoln: University of Nebraska Press, [1943] 1992.
- Martins, José Oliveira. "Bartók's Polymodality, the Dasian, and Other Affinity Spaces." *Journal of Music Theory*, 59, no. 2: (October 2015): 273–320. doi: 10.1215/00222909–3136020.
- Martins, José Oliveira. "Scalar dissonance and the analysis of polytonal/modal mismatch in twentieth-century music." *Musurgia*, 26, no. 3–4 (2019).
- Roig-Francolí, Miguel. *Understanding Post-Tonal Music*. New York: McGraw-Hill, 2008.

36

TWELVE-TONE STUDY USING SYMBOLS IN DALLAPICCOLA'S “FREGI,” FROM *QUADERNO MUSICALE DI ANNALIBERA*

Joe Argentino

Topic: Analyzing a dodecaphonic composition using visual symbols.

Goal: An understanding and appreciation of invariance in dodecaphonic music through visual symbols.

Background: Understanding of basic twelve-tone concepts (i.e. how to label a row, read a matrix, understanding of pitch-class integers and order positions, etc.).

I commence the lesson by providing a brief background of Luigi Dallapiccola's *Quaderno Musicale di Annalibera*, explaining to the class that this work contains 11 short piano pieces and that we are going to explore the central piece titled “Fregi” (see the Powerpoint in the online Supplemental Materials, Example 1). I like to begin the analysis of the work by first asking the class the following question: “What does “Fregi” mean?” After providing the English translation – friezes – and having a little fun playing up its homonym – freezes – I provide the students with the proper definition of the term and some illustrative examples of friezes (see Example 2 in the Powerpoint in the Supplemental Materials). This example includes two definitions of “frieze,” as well as six different illustrative examples of friezes. I usually ask the class to describe what all six illustrative examples of the friezes share – that is, that they all include repeated patterns. Some of the patterns are based on a repetition through a vertical plane, a horizontal plane, or a combination of both. Since Dallapiccola entitled his work “Fregi,” what types of patterns can we expect to find in the score? These patterns might mimic musical transformations such as transposition, inversion, and retrograde. This lesson plan describes the patterns that occur throughout the work in three phases, moving from simpler to more complex relationships, prior to wowing students with a frieze that evolves out of the analysis of the score through visual symbols.

Phase 1: Simple Patterns, Row Labels, and Rhythmic Invariance

After listening to the excerpt and providing the students with the primary row (or series) P_{10} ($\langle A\#, B, D\#, F\#, G\#, D, D\flat, F, G, C, A, E \rangle$ herein $\langle t, e, 3, 6, 8, 2, 1, 5, 7, 0, 9, 4 \rangle$) and matrix (see Supplemental Materials Powerpoint Example 3), have them label the six rows directly on the score prior to showing them (Figure 36.1).¹ The first row – P_{10} – will be easy for students to label as the contiguous pitches from the row series exclusively occur in the right hand in measures 1–4. The second row, I_8 – which begins in the left hand of measure 3 – can present challenges for

students who have minimal experience labeling serial rows. The first challenge is that some of the pitches in the row series occur simultaneously, obscuring the order of the pitches and thus the row. For instance, I_8 begins with two pairs of simultaneously (i.e. harmonic) sounding dyads: $A\flat$ and G followed by C and $E\flat$. In order to find the correct label for this series students will first need to look through all the rows within the given matrix, searching for rows that commence with either G followed by $A\flat$ or $A\flat$ followed by G (i.e. pitch-class integers 8 and 7): in this case there are only two rows that begin with this sequence of pitch classes: P_7 (begins with G followed by $A\flat$) and I_8 (begins with $A\flat$ followed by G).

Molto lento; con espressione parlante (♩ = 76)

P10-----

R5-----

I8-----

P1-----

I11-----

RI4-----

Figure 36.1 Row labels, Luigi Dallapiccola's "Fregi," from *Quaderno Musicale Di Annalibera*.

Now that there are only two possible row choices – either P_7 or I_8 – have the students look at the next set of pitches in the row series in order to determine the row: once again, there is another pair of simultaneously sounding pitches – C and $E\flat$ (i.e. 0 and 3) – that occupy order positions 2 and 3. Since P_7 and I_8 both have C and $E\flat$ in either order position 2 or 3 the students will still be unable to identify the correct row series. It is not until order position 4 of the row series – which is a $B\flat$ (or t) – that we can confirm I_8 as the correct row label, as I_8 has a $B\flat$ in order position 4 of the row (P_7 has an F in order position 4). Other challenges for students to be aware of when labeling rows are that pitches in any row series may be repeated after their initial sounding (in the case of I_8 the C is repeated) and that pitches in the row series may appear in the opposing clef. For instance, in row I_8 – which predominantly occurs in the left hand – the pitch E^4 (order position 5) appears in the right hand of measure 4.

Once the students have identified and labeled all of the rows in the score, have them write out the six row series – including the row moniker – in the order in which they appear in grid fashion as shown in the online Powerpoint as Example 4. In addition, sequentially label the rows 1–6 for easy reference (i.e. Row 1: P_{10} ; Row 2: I_8 ; Row 3: R_5 ; Row 4: I_{11} ; Row 5: P_1 ; and Row 6: RI_4) as shown in Example 4; herein these six rows will also be referred to as the ‘row grid.’ Have the students write out the rhythms for each of the six rows. The students will quickly discover that row pairs 1 and 4, 2 and 5, and 3 and 6 share corresponding rhythms as shown in the online Powerpoint as Example 5. At this point in the lesson ask your students if the rows that have corresponding rhythms share any other distinguishing features. The answer that you are looking for is that the rhythmically related row pairs are also related to one another through strict inversion. Also emphasize that the related rows form an overarching general pattern – the first of many – in “Fregi.” Depending on your students’ understanding of serial music you can also point out that the three pairs of rhythmically and inversionally corresponding rows pairs are related through T_9I and that all three row pairs revolve around a pitch axis (or pitch center) of $A\sharp^3/B^3$. Point out to the students that $A\sharp$ and B are also the first two sounding pitches of the inaugural row!

Phase II: Elaborate Patterns, Invariance between Rows and Their Sets

Considering that Dallapiccola entitled his piece “Fregi” (patterns), have the students – individually or preferably in groups – search for recurring invariant pitch/pitch-class collections (from singleton pitches to hexachords) and their specific order number placements within the rows (explained below), as well as any recurring rhythmic patterns (or both) between the six rows. They should identify these invariant patterns by circling the pitch-class collections directly on their row grid using a specific colored marker/pencil for each unique collection. In order to get the students started with their search for invariant collections provide them with the following hints: in general, they should be looking for pitch and/or rhythms that form patterns between the rows. The patterns should include placements within the rows (i.e. first three pitches of one row and the last three pitches of another row, or the first four pitches of two rows, etc.) as well as pitch-class invariance and/or corresponding rhythms. For example, Row 1(P_{10}) and Row 6 (RI_4) begin and end with the same pitch classes; as mentioned earlier, Row 2 and Row 5 have identical rhythmic patterns; the underlined tetrachord in row 1: $\langle t, \underline{e, 3, 6, 8}, 2, 1, 5, 7, 0, 9, 4 \rangle$ – which commences on order position 1 or more informally, “one in from the beginning of the row,” parallels the underlined tetrachord in Row 6: $\langle t, 5, 2, 7, 9, 1, 0, \underline{6, 8, e, 3}, 4 \rangle$ – which contains the same unordered but contiguous pitch classes concluding on order position 10, informally “one in from the end of the row.” These two tetrachords are not only related through pitch-class invariance but also related through their respective symmetrical order placement within their respective rows. This task requires quite a bit of time and patience and I would allot a minimum of 20–30 minutes prior to taking it up as a class. If possible, you could also begin this task during class and assign it as homework prior to taking it up as a group.

While the students are searching for invariant patterns, write out the row grid at the front of the classroom. Use a unique color when writing out the first and fourth, second and fifth, and third and sixth row pairs in order to highlight the rhythmic correspondences between the row pairs. Once the allotted time has expired, bring the class together and have each group (or individual students) share one of their invariant pairs of corresponding patterns with the class and write their solution on the row grid at the front of the classroom using a specific color for each unique pattern pair. Continue this process until the students have shared all of their findings. It is highly unlikely that they will uncover all of the invariant patterns that are shown on the row grid in Figure 36.2. From my experience I am usually satisfied if they find about half of them. Do not show the class Figure 36.2 (yet). For a color version of Figure 36.2 see Example 10 from the Powerpoint in the Supplemental Materials.

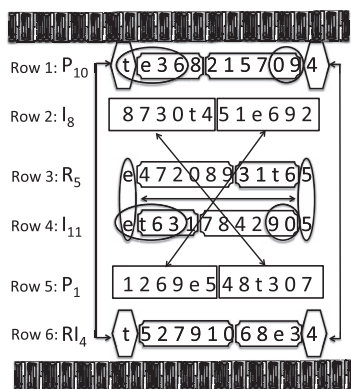


Figure 36.2 Row grid, invariance summary through symbols.

Phase III: A Closer Look at the Elaborate Patterns, Invariance between Rows and Their Sets

The patterns between all of the invariant groupings that were isolated in Phase II are much more complex than we think! Now the really fun stuff begins. Let's have a closer look at all of these invariant groupings beginning with tetrachords.

Tetrachords

The first tetrachords that we will be taking a closer look at are those that begin "one in from the beginning of a row" and the tetrachords that conclude "one in from the end of a row." There are four tetrachords that fit these criteria: <e, 3, 6, 8> and <6, 8, e, 3> which, respectively, occur in rows 1 and 6, and tetrachords <3, 1, t, 6> and <t, 6, 3, 1> which, respectively, occur in rows 3 and 4.

All four of these tetrachords share multiple correspondences aside from pitch-class invariance. The non-invariant tetrachords <e, 3, 6, 8> and <t, 6, 3, 1> are rhythmically identical and they both occupy the same order positions in their respective rows (1–4 or "one in from the beginning"). Similarly, the non-invariant tetrachords <3, 1, t, 6> and <6, 8, e, 3> also share the same corresponding rhythms and they too occur in the same order positions within their respective rows; that is, the tetrachords conclude one in from the end of their respective rows (order positions 7–10). In addition, all four of these tetrachords are of the same pedigree: they are all minor/minor chords or set class (0358). Furthermore, the transformations between the invariant tetrachord pairs are also identical (i.e. between <e, 3, 6, 8> and <6, 8, e, 3>, and between <3, 1, t, 6> and <t, 6, 3, 1>). I like to

think of this transformation as the dyad-pair reversal. If each invariant tetrachord is divided into two discrete dyad pairs and then reversed, the tetrachords transform (or map) into one another. For instance, tetrachord $\langle \underline{e}, \underline{3}, 6, 8 \rangle$ transforms into $\langle 6, 8, \underline{e}, \underline{3} \rangle$ if the dyad pairs are reversed (or vice versa); similarly $\langle \underline{3}, \underline{1}, t, 6 \rangle$ transforms into $\langle t, 6, \underline{3}, \underline{1} \rangle$ when the dyad pairs are reversed. Show the Powerpoint slide from the Supplemental Materials labeled Example 6, noting that there are two slides for this example. When I'm demonstrating this transformation I like to hold up my index finger and middle finger in both hands telling the class that each hand represents a discrete dyad pair and then reverse the hand positions (i.e. left hand and right hand exchange positions in the air) in order to visually demonstrate the transformation.

Tetrachords and Dyads

The initial tetrachords in rows 1 $\langle t, e, 3, 6 \rangle$ and 4 $\langle e, t, 6, 3 \rangle$ are invariant, have corresponding rhythms and occur in order positions 0–3 in their respective rows; dyad $\langle 0, 9 \rangle$ in row 1 and dyad $\langle 9, 0 \rangle$ in row 4 are also invariant, share identical rhythms, and are located in the same order positions (9, *t*) of their respective rows. The transformations between all of these invariant discrete dyad pairs are also identical. Each of the pitch classes within the discrete dyad pairs “reverses” positions. For example, $\langle t, e \rangle$ (row 1, first dyad of the tetrachord) transforms into $\langle e, t \rangle$ (row 4, the first dyad of the tetrachord) or vice versa, by reversing the order of the pitch classes of each of these dyad pairs. Similarly, the second dyad of the tetrachord in row 1 $\langle 3, 6 \rangle$ becomes $\langle 6, 3 \rangle$ in row 4, and the dyad $\langle 0, 9 \rangle$ in row 1 becomes $\langle 9, 0 \rangle$ in row 4. When demonstrating this transformation I hold up my index finger and middle finger and rotate my hand 180 degrees in order to visually demonstrate how each dyad is transforming. Show the class Example 7 from the Powerpoint in the Supplemental Materials.

Hexachords

Akin to the tetrachord groupings that commence “one in from the beginning” and “one in from the end,” there are also four hexachords that commence “one in from the beginning” or “one in from the end” that share corresponding transformational and rhythmic relationships. The hexachords include $\langle 4, 7, 2, 0, 8, 9 \rangle$ (herein H1) and $\langle 7, 8, 4, 2, 9, 0 \rangle$ (herein H2) which, respectively, occur in rows 3 and 4, and invariant hexachords $\langle 5, 2, 7, 9, 1, 0 \rangle$ (herein H3) and $\langle 2, 1, 5, 7, 0, 9 \rangle$ (herein H4) which, respectively, occur in rows 6 and 1. The invariant pairs of hexachords (H1/H2 and H3/H4) transform into one another in the exact same manner forming a pattern. For instance, the inaugural pitch classes of H1 and H3 – respectively 4 and 5 – respectively move from order position 0 (relative to each hexachord in this discussion) to order position 2 in hexachords H2 and H4; the pitch classes that occupy order position 1 in both H1 and H3, respectively, move to order position 0 in H2 and H4 (and so on). In addition, the hexachords that occupy the same order positions – which are not invariant – share identical rhythms. Finally, all four of these hexachords belong to the same set class (012579). Show the class Example 8 from the Powerpoint in the Supplemental Materials (three slides in total).

Discrete Hexachords

Invariant hexachord pairs $\langle 8, 7, 3, 0, t, 4 \rangle$ from row 2 occupying order positions 0–5 (herein H5) and $\langle 4, 8, t, 3, 0, 7 \rangle$ from row 5 occupying order positions 6–11 (herein H6), and invariant hexachord pairs $\langle 1, 2, 6, 9, e, 5 \rangle$ from row 5 occupying order positions 0–5 (herein H7) and $\langle 5, 1, e, 6, 9, 2 \rangle$ from row 2 occupying order positions 6–11 (herein H8) also share rhythmic and transformational relationships. The hexachords that are not invariant share the same order positions and the

same rhythm, and the invariant pairs of hexachords transform into one another in a corresponding manner. That is, the first pitch classes of H5 and H7 – respectively 8 and 1 – respectively move to the second order positions of H6 and H8; the second pitch classes of H5 and H7 – respectively 7 and 2 – move to the final positions of H6 and H8 (and so on). See the Supplemental Materials Powerpoint, Example 9 (two slides).

Conclusion: The Full Reveal (Get Ready for a Standing Ovation!)

You are about to wow the class by recapping all of the transformations using Example 10 from the Powerpoint in the Supplemental Materials. Scroll through each of the transformations recounting the earlier content. Once you reach the transformation in online Example 10 (identical to Figure 36.2 but with colored shapes), which shows all of the circled transformations at the same time, tell the class that you are now going to eliminate the pitch-class grid and just leave the shapes (click animation on the slide). Then you are going to tell the class that you are going to color in all of the shapes (click animation) and that you are going to add three different colored background bands to the shapes in order to express the corresponding rhythmic relationships between rows 1/4, 2/5, and 3/6 (click animation). Then tell the class that you are going to turn the entire image on its side and reveal that the frieze pattern that has been omnipresent in all of the online slides is actually derived from Dallapiccola's "Fregi!" Bask in the applause. Keep clicking on the animations and tell them you wanted to have some fun!

Note

- 1 Throughout this chapter, order numbers will be *italicized* and written as integers from 0 to 11 (with 0 representing the first pitch class of a series, 1 representing the second pitch class of a series, etc.), and ordered sets will be written within angle brackets ($\langle \rangle$). Pitches or pitch classes will be written as pitch-class integers numbered chromatically from 0 to 11 (i.e. C=0, C $\sharp$ or D $\flat$ =1, D=2 (etc.), except that pitch classes 10 and 11 will be represented, respectively, by the letters t and e).

37

INTEGRAL SERIALISM – ANALYSIS OF GERHARD, STRING QUARTET NO. 1, MVT. 3

Rachel Mann

Topic: Expanded integral serial techniques.

Goal: Students will be able to review set-theory concepts such as normal order and prime form, recognize hexachordal combinatoriality, and identify a variety of integral serial techniques.

Background: Ability to calculate normal order and prime forms; identify a tone row and create a twelve-tone matrix; knowledge of twelve-tone operators (TTOs); invariance; hexachordal combinatoriality; and complement relationships.

The third movement of String Quartet no. 1 by Roberto Gerhard (1896–1970) offers an excellent example of integral serial techniques illustrated in a short forty-five-measure composition. Gerhard was the only Iberian student of Schoenberg and this work serves as an easily accessible but underrepresented work by an exiled Hispanic composer. Gerhard was a Catalan composer who studied with Felipe Pedrell, the same teacher of Isaac Albéniz, Enrique Granados, and Manuel de Falla, and who was influenced greatly by his studies with Arnold Schoenberg in Vienna and Berlin between 1923 and 1928. Upon returning to Barcelona, Gerhard composed quite a few pieces, but did not begin exploring the twelve-tone idiom until nearly a decade after exiling to England in 1939. His works of the 1950s onward nearly all exhibit twelve-tone techniques and serialized proportions govern many of the formal elements of his late symphonic and chamber works.

This movement is a great excerpt for classroom analysis because while it exhibits classic integral serial techniques, it likewise provides ample opportunity for a review of set-theory and twelve-tone concepts such as normal order, prime form, complement relationships, and hexachordal combinatoriality. It also illustrates Gerhard's unique concept of serialized proportions, derived from his tone rows, that govern some of the movement's formal and durational elements.

The row of the third movement is a simple transformation of the row first introduced in movement 1. As seen in the opening measures of the first movement below, it is easy to recognize that the division of the row into two hexachords will play an important role throughout the four movements of the composition. Note the two six-note chords, separated by rests, that begin the composition before the presentation of the row following at P_6 (Figure 37.1).

Begin the lesson by asking students to find the normal order of the first hexachord and then the second. They should come up with 012468 and 3579TE.¹ Before having them determine the prime form, ask if they notice anything interesting about the sets. How many whole tones

I

P6 = <6-1-2-8-0-4-3-5-10-11-7-9>

Hexachord 1 Hexachord 2

© Copyright 1958 by Boosey & Hawkes Music Publishers Ltd. Reprinted by permission.

Figure 37.1 Gerhard, String Quartet no. 1, movement 1, mm. 1–10 – division of the row into two hexachords and first melodic presentation of the P₆ tone row.

appear in each set? How many chromatic tones? Do they notice any similarities? Students should recognize that each set is a nearly complete whole-tone scale and that each exhibits a three-note chromatic segment. The first set consists of mostly WT₀ members: 0, 2, 4, 6, and 8 and the second hexachord contains mostly members of WT₁: 3, 5, 7, 9, and 11.² In addition, the first hexachord contains the chromatic segment <0–1–2> and the second contains the segment <9–10–11>.

Ask students to then find the prime forms of each hexachord and then see if they can discover that the sets are identical. After determining that the two sets are both members of the same set class, SC 6–22 [012468], remind them that this means the sets are self-complementary. Because the sets are self-complementary, what transformation maps the normal order of the first hexachord onto the second? They should determine that the answer to this question is T₁₁I or I₁₁.

After identifying the tone row in movement 1, ask the students to create a twelve-tone matrix, which will help facilitate the analysis of the third movement. While this may be achieved in a variety of ways, I generally urge my students to transpose their tone rows to begin on pc0 and create a matrix with this transposed row appearing across the top. By doing so I can check their transposition skills and set them up to easily find the inversion of the row, which they will notate down the left-most column of their matrix. A complete matrix may be found in the Supplemental Materials as Online Figure 37.1.

Upon completing their matrices, ask students if they can see any combinatorial properties since the row's hexachords are self-complementary. Students should find that each row does, in fact, have a combinatorial pair. Because each row can combine with an inverted transformation of itself to create an aggregate, the row has inversional combinatoriality. At this point, make sure students can locate a few inversionally combinatorial row pairs. For example, P₀ is inversionally combinatorial with I₁₁ and P₆ is inversionally combinatorial with I₅. While Gerhard does not necessarily exploit combinatorial row pairs, he does make use of complementary row pairs in the third movement of this composition. For example, the opening row of movement 3 is R₉ <0–10–2–1–8–6–7–3–11–5–4–9>. As seen in Figure 37.2, this row is immediately followed by I₈ <8–1–0–6–2–10–11–9–4–3–7–5>, which is its complement. If the latter row were reversed to RI₈, these rows would be combinatorial.

Once students understand the basic features of the row and can locate its complementary hexachords, have them then complete a row count of the third movement. After identifying each tone row, note how each row form is followed by its inversionally related complementary pair. For example, R₉ is followed by I₈, P₇ is followed by RI₆, and so forth.

III

Violin I

Violin II

Viola

Violoncello

Grave $\text{♩} = 84$

8^{10}

8^{10}

$8a$

p pp mf pp pp $poco sf$ pp

p pp mf pp pp $poco sf$ pp

p p mf pp pp $poco sf$ pp

p mf pp p $pizz.$ $arco$ $poco sf$ pp

$R9 = <0-10-2-1-8-6-7-3-11-5-4-9>$ $I8 = <8-1-0-6-2-10-11-9-4-3-7-5>$

© Copyright 1958 by Boosey & Hawkes Music Publishers Ltd. Reprinted by permission.

Figure 37.2 Gerhard, String Quartet no. 1, movement 3, mm. 1–8 – opening R_9 row followed by its complementary I_8 pair.

After students complete a row count and identify the complementary pairs, ask if they can determine why Gerhard chose the specific ordering he did. Why do the rows appear in this particular order in the third movement? They now know that each row is matched with its inversionally complementary pair, but each pair is deliberately chosen for a specific reason.

If students consider the *identifying* pc of each row – meaning, pc7 for a P_7 or I_7 row or pc9 for an R_9 or RI_9 row – they will discover that the identifying pcs of the first of each complementary row pair forms the row R_6 $<9-7-11-10-5-3-4-0-8-2-1-6>$, which is the retrograde form of the P_6 tone row first introduced in movement I. The second of each pair forms R_5 $<8-6-10-9-4-2-3-7-1-0-5-11>$. Online Figure 37.2 in the Supplemental Materials outlines all of the tone rows and their complementary pairs for the complete third movement. The first column of the chart in the figure identifies the measure in which the first of the pair appears. The second and fifth columns provide the row label for the two complementary pairs. The third and fourth columns show the pcs of the first tone row and its complement, respectively. Reading down the P/R column yields the R_6 row form and reading down the complements' I/RI column yields R_5 . In both instances, the eighth pc (pc0 of R_6 and pc11 or R_5) appears out of order, but this minor disparity does not affect the overall pervasiveness of the row's identity.

Once students determine that the rows are ordered according to the row itself, turn then to non-pitch parameters. If the rows themselves are serialized, it is likely that other musical parameters may be serialized as well. Ask students what kinds of musical elements could be serialized. Besides pitch, they may mention rhythm, durations, articulation, dynamics, instrumentation, and form.

While Gerhard does not serialize rhythmic durations or patterns, articulations, dynamics, or instrumentation, he does serialize the number of beats appearing in each measure. First ask about the movement's missing time signature. The third movement is unmeasured and each of the neighboring measures exhibits a different duration. Students may recognize that the

first measure consists of a duration of six eighth-note beats while the second measure is half that length, with a duration of only three eighth-note beats. As the class continues to count the number of eighth-note durations in each of the measures, they may notice that within the first 11 bars, the series that emerges is 6-3-8-12-4-3-5-10-11-7-9. Though students may note that two of the measures consist of the same duration of three eighth notes (as the number 3 appears twice, in mm. 2 and 6, respectively) and the fourth measure contains 12 eighth-note beats, they may discern that the rest of the measures' durations are derived from the original P_6 tone row. In this movement, Gerhard composes measures with a duration of 12 eighth notes to represent pc0 and he combines the second and third pcs of the P_6 tone row (pcs 1 and 2, which are invariant at a few specific transformations) into a single, less clumsily notated measure of three eighth-note durations. Thus, Gerhard serializes the number of beats per bar according to the opening tone row of the first movement. (An example of how this plays out in the opening 11 measures of the movement may be found in the Supplemental Materials as Online Figure 37.3.)

This approach to the serialization of durations gives Gerhard more compositional freedom. By serializing the number of beats per bar, Gerhard is able to manipulate rhythmic content freely, rather than committing to a series of rhythmic durations. This idea of rhythmic freedom was important to Gerhard, and this sets him apart from his counterparts at Darmstadt such as Boulez and Stockhausen, who tended to serialize individual pitch durations and pitch patterns.

After counting the number of eighth notes in each of the remaining measures, have the class label the remainder of the movement's durational row forms. Be sure to note how Gerhard cycles through all the TTOs, but limits the transformations governing the number of beats per bar to only P_6 , RI_6 , R_6 , and I_6 .³

These latter transformations are further serialized by Gerhard via his concept of serial proportions. To derive such a proportion, Gerhard divides the original P_6 row into two hexachords and calculates the normal order for each (012468 and 3579TE). He then subtracts the first pc integer (pc0) of the first hexachord's normal order from each integer of the row to generate a new set of numbers. (In this case, the numbers remain unchanged since the number subtracted is 0, but this is not necessarily the case in determining proportions for Gerhard's later works.) Gerhard then adds together the resulting integers of each hexachord (12+1+2+4+6+8 and 3+5+7+9+10+11) to create the proportion, 33:45 (or its reduction to 11:15).⁴ The proportion controls a variety of formal elements: here, the entire movement is 45 measures in length, and a new durational row transformation begins every 11 measures since he uses only rows that combine invariant pcs 1 and 2 into a single measure. In later works, he uses the proportion to mark instrumental entrances and formal sections such as divisions of movements.

This movement serves as an excellent introduction to integral serial techniques. It clearly illustrates serialized pitch and durational elements by showing how tone rows may be used to determine the order in which rows appear and to govern the number of beats per bar throughout. The form is set by the number of durational cycles that appear and the entire movement is completed in a mere 45 measures, derived from the 33:45 proportion created from the row itself.

The third movement of Gerhard's String Quartet no. 1 provides ample opportunity for review of set-theory concepts. Students can review normal order, prime form, and subset structures before tackling twelve-tone concepts such as matrix building, complement and combinatorial relationships, and integral serial techniques. Gerhard's use of serialized durations is different from that of Babbitt, Boulez, Stockhausen, and other composers who serialized durations of pitches, rhythmic cells, and attack points, so this work serves as a stepping off point for discussing the degree of experimentation and differences in philosophy that existed during the post-war era and continues through today.

Notes

- 1 Here, “T” stands for 10 and “E” for 11.
- 2 This lesson uses Joseph Straus’s nomenclature “WT₀” to refer to whole-tone collections containing pc0 and “WT₁” to refer to whole-tone collections containing pc1. See Joseph Straus, *Introduction to Post-Tonal Theory*, 4th ed. (New York, NY: W. W. Norton & Company, 2016), pp. 252–253.
- 3 The (invariant 1+2) patterns of the durational rows for the third movement are as follows: mm 1–11 = P₆ <6–(1+2)–8–12–4–3–5–10–11–7–9>, mm. 12–22 = RI₆ <3–5–(1+2)–7–9–8–12–4–10–11–6>, mm. 23–33 = I₆ <9–7–11–10–5–3–4–12–8–(2+1)–6>, and mm. 34–45 = I₆ <6–11–10–4–12–8–9–7–(2+1)–5–3>.
- 4 Note that Gerhard substitutes “12” for pc0 to calculate his proportions.

Bibliography

- Mitchell, Rachel E. “Roberto Gerhard’s Serial Procedures and Formal Design in String Quartets Nos. 1–2.” In *The Roberto Gerhard Companion*. Edited by Monty Adkins and Michael Russ, pp. 153–182. Farnham, UK: Ashgate, 2013.
- Straus, Joseph. *Introduction to Post-Tonal Music*, 4th ed. New York, NY: W. W. Norton & Company, 2016.

38

MAPPING SYMMETRY AND FORM IN GEORGE CRUMB'S “A PROPHECY OF NOSTRADAMUS”

Natalie Williams

Topic: Graphic analysis of George Crumb's *A Prophecy of Nostradamus* (*Makrokosmos*, Book II, no. 8), 1973.

Goal: Students analyze the work using a structural template to reveal their findings on pitch relationships, symmetrical structure, and aesthetic associations.

Background: Students should be familiar with pitch-class set nomenclature, Gregorian chant, harmonic analysis, content as form, C clefs, symmetrical pitch properties, prime numbers, extended techniques.

Post-tonal analysis presents unique challenges to students and teachers within the undergraduate music theory sequence. Repertoire is often unfamiliar with little or no study precedents or prior exposure to the literature. The undergraduate theory core typically covers contemporary developments in pitch, rhythm, instrumentation, and form as separate musical elements throughout a semester of post-tonal analysis. Works which present a manipulation of all musical parameters simultaneously can consolidate a semester of unit-based learning. George Crumb's *A Prophecy of Nostradamus* from Book II of the *Makrokosmos* (1973) is such a work. Crumb's short movement offers a clear example of the concurrent manipulations of pitch (harmony and melody), form, rhythm, symmetry, and graphic notation. This work also carries intertextual and extra-musical associations, requiring aesthetic interpretation from students.

The teaching approach to this piece is twofold; first, students analyze each musical parameter in isolation (pitch, rhythm, texture), then transfer their findings to a prepared structural template which reveals the work's symmetrical design. The completed analytical template also reveals the concept of *content as form*, wherein the musical material of the piece creates mirror symmetry across both a musical and visual axis. The score design element and the presence of the *Dies irae* theme, alongside riddle clefs and key signatures, extend students' prior learning in theory to new aesthetic levels. Students are challenged to interpret why Crumb's score appears in mirror image around a central axial staff and to map their reading of the pitch and rhythmic content relative to that clear formal design.

The strength of this piece as an analytical tool is apparent in its clarity; triadic harmony and simple melodic and rhythmic content, coupled with clear symmetrical design, comprise easily approachable musical parts that create a complex analytical whole. Students benefit from creation of a guided analytical template containing the sum of their answers, drawing together many weeks of post-tonal, theoretical learning into one clear pedagogical context. Cognitive skills developed herein include problem-solving, critical thinking, pattern recognition, and historical and intertextual associations. This lesson plan guides students toward a discovery of complexity and

simplicity across all musical elements covered within a post-tonal semester, through the vehicle of one clear and accessible contemporary work.

Background

George Crumb (b. 1929) is a celebrated American composer active in the later twentieth century. His output includes chamber music for mixed ensembles, solo piano music, and vocal chamber works. Crumb's aesthetic concerns focus upon time, the eternal, the mystic and surreal, numerology, quotation and symbolism in music.

Crumb has written that, while composing the *Makrokosmos* pieces, he was haunted by certain recurrent images and ideas: 'the "magical properties" of music; the problem of the origin of evil; the "timelessness" of time; a sense of the profound ironies of life (so beautifully expressed in the music of Mozart and Mahler);' and by words of Pascal which, translated, read: 'The eternal silence of infinite space terrifies me.'¹

Crumb's *Makrokosmos* collections were inspired by Debussy's *Piano Preludes* (1913) and Bartók's *Mikrokosmos* (1939). The *Makrokosmos* Volumes I and II were composed for solo amplified piano and consist of 12 pieces each, grouped into subsets of four pieces. Both volumes are subtitled *Twelve Fantasy-Pieces after the Zodiac for Amplified Piano* and each piece is associated with both a zodiac sign and the initials of Crumb's friends, born under each sign. The pieces are theatrical works, calling on the pianist to sing, hum, whistle, and play extended techniques inside the piano. These works are considered masterpieces in the piano literature.

Preparatory Homework

This lesson is suitable for advanced undergraduate studies in form and analysis, preferably taken after the conclusion of the theory core, or at the beginning of a graduate-level semester. As such, students should research the piece individually, prior to analyzing it in the class situation. Students should listen multiple times to Crumb's *A Prophecy of Nostradamus* with the score (available on the Supplemental Materials website), and consider the preparatory questions and come to class with brief answers for each (Table 38.1).

Questions to consider (undergraduates):

- Who was Nostradamus?
- Sing the *Tema enigmatico*. Is this melody familiar?
- Study similar works, such as Claude Debussy's *Préludes* for Piano, Books I and II (1910, 1913) and Béla Bartók's *Mikrokosmos*, particularly Books IV–VI (1939).
- Describe "sympathetic resonance" as an extended piano performance technique.
- Consider the manuscript layout of this work, the staff shapes, score design, and possible meaning.

Questions to consider (graduates):

Consider all earlier questions, plus:

- Proportional relationships between sections.
- Dynamic contour of the entire piece.
- Set class relationships, strong tritone presence throughout.
- Numerological associations, time signatures, number of events/attacks.
- Pitch relationships between the two inner *Tema enigmatico* melodies.
- Pitch relationships evident on both local and large-scale levels.

Table 38.1 Analytical Summary

Form	• Palindromic piece, an exact mirror image around a central melodic axis • Graphic score is performed in retrograde order after the central axis point
Structure	• Proportional relationships between sections and inner sections decrease by half the content of the previous section • Palindromic tempo markings and pitch content • Sectional form delineated by rehearsal markings
Numerical symbolism	• Prime numbers used for time signatures and patterns of chordal attacks • 2:1 ratio of events between sections [32:16:8 8:16:32]
Pitch behavior	• Minor chords ubiquitous • [0123] prime forms suggested over both long-range and local-level material • Tritone relationship between chordal pairs in sections A and F • Mirror image of tritone chordal pairs (section A mirrors section F, chordal pairs presented in retrograde) • Chords and melodic material appear in retrograde order around the central <i>Tema enigmatico</i> axis • Incomplete pitch collections
Dynamics and articulation	• Use of dynamic extremes • Echo chords, pedal indications, tenuto, staccato, rapid changes of dynamic, acciaccaturas, “catching” chordal echoes
Extended techniques	• Piano used as a resonating instrument • Sympathetic resonance, cluster chords, pizzicato and glissando techniques
Extra-musical association	• <i>Dies irae</i> Gregorian chant, associations with death, wrath, tribulation • Nostradamus the prophet, the seeing “eye” of the score • Graphically designed score, non-standard manuscript format

Form

This piece is symmetrical in form and design, being an exact palindrome around a central axis of the *Dies irae* melody. The symmetry is graphically represented in a mirror-image score, which must be turned 180 degrees at the midpoint of the piece to be performed. In this example of *augenmusik* the staves are shaped to resemble an eye, referring to the all-seeing historical figure of Nostradamus, a sixteenth-century French philosopher and prophet.

Rehearsal letters A–F on the score provide sectional divisions of the piece. These letters can assist students to read the sections in correct order. All sections are played *attacca*. Students should take care with clefs in their analysis; section C uses treble clef in the right hand and tenor clef in the left hand. Upon rotation, section D uses the same note heads as section C but now applies the treble clef to the right hand and the tenor clef to the left hand.

An undergraduate class can approach this piece by summarizing the symmetrical properties of the graphic score and apply their pitch content analysis to support their points, using the analysis template provided. A graduate-level class should extend their analysis further to consider deeper-level symmetrical procedures of the form, key areas and time signatures used, proportional relationships between sections, patterns across time (i.e. dynamic events), and numerical symbolism. An advanced graduate class might even be challenged to create their own analysis template that depicts the aural and sonic reality of the piece.

Extra-Musical Association

Crumb's use of allegory is rich within this work. He uses both surface-level and deeper structural layers of meaning in his notation and choice of musical material. The curved manuscript staves of this graphic score clearly depict the shape of an eye, perhaps the prophetic eye of Nostradamus. The axis of symmetry in this piece is a short melody in the center of the work titled *Tema enigmatico* (the enigmatic theme) comprising sections C and D. This melodic material is a quotation of the *Dies irae, dies illa* (day of wrath) Gregorian chant melody from the Sequence of the Latin Requiem mass.² Students may be familiar with Berlioz's quotation of the *Dies irae* in the fourth movement of his *Symphonie Fantastique* (1830). Crumb marks this enigmatic theme at section C "Fatefully," linking the *Dies irae* material with its historical context. The use of Gregorian chant aligns this piece with the topical concerns of death, fate, the enigmatic/mysterious, and music from the shadows suggested by sympathetic resonance.

A graduate-level class should also investigate numerological symbolism within the piece:

- the only time signatures used in the piece are $\frac{13}{4}$, $\frac{11}{4}$ and $\frac{7}{8}$, all prime numbers.
- a 2:1 ratio of events (attacks) exists between each section [32:16:8 | 8:16:32].³
- the pattern of chordal attacks in sections A and F is based on prime numbers [7 7 3 5 1 2 1 3 1 2].

Pitch Content

The pitch material of this work appears in three distinct forms: chordal (triadic), melodic (chant), and resonant chords/clusters (glissando/pizzicato inside piano). Triadic chords only appear in minor forms and include open fifth passages at the end of sections A, B, E, and F. Sympathetic resonance is used in sections B and E, discussed below.

Pitch symmetry defines the palindromic properties of this score. Students should consider the mirror-image score design and its concomitant impact on pitch structure, by comparing opposing structural sections; A with F, B with E, and C with D. In sections A and F, patterns of tritone-related chordal pairs appear, B min–F min, D min–G# min (see Online Figure 38.1 in the Supplemental Materials). These chords are presented in retrograde on the opposing axis of the score: i.e. section F commences with the same chordal pairs but in reverse order, F min–B min, G# min–D min, etc. Students should recognize the alignment of pitch symmetry with graphic symmetry.

Pitch symmetry is also structurally suggested through the use of inversion relationships in chordal direction between opposing/mirrored sections. Comparing sections B and E, the pitch direction (root motion) of the right-hand chords in section B is *descending chromatic* [G#, G, F#, F], but the registral direction ascends. Conversely the chordal root motion in the opposing section of the piece, section E in the right hand, uses *ascending chromatic* material [G, G#, A, Bb], but the registral direction now descends. This technique suggests structural symmetry on both pitch and registral levels (see Online Figure 38.1).

Sections B and E suggest pitch relationships based around [0123] sets, in both the surface-level material and the long-range structure of these sections. The root of each chord in the left hand within section B outlines [C#, D, Eb, E], an [0123] prime form. The intervening right-hand chords also use root progressions outlining the [0123] set: G# min, G min, F# min, F min (see Online Figure 38.1). A graph of the highest and lowest pitch events also reveals long-range structural symmetry; tritone relationships exist between the registral extremes of material in sections A and F and sections C and D (see Online Figure 38.2).

The pitch collections of each section reveal an emphasis on tritone relationships. Sections A and F are symmetrical around a tritone axis (see Online Figure 38.2). Sections C and D, the *Dies irae*

melodies, also appear in a tritone relationship, with section C being in the key of G# minor and section D in D minor.⁴ Sections B and E exhibit small-scale internal symmetry through pitch-class set relationships.⁵

The aggregate pitch collections of each section also reveal long-range tritone relationships. The complete pitch collection in section A is missing an F#. The complete collection in the analogous section F is missing a C. These missing pitches (tritone, F# and C) commence the *Dies irae* themes in sections C and D, respectively, suggesting an interlocking tritone relationship between the four sections (sections A, F, C, and D) (see Online Figure 38.1).

Extended Performance Techniques

Extended techniques are ubiquitous in George Crumb's instrumental writing and appear frequently in his solo piano works. Within *A Prophecy of Nostradamus* Crumb explores dynamic extremes from *fff* to *ppp* and uses the keyboard's registral extremes. Sympathetic resonance features in sections B and F, where Crumb asks the player to silently depress left-hand chords, while strumming inside the piano strings with the right hand in a sweeping glissando motion performed with the fingertips.⁶ This technique of exciting the strings of the chord and their upper partials means that the depressed left-hand notes will resonate within the body of the piano underneath the right-hand chords played normally using the piano keys. Crumb's own notation of "PI" throughout these sections indicates the damper pedal.⁷ A similar technique is used in sections C and D, the *Dies irae* quotation, where the player must silently depress the pitches one octave above (section C) and one octave below (section D) the chant melody. This technique removes the hammers from the strings, resulting in strong overtone resonance.⁸

Two cluster chords appear at the start of sections C and D; section C asks the player to silently depress the white keys in the frame notation, from A0 to F2 while performing a seven second *fffz* glissando gesture across the strings with the thumbnail (*t.n.*). Section D requires the same gesture, but instead asks for the black keys to be depressed, from A#0 to F#0 with a seven second fingertip glissando performed now at *pp* level. The black versus white key dichotomy should be a signal to students for their analysis of the pitch-class relationship of sections C and D.

Analytical Summary

Undergraduate students should complete the analysis template (provided in the online Supplemental Materials) and seek pitch patterns at a surface level: tritone-related chordal pairs in sections A and F, pitch symmetry across a central axis, and the presence of [0123] sets in sections B and E. Students may also reveal structural connections between the pitch content and registral direction of triadic harmony in sections B and E. The instructor should suggest to the class that the analysis template corresponds to the graphic reality of the score; this will assist their structural determinations concerning pitch.

Directions for completing the analytical template (please see Supplemental Materials for the template and an answer key):

- write the root of each chord within the boxes provided for sections A, B, E, and F.
- transcribe the *Tema enigmático* melodic pitches onto the manuscript, take care with riddle clefs.
- determine pitch relationships on a local and global level, look for pitch symmetry.

See Table 38.2 for a sample lesson plan incorporating the activities suggested.

Table 38.2 Sample Lesson Plan

Activity	Description	Time (minutes)
Listen	Play piece to the class, with the score	3–5
Discussion	Instructor starts class discussion about analytical findings; use preparatory homework questions as a basis	5–8
Setup	Distribute the analysis template	2
Setup	Split class into two groups: Group one analyzes score sections A – C Group two analyzes score sections D – F	1
Analysis	Students analyze pitch content, write answers on template	10–15
Setup	Students find a partner from the opposite group and pool their answers, discuss in pairs. Reconsider homework questions	5
Discussion	Instructor calls on student pairs to reveal their analytical findings	5
Solution	Instructor reveals large-scale symmetrical design, discuss pitch content and topics not covered by students	4
Total Class Time		45

Notes

- 1 Richard Steinitz, “George Crumb,” *Musical Times* 119, No. 1628 (1978): 845.
- 2 *Dies irae, dies illa* translates to *day of wrath and tribulation*.
- 3 While 40 attacks exist in sections A and F, 32 attacks are triadic chords. The final eight attacks in each section are coda-like perfect fifths similar to the *dies irae* material of the melodic axis point.
- 4 The minor key reading is supported by the terminal pitches of each melodic fragment and the omnipresence of minor chords throughout the piece.
- 5 The left-hand tetrachords found in sections B and E are axial around C# in a T₂I relationship. The right-hand material within sections B and E present two tetrachordal sets each. Maintaining a mirror relationship for analysis, the first tetrachord in section B and the second tetrachord in section E exist in a T₃I relationship; conversely the second tetrachord in section B and the first tetrachord in section E exist in a T₂I relationship.
- 6 Crumb differentiates between two different pizzicato directions for piano strings: *f.t.* = fingertips, *f.n.* = fingernails. A glissando gesture with the thumbnail, *t.n.*, is also used in this piece.
- 7 Crumb labels the piano pedals (from right to left on a standard grand piano): PI = right (damper) pedal, PII = middle (sostenuto) pedal, PIII = left (una corda) pedal.
- 8 In section C, the resonating strings are one octave higher than the struck notes, and resonate strongly as the first partials in the overtone series above each melodic pitch. In section D, the depressed notes lie underneath the *Dies irae* melody, resulting in similar resonant properties, but now much weaker as the resonating notes sit underneath the melodic fundamentals. This weaker resonant effect is consistent with Crumb’s performance direction of “Like an echo” in this passage.

Bibliography

- Bass, Richard. “Sets, Scales, and Symmetries: The Pitch-Structural Basis of George Crumb’s “Makrokosmos” I and II.” *Music Theory Spectrum* 13, No. 1 (1991): 1–20.
- Burge, David. *Twentieth-Century Piano Music*. New York: Schirmer, 1980.
- Cook, Robert C. “Crumb’s *Apparition* and Emerson’s Compensation.” *Music Theory Spectrum* 34, No. 2 (2012): 1–25.
- Crumb, George. *Makrokosmos: Twelve Fantasy-Pieces after the Zodiac for Amplified Piano*, Vol I and II. New York: Peters, 1974.
- Crumb, George. *Makrokosmos I & II*. Margaret Leng Tan, piano. New York: Mode Records Mode 142, 2005. DVD.

Mapping Symmetry and Form

- Pearsall, Edward. "Symmetry and Goal-Directed Motion in Music by Béla Bartók and George Crumb." *Tempo* 58, No. 228 (2004): 32–39.
- Pearsall, Edward. "Dialectical Relations among Pitch Structures in the Music of George Crumb." In *George Crumb and the Alchemy of Sound: Essays on His Music*, ed. Stephen Bruns and Ofer Ben-Amots, 57–81. Colorado Springs: Colorado College Music Press, 2005.
- Roig-Francoli, Miguel. "A Theory of Pitch-Class-Set Extension in Atonal Music." *College Music Symposium* 41 (2001): 57–90.
- Steinitz, Richard. "George Crumb." *Musical Times* 119, No. 1628 (1978): 844–845, 847.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

PART VI

Form



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

PRINCIPLES OF FORM

Aine Heneghan

Music consists of sounds, and the word “form,” applied to music, means the arrangement of sounds. *Per-formance*, then, is the realization of particular sounds in a particular order.¹

Erwin Stein’s pithy definitions serve as a guide and inspiration for teaching musical form. As a theorist in a school of music, I interact with highly accomplished performers at both undergraduate and graduate levels. One of the skills that I seek to impart to these students is an engagement with, and an understanding of, musical form that moves beyond the taxonomic. I aim to model and promote an approach to musical organization – or what Stein calls the arrangement of sounds – that is patient, careful, and sensitive. The classroom then becomes a laboratory where we examine the intricacies of musical form and consider how those details contribute to, and indeed inform, performance decisions. By contemplating the musical construction and its relation to expression, my goal, in short, is to cultivate and nurture thinking musicians.

Classroom discussions of musical form tend to revolve more around *forms* than around *form*. Brainstorming, in my experience, leads students to cite sonata form (and the constituent exposition, development, recapitulation) and, if encountered in previous training, smaller thematic forms such as period and sentence. Subsequent discussion usually reveals that these and other forms are understood schematically, perceived as fixed and predetermined rather than the outcome of specific musical events. But our experience of the work is necessarily informed by hearing how it unfolds over time, and how we as listeners or performers apprehend those moment-to-moment associations. Moving away from a prescriptive understanding of form toward one that is more dynamic means that we focus less on *what* the form is and more on *how* it comes into being. In so doing, we consider form not just as a noun but also as a verb – the process of *forming*, how something is *formed*. If we are to understand how music acquires shape, structure, organization, arrangement, or form, we must shift the emphasis away from forms and onto the principles that generate those forms.² This entails examining how the material is treated – whether, and to what extent, it is repeated, varied, or developed, and how and why it is perceived as contrasting.

In this chapter, I demonstrate how these underlying principles effect form by comparing two themes from Beethoven’s first piano sonata. Although the repertoire is well known to most readers, the approach and orientation are probably less familiar. The scope is therefore limited in order to facilitate detailed discussion of principles. By interleaving analysis with broader strategies, my aim is to document how one can teach these thematic forms – and, more broadly, form itself.

Setting the Stage

Beethoven's Piano Sonata, Op. 2, No. 1, is standard repertoire for teaching form: the first movement begins with an unambiguous sentence (mm. 1–8; see Figure 39.1) and is cited in almost every textbook, while the second movement begins with a period (mm. 1–8, although, as we shall see, the theme does not end there; see Figure 39.2). (Links to recordings are available



Figure 39.1 Beethoven, Piano Sonata, Op. 2, No. 1, first movement, theme (mm. 1–8).



Figure 39.2 Beethoven, Piano Sonata, Op. 2, No. 1, second movement, theme (mm. 1–16).

in the Supplemental Materials.) That it is now routine to designate a theme as period or sentence presumes such categorization or labeling as the goal. But the search for the “correct” label runs the risk of becoming meaningless when students forget which is which and, moreover, when so many of the themes with which they are confronted cannot be shoehorned into either category. The labels do have the potential to be meaningful, however, but only if they are interrogated. Students should be encouraged to look beyond the designation and to probe the internal construction – specifically, to examine principles and their role in shaping and engendering the different types of thematic organization.

A strategy for studying themes therefore proceeds as follows. We begin by listening, preferably to a variety of performances (both historical and contemporary, if possible), and most importantly without a score, so that the first encounter with the work is an aural one. We listen ideally to the entire movement but at least to a passage that extends past the theme. Our first task is to identify where the theme ends, something that might initially seem obvious or even facile; however, it promotes thinking about how the piece divides, why it divides in a particular way (the criteria determining the division into sections), and when and how closure is achieved. Pinpointing where themes end is, therefore, a first step toward understanding formal definition. As we examine the theme more closely, we might liken it to a sentence in prose. Pursuing the analogy further, we parse the theme into its constituent elements, imagining the phrases in music akin to clauses in prose, and we observe the punctuation, commenting both on location and strength: if, for example, there are two or more cadences, how do they relate, and might it be helpful to think of them as analogous to the comma, semicolon, or period?

Scrutinizing the Opening Unit

The parsing process leads us to home in on the opening unit, something that can be encompassed in a single breath. Directing our attention to the opening means scrutinizing and dissecting its content (the choice of verbs here is deliberate in order to foster a close and detailed reading of the material): we identify its characteristic features, cataloging the melodic, rhythmic, and harmonic motives, while acknowledging articulation and dynamics as well as registral, timbral, and, if applicable, orchestral aspects. This is not a mere data-collection exercise, however, for our aim is to try and understand how the various constituents fit together to produce what we recognize as the opening structural unit (a neutral description to convey what is variously called the “basic shape” [*Grundgestalt*], “basic idea,” or, in some schools of thought, the “phrase”) and how, and in what ways, that unit is repeated in the course of the theme.

The opening unit is often, though not always, a two-measure idea, as is the case in both the first and second movements of Op. 2/1. In my experience (teaching both in the United States and Europe), students are inclined to rush past the opening to the succeeding measures, often jumping to the end of the theme or some other formal juncture, with the result that the reading, even if correct, lacks the detail required to understand the interrelationship of the thematic components as well as the context needed to comprehend the derivation of what follows. I therefore advocate a slow and deliberate examination of the opening unit, one that enables us to appreciate its content as well as its shape. To facilitate discussion, we seek to answer the following questions: What are the distinctive features of the unit? Acknowledge as many aspects as possible, including melodic, rhythmic, and harmonic characteristics. How is the unit shaped? And how is it demarcated or its ending defined?

In Op. 2/1-I, we observe the contrast between the ascending arpeggiated *staccato* quarters in m. 1 and the predominantly descending stepwise *legato* mixed values in m. 2, while recognizing that they are bound together by harmony and dynamic (tonic and *p*). In terms of the shape, we notice how the melodic line leads to the A $\flat$ on the downbeat of the second measure, and how the triplet figure, with its change of direction and shorter durations, serves to conclude the unit.

Op. 2/1-II begins with a repeated middle C articulated by a dotted rhythm. The A on the initial downbeat, following the leap of a sixth, is emphasized by duration (it comes to rest on the quarter), bass support (absent for the upbeat), and ornamental decoration (a turn). The leap creates a space in which melodic descent takes place, and the line, which is doubled in sixths by the tenor and nudged into life by the grace note, is drawn downward by the need to resolve the accented dissonances (B♭ as upper neighbor, G as passing tone), the latter enhanced by the re-striking of the bass note F. The downbeat of m. 2 is similarly characterized by an accented dissonance (now a double suspension over the dominant) that requires resolution by stepwise descent, thereby continuing the falling line of m. 1. But the repetition of the F (B♭–A–G–F | F–E), a quarter following the eighths, delays the resolution until the second beat, thus providing a satisfying end to the unit that we might liken to the effect of a comma in prose.

I try not to present such a reading as a *fait accompli* and instead pose questions to elicit observations about the unit and its characteristics. Although the discussion that leads to such a reading can be time-consuming, it is both worthwhile and necessary in order to understand the particularity of the theme. If we are to conceive of form as something that emerges (as opposed to a lifeless entity such as a box into which content is poured), we need to move beyond parsing the theme to consider the relationship between the constituent units – what connects them, what differentiates them, and what governs their succession (so that we as listeners can follow and make sense of the order in which events unfold). Our focus, therefore, is on the treatment of the opening unit – that is, how in the course of the theme it is repeated or varied, and how those repetitions or variations effect the form of the theme.

Repeating the Opening Unit

Our approach to form prioritizes principles, especially repetition as the foremost formal principle. I advocate a broad and expansive notion of repetition – namely, one that embraces *degrees* of repetition, much like the various shades of gray that can be observed along a spectrum between black and white. To help students conceive of repetition in this way, I pose a series of questions about the relationship between the opening unit and what follows. Is it repeated? If so, to what extent is it a repetition? Is it an exact or literal repetition (all features are retained)? Or is the repetition *almost* exact (the unit might begin on a different degree, but all, or almost all, features are retained)? Can you differentiate between essential and inessential features, and if so, which ones are repeated? Is it a modified repetition (the essential features are retained, but minor changes can be observed, e.g. the incorporation of ornamental figures)? Or is the repetition less obvious (only the inessential features are retained)? Is it therefore more of a variation than a repetition? Maybe the opening unit is followed not by a repetition but by something else, in which case construing it as a repetition might seem problematic. How do we understand the relationship then? Is it different? Mere difference would imply no coherence between the units, whereas contrast, grounded as it is in shared features, posits a contingent relationship with the opening unit. We therefore ask: what is held in common? How obvious, striking, or conspicuous are the common features? And how obvious, striking, or conspicuous are the changed features? In a contrast, the changed features are more noticeable: it is as if they come to the fore, while the common features seem to recede, thereby attracting less attention. What might appear binary – whether the opening unit is repeated or not – becomes nuanced when we emphasize principles. Reframing our investigation more in terms of “what is happening” (principles) rather than “what it is” (assigning a label or descriptor) makes it easier to think about different kinds of repetition and to understand the resulting forms, at both the small-scale and large-scale levels, as the outcome of that repetition. Students may prefer to discuss the principles of repetition, variation, and contrast, and this works equally well provided they realize that variation and contrast are underpinned by repetition. It is a matter of degree.

What does the application of such conceptual thinking look like in the classroom? Having examined the opening, we turn to the relationship between the first and second units. In Op. 2/1-I, the unit in mm. 3–4 is a clear repetition of that in mm. 1–2: although the order of the melodic elements is retained (adapted to the change in harmony), the underlying harmonic progression represents a reversal (i–V | V–i). The entry of the bass on the second quarter of m. 2 assumes the regular rhythmic movement of the melody, driving through the remainder of the measure onto the downbeat of m. 3 (at which point the harmony changes), and in so doing acts as a staple to bind the two units indissolubly together, thereby eliminating the need for an upbeat. In m. 4, the bass mirrors m. 2, this time on the dominant, leading us to expect the return of the tonic on the downbeat of m. 5. Viewed in this way, the relationship between the two units can be understood as an answering repetition, a factor that obviates the need for a cadence.

In Op. 2/1-II, the differences between the two units are striking: a new upbeat (expanded, two-voiced, and moving by step), a melodic leap on the downbeat (as opposed to that between the upbeat and downbeat), a new rhythmic motive (an eighth, sixteenth, and sixteenth-note rest, occurring on each beat), and a quicker rate of harmonic movement (I⁶–V⁶–I–V). And yet features are retained from the first unit, enabling us to understand it as related: it begins with the same note, concludes with the same suspension figure (re-voiced), and has the same harmonic trajectory from I to V. Furthermore, the melodic line of m. 3, though distinct in terms of its rhythmic content, presents a similar downward stepwise line and integrates a variety of features from the first unit, including the large leap (now displaced), the same high point C (now melodic rather than decorative), and the resumption of the suspension on the third beat. Although the connections are manifold, they are less pronounced than the differences we have observed, which is why this is deemed a contrasting unit. We note, too, the sense of gentle urgency that is created by the repeated rhythmic figure of the right hand in m. 3. The end in m. 4 can be understood as both an augmentation of that figure and a repetition of m. 2.

Exploring the Effects of (Non-)Repetition

Rather than simply looking ahead, we seek to draw conclusions from this detail. Assuming that the music under investigation relies on repetition for its comprehensibility and on variety for its interest, the basic question here is a straightforward one: what is the effect of repetition or contrast?

In Op. 2/1-I, the immediate repetition of the opening unit in mm. 3–4 demands change to avoid monotony. The word change means that the unit is not repeated as before, but clearly what follows is also based on repetition: the contents of the unit are compressed, condensed, or squeezed together so that the two-measure unit has contracted to just one. With m. 5 repeating mm. 1–2 (the grace note is a nod to the arpeggio of m. 1, and the unexpected rest on the downbeat is a characteristic of m. 2), and m. 6 repeating mm. 3–4, the effect is one of harmonic intensification and acceleration, culminating in the restored arpeggiated chord on the downbeat of m. 7. This marks the theme's climax – highest (A^b–B^b–C ascent), loudest (*sf–sf–ff*), and longest (half note) – from which the line recedes by stepwise descent, *diminuendo*, and a retardation (eighths and then quarters), all supported by the ever more rapidly moving harmony. The only cadence in this theme, therefore, is that at m. 8 (a half cadence).

There are two cadences in mm. 1–8 of Op. 2/1-II: a half cadence at m. 4, and an authentic cadence at m. 8. The first is necessitated by the contrasting unit in mm. 3–4, the punctuation enabling the listener to take stock and comprehensibility being assured by the repetition in the consequent. This repetition can be modified without challenging our ability to recognize it as such. The upbeat to m. 5 synthesizes and builds upon the two earlier anacrusis: beginning from the same middle C, it repeats the C–D–E from the second instance, and the interval of a sixth from the first is now filled in with sixteenth and chromatic passing tones. What is

heard in m. 5 recalls both mm. 1 and 4 (the cadential figure from m. 4 already subsumed by the added doubling on the fourth and fifth eighths), which allows something new to emerge. The expected F–E in the melody is replaced in m. 6 by the leap of a sixth (recall C–A) and supported by subdominant harmony, the first departure from either tonic or dominant. Rather than moving back within the interval, the melodic line pushes upward from D (a consonance) through E, but the upward movement is halted by the skip to G (an *appoggiatura*). Measure 6 thus dispenses with the possibility that the consequent breaks into two halves as did the antecedent. Instead, a single span featuring a broadening hemiola (three half notes in mm. 6–7, the cadential V highlighted by the reappearance of the dotted rhythm and turn) leads toward the triple suspension, surpassing those in mm. 2 and 4, to conclude the period.

Closure in both themes is achieved by liquidation, a process where characteristic features are relieved of their responsibilities or even removed. In Op. 2/1-II, the converging sixteenths on the final beat of m. 7 are exclusively chordal, devoid of the suspensions or *appoggiatura* that were characteristic of the theme (up to and including the first beat of m. 7). In Op. 2/1-I, this process begins as early as m. 5 with the contraction to a single measure (recall what is lost), and by m. 7 the characteristic triplet is excised from the descent and re-tasked with embellishing the downbeat of m. 8. The bass, however, continues the process of contraction, reduced to half-measure units ascending by step to the dominant. This reading explains the placement of the fermata on the third quarter rest rather than on the leading note as is often played.

Taking a Bird's-Eye View

The organization of themes is premised upon repetition, the particular physiognomy determined by its placement and nature. Assignment of the labels period or sentence is less important than recognizing that one is divided (period) while the other is not (sentence). Whereas the divided form, comprising two halves marked by cadences, is inherently more balanced, the undivided form is decidedly unbalanced. The immediate repetition of the opening necessitates a different treatment of the material, one resulting in a series of progressively shorter units that build toward the climax. That high point, often the registral peak, can be understood as the outcome of the momentum, following which a retreat enables closure with its sole cadence. Ultimately, what I seek to impress on my students is the effect of repetition not just on the structure of the theme but also on its character. We observe in the divided form how the repetition of the first half may be embellished or intensified in the second: were the two halves swapped, the result would be odd, illogical, and even nonsensical, because the second half, while basically a repetition, is predicated upon the first. The undivided form, however, is possessed of a much more heightened sense of energy, one that propels it toward its climax. This kind of understanding, which is more about the process of forming than it is about form, is what is relevant for the performing musician: it enables them to determine appropriate dynamic shadings and inflections of tempo to render audible their understanding – per-forming, to use Stein's expression.

When we focus on formal principles, we eliminate the necessity to formulate additional formal types or categories. Without resorting to hybrids, we recognize forms as results, as different manifestations of the same principles. What matters is not what they are called but understanding how they are generated, what differentiates their construction and the consequences that ensue. Just as a theme may be divided or undivided, it may also be simple or compound. The first eight measures of Op. 2/1-I and Op. 2/1-II are both instances of simple themes; the former is an undivided simple theme, the latter a divided simple theme. (It should be self-evident that simple here does not mean lacking in complexity, rather simple as opposed to compound.) But while Op. 2/1-II begins with what we understand as a divided simple theme, it extends past m. 8, and the theme does not

conclude until m. 16. However, our discussion of mm. 1–8 proceeds, as outlined earlier, on the assumption that it is an eight-measure theme, and only when students have a strong grasp of those measures do I ask them to rethink where the theme ends.

Now that our understanding of the theme has been secured by close analysis, we can examine what follows. In Op. 2/1-I, we notice how the concluding dominant chord is immediately undermined as V becomes v in m. 9, and how the melodic E $\sharp$ is left unresolved until it is revived as F $\flat$ (m. 20). But in Op. 2/1-II, we notice the clear repetition of material from mm. 1–8 in mm. 13–16, which leads us to ponder the function of mm. 9–12. Set off from the preceding music by a rest, the only moment of silence thus far, it seems to be something new. Having discussed the role of contrast within mm. 1–8, we consider how and why this section is heard as contrasting: what makes it different, and what connects it to what we have heard? There are many familiar features, the most obvious of which are the dotted upbeat figure (now incorporating a leap), repeated notes, and suspensions, but they are assembled into a new configuration, namely a two-measure unit that begins on the upbeat to m. 9 and is simply repeated with embellishment. Moreover, the harmony is strikingly different, underpinned as it is by a pedal C. We examine the emphasis on the dominant harmony, noting that the half-quarter rhythm recalls mm. 1 and 5 and that the incorporation of the seventh (B $\flat$) ensures that it is heard as dominant rather than tonic. Replete with Alberti figuration in the tenor, it can be described as “standing on the dominant,” something that captures perfectly the lack of harmonic ambition and conveys the impression that it is merely holding the tonic at bay. Examination of the two-measure unit and its embellished repetition – a typical construction for such a section – reveals that the ascending fourth that begins the first unit (m. 8, third beat) is replaced by a descending one in the repetition (m. 10, third beat: B $\flat$ –A–G–F in sixteenths). Both are followed by a repeated note (F), producing a suspension that reminds us of those that closed the units in mm. 1–8, especially since the filled-in fourth in m. 10, when extended with the suspension and resolution in m. 11, reproduces the stepwise melodic line (B $\flat$ –E) first heard in eighths in mm. 1–2. But the rhythmic diminution renders the repetition less conspicuous, making it suitable for what it perceived as a connected contrast.

In preparation for the return of the opening material, the Alberti sixteenths are liquidated into an ascending dominant arpeggio, which through a change of direction creates an opening for an embellished version of the upbeat to m. 3 (C–D–E). This leads not to m. 1 but rather to m. 5; the register here, which continues that of mm. 9–12 (finally coaxing the bass upward), may be a response to the ascent in m. 6. The economy of the reprise is further evidenced in m. 14 by combining the subdominant harmony from m. 6 with the sighing suspension from m. 2. The rest allows the ear time to assimilate the cross-references, while dividing the section into two in a manner of the antecedent. The *rinf.* upbeat is the strongest, leading to the melodic climax in m. 15, and closure is achieved with the re-voiced triple suspension. Despite the radical remodeling, the underlying rhythm of mm. 1–4 has been preserved in mm. 13–16.

The theme of Op. 2/1-II can thus be described as compound, *aba'*, where the *a* section is a divided form (period), *b* a contrasting middle section, and *a'* a shortened repeat comprising recombined elements from mm. 1–8. The idea of the period as a balanced structure is sacrificed somewhat in m. 6 in favor of the overall ternary design of the theme and the import of that imbalance is realized in the *a'* section. We witness in this compound theme not only different kinds of repetition (e.g. the repetition of mm. 1–2 in mm. 5–6 versus that in mm. 13–14) but also different kinds of contrast. The divided or periodic organization arises in response to the contrasting unit in mm. 3–4, but the compound design emerges in response to the contrasting middle section in mm. 9–12. The words unit and section are instructive, for they signify scale, and scale implies a difference of degree. We see a further example of this in what succeeds the theme, where a new arrangement of familiar characteristics is raised to a higher level of contrast by means of a new key.

Conclusion

The comparative study of themes presented here is intended to showcase the role of principles in musical forming. Although my case studies are drawn from the classical literature, the principles discussed here are equally valid for other music, whether tonal or not.³ And although I examine only themes in this chapter, the principles are the same whether we examine form at the local or global level. While the scale may change, the fundamental question concerns the interrelationship of parts, irrespective of their size. Once students have learned how to approach and understand compound themes, they are equipped to address contrast at the level of the full-movement form. Proceeding incrementally, we study ternary forms defined by contrasting middle sections – Minuets and Scherzi as well as other tonal and post-tonal pieces that exhibit a ternary design (e.g. Chopin, Nocturne, Op. 55, No. 1, or “Nacht” from Schoenberg’s *Pierrot lunaire*) – before moving to larger forms based on contrasting themes.

Regardless of what is placed under the microscope, be it a small or large form, a tonal or post-tonal work, we must magnify its details in order to understand how the musical object is treated – how it is repeated, modified, or transformed, and how those repetitions or transformations are arranged. Our focus, in short, is principles and their effect. To be alive to different possibilities of organization and expression, we need precision to draw these principles into consciousness but flexibility to interpret them. As the foregoing analyses indicate, such precision can be achieved using terminology that is both simple and straightforward. Not only does this facilitate wider application to different musics but the minimal jargon frees the student to adopt a more reflective stance, especially as they contemplate the implications of their analytical findings.

In the reorientation that is the privileging of principles, students are invited to reconceive form not as a series of labels that must be committed to memory but rather as the outcome of diverse musical processes and energetic impulses. The strategy outlined here stimulates thinking about forming and formation, aiding the understanding of how mutually dependent components collaborate to generate an evolving structure that is apprehended by the performer and communicated to the listener. Teaching in this way provides a necessary corrective to the taxonomic approach, revitalizing our classroom discussions, and, most importantly, restoring to musical form its inherent properties as a living organism.

Notes

- 1 (Stein 1962, 17).
- 2 This is a point I make in the conclusion of a recent article (Heneghan 2018, 204–205). Readers may notice the influence of the Second Viennese School on my thinking and pedagogical approach.
- 3 Space precludes showing how these principles can be applied to music outside the tonal period. However, interested readers may consult my analysis of a theme from a twelve-tone composition (Heneghan 2019).

Bibliography

- Heneghan, Áine. 2018. “Schoenberg’s Sentence.” *Music Theory Spectrum* 40, No. 2: 179–207.
- Heneghan, Áine. 2019. “The Theme of Webern’s *Variationen für Klavier*, Op. 27, Third Movement.” *Music Theory & Analysis* 6, No. 1: 129–137.
- Stein, Erwin. 1962. *Form and Performance*. London: Faber and Faber.

40

RECOMPOSING PHRASE STRUCTURE

Eric Hogrefe

Topic: Sentences and periods.

Goal: Students will understand subtle differences and similarities between phrase types.

Background: Students will need a basic understanding of the constituent parts of both a sentence and a period.

The benefits of stylistic composition for music theory students are well established (Cook 1996, Bailey-Shea 2004, Gauldin 2009, Rogers 2013). Yet, outside of the most basic assignments, composition tends to fit poorly within the timeframe afforded by a typical class. Topics dealing with larger structures, like phrase and form, are often completely out of the question. For many courses, then, composition becomes divorced from the kind of real-time feedback that is essential for any student's first attempt at a higher-level cognitive task like model composition. This lesson solves the dilemma by replacing out-of-class model composition with in-class recomposition.

The benefits of recomposition extend well beyond issues of time management. Shersten Johnson (2014) points out several advantages of recomposition, three of which bear mentioning here. First, recomposition can provide much-needed scaffolding in advance of more open-ended composition exercises. Second, recomposition can resist music theory's tendency to portray the composer as infallible genius, and encourage students to see themselves as creative and capable. Finally, recomposition addresses real-life problems faced by musicians.¹ Melissa Hoag also recommends recomposition as a way to foster a deeper appreciation for the kinds of works typically covered in undergraduate theory classes. Hoag explains that recomposition moves theory from a world of "ironclad 'rules'" to one of "actual compositional practice" (2013, 60–61).²

This lesson fosters an understanding of the similarities and differences between phrase types by asking students to recompose a given sentence into a period or a period into a sentence. William Caplin (1998) – along with the intellectual forbearers of his theory of formal functions – notes the important structural similarities between sentences and periods, phrase types that students usually learn as distinct categories. For this exercise, students take the first two measures of one phrase type – what Caplin calls the basic idea – and use that music to compose a phrase of the opposite type. For Caplin, sentences and periods both begin with a basic idea and the phrase evolves out of its elaboration in mm. 3–8. When students recompose a sentence as a period (or vice versa), they become instantly aware of both the similarities and the differences between the two musical structures.

The lesson unfolds in three parts, which I will refer to, respectively, as Analysis, Recomposition, and Discussion. The Analysis part introduces the material and gets students thinking about the

relevant aspects. This leads to the most important part, the Recomposition itself. Finally, a Discussion synthesizes the information learned.

Before students engage in actual recomposition, I find it helpful to ask a few analytical questions about the music. In choosing a piece, I look for a clear sentence or period, one where the texture could be easily reproduced within an hour-long class. (A melody-only variation also works.) I usually use Brahms's arrangement of the St Anthony Chorale, seen in Figure 40.1, and I will refer to that example here. We sing the melody, and perform some basic analysis, focusing on the phrase structure, harmonies, motives, and so on. This lesson fits best toward the end of a unit on sentences and periods, so these questions usually fly by. The goal is for students to understand how the phrase breaks down into its constituent parts, and to notice aspects of texture and harmony. These questions could also be covered in advance, as a short homework assignment.



Figure 40.1 Brahms's *Variations on a Theme by Joseph Haydn*, Op. 56b: Theme.

The recomposition task at the center of this lesson may represent a relatively complex cognitive task in relation to the kinds of tasks that first-year theory students usually encounter. Accordingly, I try to use the analysis portion of the lesson to address in advance some areas that might otherwise slow groups down later. For example, I usually introduce the idea of recomposition by asking students which measures could be eliminated from the ten-measure phrase in order to make it a standard eight measures. Students quickly realize that measures 3 and 8 could be taken out without seriously disrupting the underlying harmonic motion from tonic, through the subdominant to the dominant (and to the tonic in the consequent). I also ask students how the tonic is expanded in the first two measures. This draws attention to the lack of any inverted V chords, which may be unfamiliar for some students. I point out the thematic use of chromatic passing tones and, with that in mind, I ask whether the E $\sharp$ in m. 4 is best considered a chord tone or a chromatic passing tone. My hope here is both that students will reflect on the implications of Roman numeral labels, but also that they will emulate this kind of quick tonicization in their own realizations (see m. 6 of Figure 40.2). Finally, I ask for some ways we could fragment mm. 1–2 for the sentence's continuation phrase. Of course, students need not be familiar with Caplin's terminology in order to realize how the rhythm of m. 1 could be broken down into two one-beat ideas, each of which could form the model for subsequent sequencing.

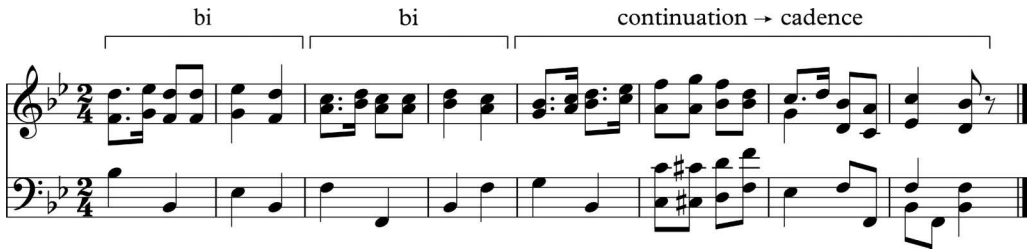


Figure 40.2 Possible student recomposition.

The bulk of the lesson involves separating the class into groups of three or four, and asking them to recompose Brahms's parallel period as a sentence. I ask students to maintain the same basic idea, but to compose a sentence instead of a period out of it. By maintaining the same basic idea, each group gets two measures for free. The challenge, then, is to plausibly complete a sentence from that basic idea. Students should emulate stylistic, motivic, and harmonic aspects uncovered earlier in the analysis. Whereas the original parallel period moves from the basic idea to a new, contrasting idea and a half cadence before starting over for the consequent, a sentence would require a repetition (usually sequenced) of the basic idea followed by a continuation and cadence. Students, again, need not have familiarity with all of these terms in order to understand their task. Knowing that mm. 3–4 are different from mm. 1–2 in a period, but repeat in a sentence should be sufficient. Some textbooks use much of Caplin's terminology, while others have different terms for the same concepts.

For the St Anthony Chorale, I would want to make sure that each group emulates the way chords are voiced with two voices in the right hand and one voice in the left hand, sometimes doubled at the octave. I would also point out the harmonic rhythm and the way that chords are elaborated through shorter rhythmic values. While students are working, I circulate, eavesdrop, and offer advice as needed.

Figure 40.2 offers one possible realization. A few things bear mentioning. Unlike the original parallel period, where the basic idea precedes a contrasting idea, in the sentence, the basic idea leads to a sequenced repeat on the dominant. Accordingly, the left hand maintains the same single-note texture for four measures instead of two. Also, since both the original and the recomposition cadence on the downbeat of the final measure, there is no particular reason to recompose it, and it has been kept identical. Some students may wish to eliminate the embellishments on this final tonic, which I would discourage as not stylistic. I might instead encourage them to add their own embellishments, rather than moving directly to tonic.

Recomposing in groups like this offers several advantages over a standard take-home composition assignment. By working in groups, students learn from, and rely upon one another to solve a real musical problem. I find that group composition assignments allow students to invest less self-esteem in the outcome, allowing for a more freewheeling discussion. At the same time, the assignment still requires the kind of intimate familiarity with motive, phrase, and harmony that standard composition assignments foster. Finally, the dialogue between Brahms and the three or four students in a given group often leads to a more immediately polished product than a brand new composition would. The ease with which a group is able to produce something that sounds genuinely Brahms-like tends to pleasantly surprise the students.

The third large part of the lesson involves reflecting on the recomposition through some in-class discussion. I facilitate this discussion by projecting students' finished works on an

overhead projector, and asking the class to evaluate according to a few carefully chosen parameters. Of course, peer evaluation in this kind of public setting introduces some possible pitfalls, and maintaining productive discussion is paramount. A lot of this can be accomplished by modeling appropriate behavior. I also stress how we can learn from evaluation: “in the future, you may wish to avoid the problem like this.”

During these discussions, I like to ask students to focus both on questions relating to musical form and broader stylistic matters. To stress form, I may call on a student to look at the example on the board, and explain how its repeated basic idea alters the original. Is it a sequence? Is it transposed to the dominant? What other options were available? Regarding style, I want students to reflect on the subtle, possibly even unconscious, compositional choices they made in adhering to the spirit of the original. Returning to Figure 40.2, I might ask a student what note in Brahms’s original justifies the C# passing tone in the recomposition’s left hand in m. 6.

This lesson offers much in terms of active learning in the area of musical form, but it also presents the instructor with certain challenges. Like all group work, picking appropriate groups requires close attention. Communicating clear directions and expectations can also pose problems. In particular, the idea of maintaining the style of the original causes some difficulty. I often ask students to imagine that Brahms could not make up his own mind about whether to compose a period or a sentence, and to reproduce exactly what he would have written if he had chosen a sentence. I also warn them in advance that they should be able to justify each of their choices. I often reinforce this while they are composing by asking individual groups to justify certain decisions. (“Why did you make this an eighth note, and not a quarter?”) During the Analysis and Discussion, it is important to ask well-formed questions. I follow many of Scott Dirkse’s suggestions for effective questioning in music theory classes (2014). Finally, groups work at different speeds. Thus, some groups may finish quite quickly while others may not be able to finish in time to participate fully in the Discussion. While there is no single solution to these issues, they can be mitigated. For example, if a group is moving faster than the others, I may point out minor stylistic issues that, in other groups, I would usually let slide. I might also ask them to add one or more non-chord tones, to take up a few minutes. I usually avoid slow groups by assigning one person in each group to keep an eye on the clock (see Colletti 2013).

Recomposition provides a vital scaffolding step toward out-of-class model composition assignments by limiting the scope of the assignment such that it can be completed in class with real-time feedback from the instructor. While recomposition assignments might prove valuable for any number of topics, they lend themselves nicely to study of phrase and form. Several additional phrases that lend themselves to recomposition can be found on the companion website. This lesson familiarizes students with the precise motivic and harmonic inner workings of these phrase types, and demonstrates how what they learn as opposing phrase types are actually quite similar within the context of compositional practice.

Notes

- 1 Gawboy (2013).
- 2 Hoag offers a lesson plan that is, in many ways, similar to the one offered here. Hoag asks students individually to recompose the consequent phrase of a contrasting period (she uses the beginning of Beethoven, op. 13, ii) to create a parallel period. Like me, she splits her recomposition exercise into three parts. Students play through the original first, and then recompose the phrase as a homework assignment, and again outside of class, they write a brief reflection essay. Her second part aligns closely with mine, but with two important differences. First, her recomposition takes place individually, whereas I specifically want students to work in groups for a lower stakes, and more collaborative entrée into this higher-level cognitive task. Second, her assignment links parallel and contrasting periods

whereas mine links sentences and periods. This distinction is not insignificant; my lesson aims to draw student's attention to the similarities between sentence and period, which are usually taught as opposite phrase structures. My lesson builds on Caplin's insight that sentences and periods convey identical formal functions within their initial two measures.

Bibliography

- Bailey-Shea, Matthew. 2004. "The Importance of License in the Pedagogy of Model Composition, Past and Present." *Journal of Music Theory Pedagogy* 18: 53–63.
- Caplin, William E. 1998. *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven*. New York: Oxford University Press.
- Colletti, Carla R. 2013. "The Silent Professor: Enhancing Student Engagement through the Conceptual Workshop." *Engaging Students* 1.
- Cook, Nicholas. 1996. *Analysis through Composition: Principles of the Classical Style*. Oxford: Oxford University Press.
- Dirkse, Scott. 2014. "Effective Questioning Strategies for the Music Theory Classroom." *Journal of Music Theory Pedagogy* 28: 69–84.
- Gauldin, Robert. 2009. "The Evolution of a Styles Simulation Course for Graduate Theory Students." *Journal of Music Theory Pedagogy* 23: 101–21.
- Gawboy, Anna. 2013. "On Standards and Assessment." *Engaging Students* 1.
- Hoag, Melissa. 2013. "'Hearing What Might Have Been' – Using Recomposition to Foster Music Appreciation in the Theory Classroom." *Journal of Music Theory Pedagogy* 27: 47–70.
- Johnson, Shersten. 2014. "Recomposition as Low-Stakes Analysis." *Engaging Students* 2.
- Rogers, Nancy. 2013. "Modernizing the Minuet Composition." *Journal of Music Theory Pedagogy* 27: 71–110.

41

TEACHING MUSICAL STRUCTURE THROUGH DISNEY SONGS

Andrew Vagts and Douglas Donley

Topic: Aural identification of phrase-level musical structures.

Goal: Students will be able to identify period and sentence structures without the aid of a musical score.

Background: Students should already have been introduced to the music-theoretical terminology used to describe period and sentence structures.

Introduction

Musical phrase structure is usually presented during the second semester of a college-level theory curriculum. Typical textbook examples include mm. 1–8 of Mozart’s Piano Sonata in A major, K. 331 or mm. 1–8 of Beethoven’s Piano Sonata No. 1 in F minor, op. 2, *Allegro*. These examples, usually taken from Western art music, may seem to students like relics of a distant musical past, thereby making period and sentence structures irrelevant to their own music-making experiences. Thus, this lesson seeks to engage students with music that they are more likely to have heard during their childhood. Disney songs offer a potent opportunity for this type of engagement, because most students will know (and likely be able to sing along with) the various tracks featured in these animated films.

Disney songs offer a wealth of sentence and/or period structures that correspond with their Baroque and Classical predecessors. For example, “The World’s Greatest Criminal Mind” from *The Great Mouse Detective* features a parallel period with embedded sentences (beginning at 1:44 in the YouTube recording linked in the Supplemental Materials):

ANTECEDENT:

[Basic Idea] “Oh, Ratigan!”

[Basic Idea] “Oh, Ratigan!”

[Continuation] “The rest fall behind.” [IAC]

CONSEQUENT:

[Basic Idea] “To Ratigan!”

[Basic Idea] “To Ratigan!”

[Continuation] “The World’s Greatest Criminal Mind!” [PAC]

While other systems can easily be substituted for the instructor's convenience, we have chosen to employ phrase structure terminology consistent with Chapters 15 and 16 of Steven Laitz's *The Complete Musician* (2015, 378–408). The instructor may also wish to reference William E. Caplin's explanation of sentence structures in *Classical Form* (1998, 35–48). Using Laitz's taxonomy, we observe that the earlier excerpt specifically presents a parallel sectional period (PSP): the antecedent ends with a imperfect authentic cadence (IAC; the melody arrives on *sol* at the end of this phrase), and the consequent ends on a perfect authentic cadence (PAC; melody on *do*). Moreover, the song's text reinforces this reading since the first and second statements of Ratigan's name outline the two sentential basic ideas, while the third and fourth establish the phrases' parallelism.

Classroom Implementation

We have taught this lesson to classes of various sizes between 25 and 70 students. Below, we outline three adaptations of this lesson, one for a medium-sized class (roughly 10–30 students), one for large, lecture formats, and one for small, seminar-style courses. The instructor should take into account the following considerations before using this lesson plan for a class of any size:

1. In preparation for this lesson, instructors should assemble a list of approximately ten songs that feature sentence and/or period structures. The excerpts provided in this lesson are but a sampling of numerous examples to be found in the Disney corpus. Be sure to preview all of your chosen examples as some Disney songs are either too simplistic to make the activity meaningful or too complex to be reasonably completed in a single class period. Prepare a handout for the class with the lyrics of any song that you wish to include in the lesson (preferably with blank space between lines in which form diagram labels may be added). In addition, you may prepare your own form diagram of a particularly complicated example to work through with the students at the end of class if time permits. Songs we have found to be successful include the following:

“The Bare Necessities” from *The Jungle Book*
“Beauty and the Beast” from *Beauty and the Beast*
“Be Our Guest” from *Beauty and the Beast*
“Can You Feel the Love Tonight” from *The Lion King*
“Chim Chim Cher-ee” from *Mary Poppins*
“Colors of the Wind” from *Pocahontas*
“Everybody Wants to Be a Cat” from *The Aristocats*
“Friend Like Me” from *Aladdin*
“Friends on the Other Side” from *The Princess and the Frog*
“He’s a Tramp” from *Lady and the Tramp*
“I Just Can’t Wait to be King” from *The Lion King*
“Poor Unfortunate Souls” from *The Little Mermaid*
“This is Halloween” from *The Nightmare Before Christmas*
“Under the Sea” from *The Little Mermaid*
“The World’s Greatest Criminal Mind” from *The Great Mouse Detective*

2. Do not pre-assign excerpts to the students prior to the class period in which you intend to use the lesson; the goal is for the students to make real-time analytical decisions without listening to the excerpt many times.
3. Do not provide the students with scores of any excerpt, as this is primarily a listening exercise. Guidelines for successful listening-based form analysis activities can be found in Matthew

Santa's *Hearing Form: Musical Analysis With and Without the Score* (2010, xi–xvi and 1–30). In short, Santa focuses on the following:

- a) Tonicize in the key of the excerpt.
- b) Listen for obvious melodic arrivals to identify cadence types (*do* or *mi* in the melody indicates an authentic cadence, whereas *ti* or *re* indicates a HC).
- c) Take mental note of repetitions and/or parallelisms at any point in the phrase(s).

For small classes

Begin class by leading the students through a simple excerpt. First, play a recording of the excerpt to familiarize your class with the music. Second, ask your students to actively listen for the location and type of cadences. Remind them that, just as in art songs (German Lieder, etc.) the poetic form of the text is usually reinforced by these cadential locations. Third, ask the students to determine what phrase types lead to the cadences they have already identified. They should be as specific as possible, identifying basic ideas, continuations, parallelisms, etc. as appropriate. Finally, create a form diagram of the excerpt as illustrated by the earlier Ratigan example being sure to identify the full phrase structure using the terminology of your choosing (again we recommend Laitz). You may repeat this process with a more complicated excerpt to make the students aware of the possibility of more complex phrase types/attributes (phrase elisions, cadential extensions, forms that are open to question, etc.). For example, in the final chorus of “Under the Sea” from *The Little Mermaid*, the arrival of the final PAC is delayed by recycling a sentential continuation several times (beginning at 2:36 in the YouTube recording linked in the Supplemental Materials):

ANTECEDENT:

[Basic Idea] “Under the sea,”

[Basic Idea] “Under the sea,”

[Continuation] “When the sardine begin the beguine, it’s music to me.” [IAC]

CONSEQUENT:

[Basic Idea] “What do they got? A lot of sand?”

[Basic Idea] “We’ve got a hot crustacean band.”

[Continuation 1] “Each little clam here know how to jam here, under the sea.” [PAC]

[Continuation 2] “Each little slug here cuttin’ a rug here, under the sea” [PAC]

[Continuation 3] “Each little snail here know how to wail here” [abandoned]

[Continuation 4] “That’s why it’s hotter under the water” [abandoned]

[Continuation 5] “Ya we in luck here down in the muck here, under the sea” [PAC]

Divide the class into small groups (two to four people depending on your class size) and assign each group one song. Request that students utilize their personal electronic device (cell, tablet, etc.) to locate a recording of their song. High-quality recordings can be located on the Walt Disney Records official YouTube channel (DisneyMusicVEVO). Give the students 15 minutes to create a form diagram of the portions of their song that exhibit sentential or period structures. The form diagrams will inherently take shape around the text of the song given that no score is provided. During this time, instructors should move about the classroom observing student progress and offering guidance on challenging passages such as phrase elisions.

After the form diagrams are complete, students should present their findings to the class. Projecting student form diagrams is helpful at this stage of the lesson so a document camera is recommended. We have found the following presentation method to be effective: each group

should elect a representative to present their form diagram to the class. This representative should highlight notable features of their analysis to prepare the rest of the class for the upcoming listening activity. Only after this should a recording be played so that everyone has the opportunity to confirm the accuracy of the presenter's diagram. While the recording plays, the presenting group should guide the class by saying the phrase parts in real-time with the music. Finally, the class should offer refinements of the presenting group's analysis, especially if the class feels that a phrase structure has been omitted.

Modifications for large, lecture formats

The typical undergraduate class period will not permit a large class to complete all of the activities described earlier. As such, we have devised a few modifications to the lesson to accommodate such situations. Depending on your class's size and allotted time, the following alterations may be used singly or in combination to maximize pedagogical efficiency:

1. Small, selectively chosen excerpts (rather than entire songs) can be assigned to each group. This modification is doubly useful since the 15 minute group-prep time can be reduced, and because students will not need to play the entire song during their presentations.
2. Groups can be increased in size. We do not recommend more than five students per group as this encourages non-participation by students who do not understand the material and/or who do not have outgoing personalities.
3. In some situations, the sheer number of groups will be too large to permit each to present individually (e.g. 90 students is at least 18 groups). In this circumstance, more than one group may work independently on the same selection. During presentation time, the groups working on the same tune can present one after the other followed by a single listening. This strategy offers the benefit of comparing two or more analyses of the same piece; just because two analyses are different does not mean that one or the other is incorrect. In any case, this dialogic effort should produce deeper understanding of the excerpt as diverse opinions are brought to bear.

Modifications for small, seminar-style courses

A class of ten or fewer students will probably work through the activities described earlier quite quickly. This will leave time to expand the lesson in one or more of the following ways:

1. Go through two rounds of presentations such that each group presents on two different tunes. You may, for example, choose to assign excerpts grouped by film rather than single track. Another possibility could involve having rather simple excerpts on the first round, followed by a more challenging second round.
2. Take time to present an especially difficult excerpt that you have prepared yourself. For example, you may choose to examine the unusual sentence at the end of "Under the Sea" (as mentioned earlier).
3. Add a short dictation activity to the lesson where the students not only label the form but also notate the melody and/or harmonic progression in part of their song.
4. If students work on an excerpt with any exceptional characteristics (such as the earlier example of "Under the Sea"), ask them to find a way to make the excerpt operate in a more "normative" fashion, that is, eliminate the phrase irregularity while maintaining the integrity of the song. This will usually involve removal of text and will therefore force the students to consider what words are essential to the song's meaning.

Suggested Homework Assignment

To solidify the concepts learned during class, we recommend that students be asked to locate and diagram a Disney tune of their choice (other than those used in class, of course). Admittedly, students who simply choose their “favorite song” will often select tunes that are either too simplistic to suffice for concept reinforcement or not representative of classical phrase structure. For this reason, you may wish to provide the students with a preapproved list of songs. We recommend the following instructions for the assignment:

1. Locate a Disney song of your choice for which a recording is available.
2. Create a form diagram of all sentential and period structures, labeling all cadences, phrases, and phrase parts by type. Do not utilize a score; instead, your diagram should revolve around the text that you supply.
3. You will also write a paragraph about your excerpt. Depending on your excerpt’s attributes, choose one of the following:
 - a. If your song contains one or more phrasal anomalies, choose one and write a brief description of why it is unusual, as well as why you believe it still works in the song’s context (especially if there appears to be an instance of text-painting/text-expression involved). Also provide a rewrite of the excerpt that “normalizes” the oddity.
 - b. If your song contains exclusively standard phrase types, write a paragraph arguing for or against this simplicity. Specifically discuss whether or not the “normalness” is appropriate with the song’s text. You should cite specific musical features to support your argument.
 - c. If the song you choose does not appear to contain any classical phrase structures, write a paragraph, citing specific musical features, that rationalizes the composer’s formal choices. Your explanation might reference the characters’ states of mind or elements of the narrative.

For obvious reasons, it is challenging to provide a recommended point breakdown for this assignment. However, since every student will create a form diagram and write a paragraph, these two items can each be worth half of the points. The diagrams can easily be graded for accuracy (correctness of cadential locations, phrase types, correspondence to the text, etc.). The paragraph will, by necessity, be graded more impressionistically, but, in general, we recommend the following rubric (Figure 41.1):

Grade	Qualitative Features of the Paragraph
A	The student’s prose is highly insightful and exhibits accurate grammar and spelling.
B	The student makes some good points and has few grammar or spelling errors.
C	The student’s paragraph is analytically thin or does not effectively present their argument OR there are several errors in grammar and spelling.
D	The student’s argument is unclear or untenable OR their prose is full of spelling and/or grammar errors.
F	The student made little or no effort to complete this portion of the assignment OR the student’s writing style is so poor that it makes their point impossible to decipher.

Figure 41.1 Suggested grading rubric.

Conclusion

Once again, this lesson serves both to engage students with familiar repertoire and to encourage active listening. Disney songs, rather than representing a new tradition, instead often reinforce the period and sentence structures found in classical examples. This continuity in compositional strategy facilitates comprehension of “antiquated” music in new listeners.

Bibliography

- Caplin, William E. 1998. *Classical Form*. Oxford: Oxford University Press.
- Laitz, Steven G. 2016. *The Complete Musician: An Integrated Approach to Theory, Analysis, and Listening*, 4th ed. Oxford: Oxford University Press.
- Santa, Matthew. 2010. *Hearing Form: Musical Analysis With and Without the Score*. New York: Routledge.

42

FROM THEORY TO PRACTICE

How to Compose a Sentence

Andrew Schartmann

Topic: Composition of an eight-measure sentence.

Goal: Students will deepen their familiarity with the sentence theme-type through composition. They will also learn how to leverage their musical intuitions to both creative and theoretical ends.

Background: A firm grasp of diatonic harmony; a basic knowledge of the sentence theme-type.

Introduction

When teaching music, transitioning from theory to practice is an especially challenging task. As I have discovered through years of teaching undergraduates, however, that task can be simplified by drawing attention to a resource that is easily overlooked: the musical intuitions of the students themselves. By tapping into this resource, students discover how much they already know about music and become more confident in their ability to compose. In this chapter, I show how to leverage intuition when teaching the sentence theme-type.

Theory

In the first part of this chapter, I review two categories of harmonic progression: tonic-prolongational and cadential. Generally speaking, it works best to present examples of these progressions in paradigmatic form before showing how composers use them in practice. Be sure to include different types of contrapuntal motion in these prolongational progressions you choose. I typically include one example each of a neighboring chord ($I-V_5^6-I$), a passing chord ($I-V_3^4-I$), and a double-neighbor figure ($I-V_3^4-V_5^6-I$). I also choose examples that focus on inversions of dominant-seventh chords, as these are common in the Western classical canon, and the part-writing thereof tends to be easier for students than progressions involving $vii^{\circ 6}$. For cadential progressions, it is sufficient to provide one example each of an authentic cadence (AC) and a half cadence (HC). I strongly encourage using progressions with ii^6 instead of IV, given the prevalence of the former in the high-classical repertoire. Providing at least one model with a cadential six-four preempts the stagnant endings (e.g. $\hat{2}-\hat{2}-\hat{1}$) that beginners tend to write, as does including V^7 (as opposed to V) in the authentic cadential progression. My progressions of choice are as follows: ii^6-V (HC); $I^6-ii^6-cad_4^6-V^7-I$ (AC).¹

With these progressions in hand, ask students to analyze the harmony and cadence(s) of one or two sentence theme-types. A handout containing the sentence theme-types that I use most often – Mozart’s Piano Sonata in C, K. 545, ii, 17–24 (Alberti bass); and Beethoven’s Piano Sonata in F minor, Op. 2/1, i, 1–8 – is included in the Supplemental Materials as Handout 1. If you

a Allegro

b "stability" "motion" "cadence"

Figure 42.1 Beethoven, Piano Sonata in F minor, Op. 2/1, i, mm. 1–8: (a) original, (b) harmonic reduction.

choose different examples, ensure your selections contain an unambiguous texture so as to minimize the conceptual leap between four-part chorale-style harmony and free composition. Themes that employ an Alberti bass, for instance, provide a clear and consistent environment in which to distinguish bass lines from instrumental textures. To help students make this distinction, ask them what the cellos and basses would play if the class were to orchestrate the theme in question, and then have them sing the resulting line. When presenting these examples, it is essential that you encourage your students to *feel* (not just to hear) how the grounded quality of a tonic prolongation contrasts with the vectored nature of a cadential progression.

Once students connect viscerally with the music, the compositional logic behind the sentence form falls into place: a two-measure idea is repeated to create a four-measure unit, all over a tonic-prolongational progression (*stability/rest*); the music is then broken down into smaller units (called fragmentation), which often bring about an increase in harmonic rhythm (*instability/motion*); and that music eventually gives way to a cadential progression charged with bringing the music to a close (*motion toward rest*). An effective way to demonstrate the essence of the sentence theme-type is to play a harmonic reduction of an example from the repertoire, while maintaining the *relative* harmonic rhythm. Play the original (Figure 42.1a); play the reduction (Figure 42.1b); and then play the reduction a second time, calling out simple terms that illustrate the form (e.g. “stability,” “motion,” “cadence”). To maximize the impact of this exercise, it is important that the example you choose contains fragmentation and an increase in harmonic rhythm, like Beethoven’s sentence in Figure 42.1. Once students have experienced the formal logic of the sample themes through a reduced version, they should be ready to work on a theme of their own.

Student Response

Allegretto alla marcia

p *f*

5

Figure 42.2 Completed sentence with altered version of student response.

Practice

The second part of my lesson is devoted to composing a sentence on a given basic idea (Figure 42.2). A student handout containing the basic template for this exercise is included with the Supplemental Materials as Handout 2a, and a completed instructor's version is included as Handout 2b. This task can seem overwhelming, but it becomes less so when broken down into smaller steps that call upon musical intuition.

A good first step is to isolate the basic idea's melody, play it on the piano, and ask students to audiate and write down what they feel should come next. The consistency with which students respond is remarkable; in my experience, the vast majority of them notate the exact same response (Figure 42.2) – one that presents an opportunity to teach students how melodic contour and form interact, as well as how seemingly singular lines can express multiple voices. To initiate discussion, change the final note of their response to an F, and have them sing both versions. Then ask them which of the two sounds more open-ended. Their answer will provide an opportunity to explain how a presentation serves to *open up* musical space – or at least not shut it down – despite being supported by a stable tonic–prolongational progression. Consider taking a brief detour here to recompose a different example so as to emphasize the point. For example, take Mozart's Piano Sonata in F, K. 332, iii, 50–53, and change the melody of m. 53 to E $\flat$ –D–C; both the original and altered versions (ossia staff) are available in the Supplemental Materials as Handout 3. Once you have done this, return to your recomposition of Figure 42.2's basic idea, and discuss another benefit of using F instead of D – namely, that F resolves the chordal seventh from m. 3. This opens the door, time permitting, to show how the melody implies more than one voice.

With this new version of the presentation phrase in hand, and a knowledge of prolongational progressions at their fingertips, students are now able to fill in a suitable three-part harmony (Figure 42.2). The class should begin this process by composing a bass–soprano counterpoint while consulting the paradigm sheet. If this proves more difficult than anticipated, reduce out the rhythm from the basic idea's repetition and ask students to harmonize the melody in quarter notes instead. You can then add rhythm to the bass line for them.

Once this foundation is in place, students must confront the challenge of omitting pitches from the governing harmony – a process contrary to that with which they are most familiar (i.e. doubling). Although it is prudent to remind students that the fifth of a dominant–seventh chord can be left out, do not sacrifice the deeper lesson that presents itself. Many will notice that the downbeat of m. 2 spells vii $^{\circ 6}$, even though the paradigm sheet suggests V $^4_3$. Take this

opportunity to illustrate how chords and texture interact in instrumental settings, and more specifically how chords can be composed-out over time. In m. 2, for instance, collapse all four pitches into a single chord to show how each member of V_3^4 is represented. With this lesson in mind, and in light of your reminder concerning the chordal fifth, students should find it relatively easy to compose the inner voice of mm. 3–4 once they figure out how to voice the downbeat of m. 3 (an A–F dyad).

The continuation phrase is more difficult to compose, as it requires four measures of original music. This is the moment at which I turn away, at least momentarily, from the pitch-centric models that guide much of our teaching. Rather than asking students to intuit four measures of continuation, try reducing the basic idea down to its rhythm and discuss which of its halves is more characteristic. Once you have settled on an answer, return briefly to Beethoven's Op. 2/1 to highlight how the composer uses fragmentation to “raise the temperature” of the music. With his model freshly in mind, students should be able to construct a rhythmic outline of mm. 5–6 by simply repeating the decided-upon half. You can then return to the intuition model and ask students to improvise a rhythm for the entire continuation phrase. Answers will vary, so be prepared to go along with whatever the class creates. For the purposes of this tutorial, however, feel free to consult Figure 42.2, which reproduces the theme composed by my Tonal Practice I class at the New England Conservatory in Fall 2018.

At this point, it is better to pin down a solid harmonic progression for mm. 5–8 than to devise a melody that fits your improvised rhythm. Because students are already grappling with a number of unfamiliar concepts, I have found that giving them fewer harmonic options is more productive. As such, I ask students to support the entire continuation phrase with a cadential progression – what Caplin calls an expanded cadential progression (ECP)² – for which they have two paradigms. To narrow the pool down to a single option, direct students to conclude the theme with a perfect authentic cadence (PAC). This forces them to employ a steady harmonic rhythm, and thus to diverge from the Op. 2/1 model,³ but the resulting harmonic rhythm of one chord per measure is worth the sacrifice, as it provides the class with an easy-to-grasp framework for melodizing the rhythm. In brief, students should take the I^6 – ii^6 – cad_4^6 – V^7 – I cadential progression as given earlier and spread it out over the entire four-measure continuation phrase: one measure of I^6 , one measure of ii^6 , one measure of cad_4^6 – V^7 , and one measure of I . This expansion of the cadential progression beyond its normative two-measure length is what Caplin means by an ECP.

Results will vary somewhat at this stage, but no matter the outcome, be sure to provide some guidance with respect to melodic contour. Point out, for instance, that the presentation phrase circles around F, and that to continue this circling would lead to a stagnant line; suggest that the continuation phrase demands a new high point to precede the eventual descent back down to the tonic, and circle back to your initial alteration of the presentation phrase, explaining how a descent to D at the *end* of the theme aligns with the formal logic. If students become stuck, have them write out possible chord tones in the treble staff and test different melodic paths by connecting the dots. This will also give them ideas for how to fill in the harmony, though you should expect pianists to have an upper hand here. Try to work with whatever your students suggest, and be sure to perform their creation at the end of class. Most will be exhilarated by their newfound (or rediscovered) ability to compose music for which they already possess – perhaps unbeknownst to them – a certain aptitude. To foster this excitement, I usually ask students to compose a sentence of their own for homework, using the techniques discussed in class. Handout 4 in the Supplemental Materials provides an assignment with a new basic idea that is similar in musical content to the one used in class.

Depending on which course you are teaching, various conceptual strands from this lesson can be elaborated upon and weaved into future lessons. The concise form and straightforward harmony of our example here lend themselves well to new compositional projects. Our discussion of m. 2

and the composing out of chords over time, for instance, could be further developed into a class on theme and variations. How do we express harmony in a pianistic idiom? How do we connect and embellish individual members of a melodic skeleton? And how do we group individual variations into larger formal arcs? As an example of where these questions might lead, I've included a sample variation as Handout 5 in the Supplemental Materials. No matter the details, however, I hope that this brief lesson inspires you to probe just a little deeper for the music that lies within your students.

Notes

- 1 William E. Caplin's *Analyzing Classical Form: An Approach for the Classroom* (New York: Oxford University Press, 2013), 3–23, provides a valuable resource for paradigmatic progressions in SATB format, and Edward Aldwell and Carl Schachter's *Harmony & Voice Leading*, 3rd ed. (Belmont, CA: Wadsworth Group, 2003), 619–638, provides a similar compendium of harmonic paradigms in keyboard style. Both texts emphasize the Schenkerian concept of prolongation.
- 2 For a more thorough discussion of this topic, see *Analyzing Classical Form*, 60–63.
- 3 On an assignment, you might challenge more advanced students to compose a sentence that exhibits an increase in harmonic rhythm.

INCORPORATING LATIN-AMERICAN POPULAR MUSIC IN THE STUDY OF MUSICAL FORM

Gabriel Navia and Gabriel Ferrao Moreira

Topic: Theme types in Latin-American popular music.

Goal: Students will become acquainted with four theme types common in some Latin-American popular music genres.

Background: Students should be acquainted with some of Caplin's tight-knit themes (sentence, period, hybrids, and compound themes) and with chord symbols as used in popular music.

Undergraduate and graduate courses on musical form are often fully devoted to the study of the common-practice repertoire, rarely including pieces that lie outside this canon. This may happen for many reasons, one of them being the vast and solid pedagogical and theoretical literature that exists on this specific repertoire, in contrast to the lack of literature on the form of non-canonic musical genres. Despite the difficulties that the lack of material may pose to the teacher, using a varied repertoire is, in most cases, an effective pedagogical strategy with many possible positive outcomes. Besides boosting interest, it may, for example, provide students with a deeper understanding of a theory or analytical tool, allowing them to explore its potential in different repertoires.

In this lesson plan, we demonstrate how a teacher may incorporate examples from three Latin-American popular music genres in a traditional course on formal analysis using William Caplin's *Theory of Formal Functions* (1998; 2013) as its theoretical basis. We focus on the study of four theme types: sentence (or sentence-like), compound period, and two compound hybrids. In the first part, we examine the compound period structure of the Brazilian choro and the sentential structure of the Argentinian zamba, both normative theme types within the genres' most traditional styles. In the second part, we study two compound hybrid themes that are rare in the Classical style but rather common in popular music: (a) compound presentation + compound consequent and (b) compound antecedent + eight-measure continuation, illustrated with examples from tango and choro, respectively.

This lecture is intended for graduate or upper level undergraduate students. Regarding its position within a full course on musical form, it would probably be best to place it at the end of a unit on conventional theme types covering sentence, period, hybrids, and compound themes.

The required time to complete the full lecture is approximately 1 hour and 50 minutes, which may be organized as follows:

- Introduction (10 minutes): listening to *Cochichando* by Pixinguinha and discussion about its formal layout and its relation to the Classical compound period.
- Part 1a (25 minutes): choro's compound period structure.

- Part 1b (20 minutes): zamba's sentential structure.
- Part 2a (20 minutes): compound hybrid – compound presentation + compound consequent.
- Part 2b (20 minutes): compound hybrid – compound antecedent + eight-measure continuation.
- Conclusion (15 minutes): review of main points and discussion about the analytical tool's applicability to the studied repertoire.

The proposed plan may, of course, be modified to suit the teacher's goals and constraints. In case the teacher wishes to spend more time on each topic, we provide one additional example for each discussed theme type in the Supplemental Materials. Conversely, if the teacher wants to spend less time on this material, teaching only Part 1 may be an effective alternative.

Online Supplemental Materials include the analyzed scores of the discussed pieces, one additional piece for each discussed theme type, two thematic reconstructions, a list of links to recordings, and a handout containing the scores of the discussed pieces and the formal diagrams of the studied theme types. We recommend that students use the provided handout during the lecture.

Introduction: Classical Theme Types as Models for Popular Music Analysis

The teacher may open the lecture by playing the recording of the first part of Pixinguinha's *Proezas de Solon* (1947), asking students to identify general aspects of its formal structure such as size and quality of large grouping structures, and cadences. This may lead into a brief discussion about the relationship between *Proezas de Solon*'s first part and the Classical compound period. In addition to pointing out the differences and similarities between both structures, during the discussion the teacher may call students attention to how Classical theme types may be used as models for popular music analysis.

Part 1a: Choro's Compound Period

Following this brief introduction, the teacher may present in detail the form of the Brazilian choro, an instrumental music genre that was born out of the popular music practice in Rio de Janeiro in the late nineteenth century. At first, the term was used to describe local interpretations of nineteenth-century European dances, such as mazurka, polka, and waltz, characterized by rhythmic figures derived from Afro-Brazilian music. In the first decades of the twentieth century, the genre started to build a repertoire of its own, with its most prominent composer Alfredo da Rocha Vianna Filho (1897–1973), also known as Pixinguinha.

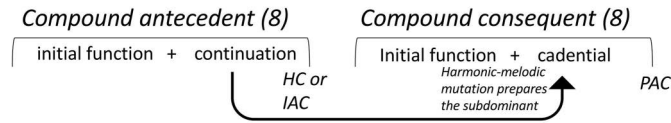
A choro usually comprises three separate parts in closely related keys, arranged as ABACA. Normatively, each part is structured as a sixteen-measure theme, in most cases a compound period (see Figure 43.1a).¹ The choro's compound period is similar to its Classical counterpart in some respects: first, the compound antecedent can take the form of a sentence or hybrid and, in most cases, ends with a half cadence; and second, the compound consequent often has its cadential progression expanded to support the theme's final four measures. As Caplin points out, in the Classical period,

the compound consequent is modeled on the previous antecedent, except that, like the simple period, the cadential component of the consequent is usually more emphatic than that of the antecedent. As a result, the final 4 measure phrase of the theme often features an expanded cadential progression.

(Caplin 2013, 171)

Although sharing some traits with its Classical predecessor, the choro's compound period also keeps some individual characteristics. The end of the compound consequent's initial function is usually

a) **Choro's compound period**



b) **Zamba's strophe**

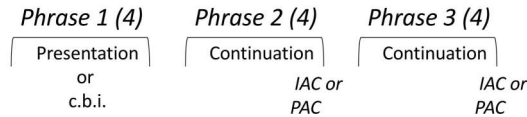


Figure 43.1 Formal diagrams of Choro's and Zamba's conventional thematic structures.

modified to set up the onset of the cadential phrase. In most cases, tonic harmony is transformed into an applied dominant which intensifies the motion towards the subdominant. We refer to this recapitulatory alteration as the point of harmonic-melodic mutation. Another difference between the Classical and choro compound period structures is the final cadential progression. The choro's cadential phrase derives from the standard four-measure (or hyper measure) nineteenth-century expanded cadential progression (ECP) PD–D–T, in which dominant function is expressed by the convention V_{4-3}^{6-5} , occupying the progression's two inner measures. In the choro, however, the cadential $\frac{6}{4}$ is often treated with much flexibility, projecting, in many instances, tonic function. The result is a four stage cadential phrase comprising four fundamental harmonic moments: subdominant– $\hat{1}$ – $\hat{3}$ – $\hat{5}$ –dominant–tonic, which can take various syntactical forms.

After presenting the choro's compound period structure, the teacher may return to Pixinguinha's *Proezas de Solon* for a more detailed analysis (please see the Supplemental Materials for a score and analysis of this example). The theme's compound antecedent is structured as a hybrid comprising a compound basic idea (c.b.i.) that prolongs tonic harmony and a continuation phrase that leads into a half cadence.² After restating the initial basic idea (b.i.), the compound consequent introduces a new contrasting idea (c.i.) that tonicizes the submediant, bridging the gap between tonic and subdominant. The consequent's harmonic-melodic mutation prepares the entrance of the final cadential phrase, which brings an elaborated version of the choro's ECP. Such elaborations increase the harmonic rhythm, intensifying the sense of closure.

Part 1b: Zamba's Sentential Structure

To offer a contrasting example to the Brazilian choro's compound period, the teacher can discuss one of the most popular Argentinian folk-music genres, the zamba, a typical dance from the northwest part of the country. For the sake of variety, this time the teacher may first present the theory and then introduce the example.

Musically, the zamba is structured as a two-part form: the first part is called *estrofa* (strophe) and the second, *estribillo* (refrain). *Estrofa* and *estribillo* are both repeated in their full length, featuring different lyrics each time through. The first stanza is referred to as *la primera* (literally, “the first”) and the second as *la segunda* (“the second”). As shown by Alejandro Martinez, *estrofa* and *estribillo* are formally related in many aspects, but feature some important functional differences (Martinez 2016, 90–91). Due to the limited space available here, this lesson focuses only on the strophe's thematic structure.

In general terms, the strophe comprises three four-measure phrases: a presentation or c.b.i. (4) and two continuation phrases (4 + 4) that usually feature the same music (see Figure 43.1b).³

Despite the theme's similarity to the Classical sentence (or the c.b.i. + continuation hybrid), the teacher must stress that this twelve-measure unit should not be interpreted as a deviation from the Classical norm but instead as a normative structure within the style. This means that, after hearing the first continuation phrase, the experienced listener would expect either an exact or varied reiteration of it.

To illustrate this theme type, the teacher may give students five minutes to analyze the strophe of *Agitando Pañuelos* (Waving Handkerchiefs) by Adolfo Ábalos (1914–2008). The song's title evokes a typical moment of the dance choreography in which the gentleman waves his scarf over the lady's head (please see the Supplemental Materials for a score and analysis of this example).

Agitando Pañuelos begins with a four-measure c.b.i. that prolongs tonic through a motion to III – a typical harmonic framework of the strophe's initial function in minor-mode zambas. The first continuation introduces melodic fragmentation and is marked by a faster harmonic rhythm. The phrase prolongs tonic through a filled-in arpeggiation between I and I⁶, finally moving to the dominant to articulate an imperfect authentic cadence (IAC). Following the cadence, the second continuation brings an exact repetition of the first, including the lyrics.

When reviewing the analysis, the teacher should point out that, in the zamba, although rhetorically different, an IAC and a perfect authentic cadence (PAC) are syntactically equivalent. In other words, both cadences can equally bring closure to large formal grouping structures.

Comparing this twelve-measure strophe to the “c.b.i. + continuation” hybrid proposed by Caplin, the teacher may also discuss the rhetorical and syntactic roles played by the second continuation, asking a few questions: from a syntactic point of view, is the final continuation really necessary? What is its rhetorical role? Is it reasserting the idea presented in the first continuation? Or is it reinterpreting it?

Part 2a: Compound Presentation + Compound Consequent

After going through the choro's periodic and the zamba's sentential structures, the teacher can introduce students to two compound hybrids that are common in some popular music genres but quite rare in the Classical repertoire.

First is the “presentation + consequent” hybrid, a theme type marked by three consecutive statements of the b.i.. According to Caplin, “the resulting redundancy of material within an excessive tonic prolongation likely explains why this potential type of hybrid rarely occurs in the repertory” (2013, p. 114). However, perhaps for the dance-like quality expressed by such melodic redundancy, this theme type became quite common in popular music styles both in its simple and compound forms (see Figure 43.2a). To illustrate a compound version of such a hybrid, the teacher may give students a few minutes to analyze *A su Majestad* by Juan and Mario Canaro, a tango published in 1953 and first recorded in 1954 by the *Quinteto Pirincho*, directed by Francisco Canaro (please see the Supplemental Materials for a score and analysis of this example).

This is a sixteen-measure compound hybrid divided into two phrases: the compound presentation unfolds in a statement-response format, featuring a i–V V–i harmonic support. The compound consequent restates the c.b.i. and brings the theme to an end with a four-measure cadential phrase supported by an ECP.

When reviewing the analysis, the teacher should point out that this hybrid has a high potential for melodic redundancy, especially in its eight-measure form. This characteristic may be attenuated in the theme's compound version, depending on the degree of contrast between basic and contrasting ideas. However, this is not what we see in *A su Majestad*. In this example, melodic redundancy is not only apparent in the large-scale layout of the theme but also arises within the c.b.i. itself. In fact, the similarity between the two melodic ideas that form the first four-measure unit may even put into question the existence of a contrasting idea. To show how melodic

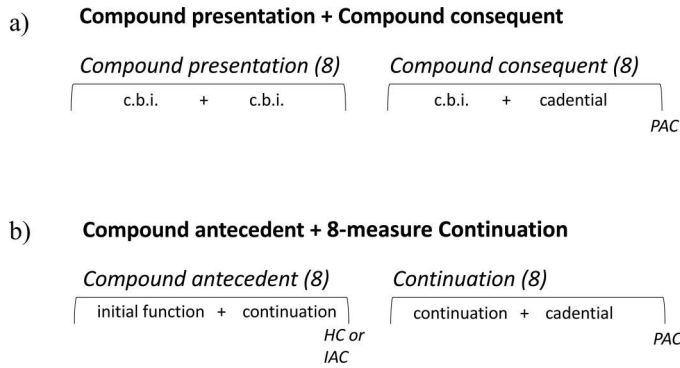


Figure 43.2 Formal diagrams of two compound hybrids.

redundancy may be attenuated in this compound hybrid, students may be asked to recompose the theme's c.i. so that it is actually contrasting (please see the Supplemental Materials for an example of a reconstruction of this theme).

Before moving on to the last theme type, the teacher should show students how this theme's compound consequent unfolds in a very traditional form, exposing its similarities to the choro's compound consequent: it restates the entire c.b.i., introducing two common alterations that prepare the arrival of the subdominant at the onset of the cadential phrase. First, the pitch that closes the c.b.i.'s first statement (B, $\hat{4}$) is substituted by $\hat{6}$ (D), opening melodic space for the final descent. Second, and more importantly, the stable tonic chord of the presentation phrase evolves into a dynamic surging state, intensifying the impending motion towards the subdominant. The theme ends with a cadential phrase supported by the style's ECP in its most traditional form.

Part 2b: Compound Antecedent + Eight-Measure Continuation

Finally, to introduce the last theme type included in this lesson plan, the teacher may play the recording of the second part of Pixinguinha's *Segura Ele* (also a choro), asking students to focus on how it relates to two of the pieces studied during the lecture: Pixinguinha's *Proezas de Solon* and Canaro's *A su Majestad*. The students should be given a few minutes to analyze the piece; a score and analysis are provided in the Supplemental Materials. This is a compound hybrid consisting of a compound antecedent and an eight-measure continuation, a common thematic structure in the choro that serves as an alternative to the more normative compound consequent. The eight-measure continuation is often divided into two units of equal size: the first projecting continuation function itself and the second cadential function (see Figure 43.2b). In contrast to the hybrid structure of *A su Majestad*, this theme type has a high potential for melodic variation, since, depending on the antecedent's internal structure, the whole theme may be built with a sole statement of the b.i.⁴

When reviewing the analysis, the teacher should demonstrate that, in this example, the compound antecedent is structured as a sentence, which balances out the theme's potential for excessive variation. In other words, the twofold statement of the b.i. and the persistence of 16th-note runs within the continuation contribute to the theme's melodic coherence. Harmonically, it is important to emphasize that the presentation's sequential harmony results in an expansion of the tonic prolongation until the return of the tonic chord in the middle of the continuation phrase. Following the half cadence that punctuates the end of the compound antecedent, the experienced listener would expect the restatement of the b.i., marking the onset of a compound consequent (as in *Proezas de*

Solon). However, Pixinguinha provides instead an eight-measure continuation phrase comprising two distinct but complementary moments: the first features melodic fragmentation and sequential harmony, projecting continuation function itself. The latter introduces conventional melodic material supported by the style's ECP, clearly expressing cadential function. To show how the more normative compound period would have sounded here, students may be asked to substitute the theme's eight-measure continuation for a compound consequent, keeping the original four-measure cadential function (please see the Supplemental Materials for an example of a reconstruction of this theme).

Conclusion

After studying these examples, the students should discuss the pros and cons of using Caplin's Theory of Formal Functions to analyze popular music or non-canonic repertoires. The teacher may use the following questions to lead the discussion: is Caplin's Theory of Formal Functions an effective tool to analyze popular music? What analytical challenges did we encounter during this lecture and how did we overcome them? Did the analytical tool have to be adapted in some situations to accommodate the idiosyncrasies of individual styles? How so? What are the benefits from this analytical exercise? What are the benefits and drawbacks of examining a vast repertoire with a single analytical tool?

The teacher may use the additional scores provided as Supplemental Materials for homework assignments.

Notes

- 1 Most choro authors interpret this sixteen-measure structure not as a compound period but instead as a sixteen-measure simple period (see Almada 2006, 15–16).
- 2 The harmonic progression supporting the continuation phrase may be interpreted as an applied ECP to V, since it could be retrospectively perceived as $(IV) \rightarrow V (V^7) \rightarrow V^7$.
- 3 For a detailed study of the zamba's formal structure (see Martínez 2016).
- 4 The literature on choro interprets this compound hybrid as a sixteen-measure period (see Tiné 2001, 42–71).

Bibliography

- Almada, Carlos. *A estrutura do choro: com implicações na improvisação e no arranjo*. Rio de Janeiro: Da Fonseca, 2006.
- Caplin, William. *Classical form: a theory of formal functions for the instrumental music of Haydn, Mozart, and Beethoven*. New York: Oxford University Press, 1998.
- Caplin, William. *Analyzing classical form: an approach for the classroom*. New York: Oxford University Press, 2013.
- Martínez, Alejandro. "Zamba y *Formenlehre*: un abordaje formal de la zamba en diálogo con algunas corrientes recientes de la teoría musical." *Revista Argentina de Musicología* 17 (2016): 83–112.
- Tiné, Paulo José de Siqueira. "Três Compositores da Música Popular do Brasil: Pixinguinha, Garoto e Tom Jobim. Uma Análise Comparativa que Abrange o Período do Choro a Bossa-Nova." Master thesis, Universidade de São Paulo, 2001.

44

BINARY FORM THROUGH THE MUSIC OF UNDERREPRESENTED COMPOSERS

Victoria Malawey

Topic: Introduction to binary form.

Goal: To identify large-scale two-part forms both in score study and aurally; to determine how binary form manifests in various musical contexts such as in continuous and sectional, balanced, simple and rounded designs.

Background: Mastery of cadences, form at the level of the phrase and period, key areas, modulation, and key relationships.

Introducing large-scale form to students who have already studied some aspects of harmony and voice-leading is an exciting opportunity for any music professor. Some students who may have become frustrated with the fussiness involved with chord spelling, voice-leading, and Roman numeral identification may find great relief and enjoyment when they can finally use the harmony skills they have learned in the analysis of complete pieces and movements. Binary, or two-part, forms are generally the best designs to begin any study of large-scale form.

My lesson plan divides the class activities into three parts: (1) presentation on how binary form is a larger manifestation of periodic structure, relating the unknown concept to a known one, with a brief explanation of new terminology; (2) application of the new concepts in an analysis of American composer Valerie Capers' (b. 1935) "Billie's Song" from her 1976 collection, *Portraits in Jazz*, and (3) application of concepts in an analysis of Elisabeth Jacquet de la Guerre's (1665–1729) Allemande from the *Suite in D Minor* from her 1687 collection, *Pieces de Clavecin*. This lesson plan may be used in chromatic harmony courses that include an introduction to small forms such as binary and ternary, as well as in tonal form and analysis courses. The plan is designed for use in a 90-minute class session, but the analysis examples may be abridged to accommodate shorter class periods, or active group work may be redirected as more passive lecture-based content to save time if needed. In addition, this lesson plan may be of interest to instructors who wish to expand repertory to include pieces by underrepresented composers. Jacquet de la Guerre was a French woman writing music at a time when women did not have much opportunity to succeed as composers, and Capers is a living, African-American woman, who was the first blind student to study at Juilliard.

Prior to the class session, students should have read some introductory material on two-part forms. Suggested readings are listed in the bibliography on the Supplemental Materials website. The clearest and most concise modern presentation can be found in Steven Laitz's *The Complete Musician* (2016, 482–493). The objective behind the reading assignment is to have students come

into the class with some familiarity of relevant terminology and concepts related to formal analysis of two-part forms so that we can spend less time on conveying information and more time applying the concepts to new music contexts in analysis.

I begin class by showing how binary form is a macro-level manifestation of a period. Typically before class begins, I draw a picture on the board of a bubble diagram of a generic contrasting period, comprising two phrases, one labeled with a lowercase “a” and the other with “b,” a half cadence (HC) labeled at the end of the first bubble, and a perfect authentic cadence (PAC) labeled at the end of the second. Once class starts, I ask students to identify what this drawing signifies, and usually someone will offer “period” as an answer, and with a little prompting, I can get the desired answer of “contrasting period.” We briefly review the cadences associated with periodic structure and the harmonic importance of the antecedent/consequent relationship. I then draw a new diagram beneath the periodic structure on the board, now with two large sections – our prototype for binary form – labeled, respectively, “A” and “B” with capital letters and annotated with Roman numerals to denote generic key changes from I (tonic) to V (dominant) before the point of bisection and a return to I (tonic) in the middle of the B section. I use the diagrams to show how binary form resembles periodic structure on a much larger scale: the antecedent phrase concluding with a half cadence now becomes a modulation to a non-tonic key, often the dominant, and the consequent phrase ending with a PAC becomes the B section modulating back to tonic before its conclusion. Thus, we can think of continuous simple binary form as a manifestation of contrasting periodic structure, on a larger scale.

We then review concepts and terms related to binary form, which were presented in the assigned reading including *continuous* and *sectional*, *balanced*, *simple* and *rounded*, *32-bar song form*, *two-reprise*, *asymmetrical* and *symmetrical*. Figure 44.1 provides a list of definitions for these terms. One fun, active strategy for review involves giving each student a notecard, some containing terms and others containing definitions, and give them a few minutes to meander around the room looking for the person with the card that best matches their term or definition. I then have the students show the rest of the class their pairing and students can ask questions if any of the concepts are yet unclear.

continuous: form in which the A section cannot stand on its own (either ends in a different key or in an inconclusive cadence)

sectional: form in which the A section can stand on its own (ends on tonic in tonic key), does not need B for harmonic closure

balanced: continuous binary form in which the ending counterpoint near the cadence of A reappears transposed back in tonic at the end of B

simple: form that features no return of material from A at the end of B

rounded: form in which material from A returns at the end of B

32-bar song form: specific kind of rounded binary form that comprises four 8 - bar phrases as || a b a' ||

two-reprise: refers to binary forms that use repeats

asymmetrical: form in which the sections are different lengths (usually B will be longer than A)

symmetrical: form in which the A and B sections are roughly the same length

Figure 44.1 Terms and definitions associated with binary form.

Second, the class embarks upon an analysis of Caper's "Billie's Song." Appearing in her 1976 *Portraits in Jazz*, a collection of 12 teaching pieces, each dedicated to a different prominent jazz musician, "Billie's Song" is a beautiful continuous, not balanced, rounded, and symmetrical 32-bar song form. After showing students a picture of the composer and summarizing her most prominent accomplishments (a practice I continually do for composers who remain outside the mainstream canon), I distribute scores of the piece and ask students to scan them visually and make note of what immediately stands out. In the Supplemental Materials online, I have provided links to Caper's official website and biography, as well as a link to an online recording of "Billie's Song." The most current edition of this piece (published by Oxford University Press) contains several visual cues that may be helpful to students in determining the form, including repeat signs and a section labeled "Bridge," all cues which likely indicate formal significance. We then listen to the piece, and I ask students to sketch a formal diagram and identify elements that unify the piece and those that create contrast between the sections. Clear elements of cohesion between the A and B sections include rhythm and harmonic language, specifically use of extended tertian chords and a similar opening progression, however transposed to a new key. Elements of contrast are equally clear and include changes in register, modulation to F major, and the hastening of harmonic rhythm at the end of the B section in mm. 14–16. Even if students are unfamiliar with the specific harmonic language of the piece, especially extended tertian chords, the form is clear at both the level of the piece and the level of the phrase. For example, most students with a basic understanding of harmony will be able to identify the half cadence in C major at the piece's mid-section and consequent resolution to tonic at the end of the piece. In addition, elements other than harmony – namely, melodic content and changes of register – also clearly delineate form.

We then determine which of our new terms best describes the piece. The piece is *continuous* because the cadence in mm. 7–8 does not end on tonic harmony. The piece is not *balanced* because the counterpoint used in mm. 7–8 is different from that appearing in mm. 23–24. The piece is *rounded* and manifests specifically as a *32-bar song form*. Finally, the piece is *symmetrical* as the A section proper is 16 bars long, and the B section with return of material from the A section is also 16 bars long. I conclude this and all analysis activities by listening to the recording of the piece a final time and showing my annotated score (available as part of this collection's Supplemental Materials, titled "Billie's Song").

Finally, the last portion of the class focuses on an analysis of Jacquet de la Guerre's Allemande from the *Suite in D Minor* (1687). Links to biographical information on the composer, the score, and a recording of the piece are provided in the online Supplemental Materials. After showing the students a picture of the composer and sharing some biographical information about her life and work, I distribute the scores and instruct students to work in small groups to determine how the form and harmony work in the piece, which is a two-reprise, continuous, non-balanced, simple form. Before group work begins, I encourage the students to scan the score visually and let the students grapple with identifying the key of the piece. Typical of its time period, there is no key signature indicated, but with encouragement, most students are able to determine the key is D minor. I then play a recording of the piece or play live at the piano, and have students actively listen for important harmonic events and annotate their scores accordingly, as well as to listen for elements of cohesion and contrast between the sections. Then group work can commence.

Giving students ten minutes in groups, they are to: (1) determine harmonic features, including key areas, cadences, and mode mixture in mm. 9–10 and 12; (2) come to an agreement on elements of cohesion, which include texture, rhythm, range, and use of secondary dominants and modulation (both sections use a great deal of chromaticism); (3) identify elements of contrast, which include greater harmonic instability, sequences, and melodic tension in the B section; and (4) apply relevant terms and concepts to this particular piece. It is *continuous* because it modulates to the dominant at the point of bisection. It is not *balanced* because the counterpoint in mm. 9–10

differs from that of mm. 20–21. It is *simple* because material from the A section does not reappear at the end of the B section. Finally, the piece is considered *symmetrical* because the A section is 10 bars long and the B section is 11 – roughly equivalent in length. While students are working in groups, I float around the classroom, jumping into conversations, sometimes just listening and other times contributing when members of a group seem unfocused or in need of another perspective. I conclude the lesson by playing the piece a second time and showing my annotated score (available as part of this collection’s online materials, titled “Allemande”).

Before the next class meeting, I have the students complete a follow-up assignment (available as part of this collection’s online materials, titled “Assignment”), which asks them to complete an analysis of Jacquet de la Guerre’s Sarabande from the *Suite in D Minor*. A link to a recording of this piece is provided in the online Supplemental Materials. This piece is a clear simple, continuous, not balanced, asymmetrical two-reprise form, and works well as a follow-up application of the new topic since students will have left the current class session somewhat familiar with Jacquet de la Guerre’s style and harmonic language. I usually spend one additional day on binary form following the introductory class period, and I choose from the following additional pieces for analysis: Josephine Lang’s “Wie glänzt so hell dein Auge” (rounded, sectional, and asymmetrical, with great possibility for discussing how form and content relate to text); Johannes Brahms, Theme from *Variations on a Theme by Haydn* (rounded, sectional, and asymmetrical; a good choice for having students navigate a full orchestral score); Samuel Coleridge-Taylor’s *African Dance*, op. 58, no. 3 (rounded, continuous, and asymmetrical, also featuring a modulation to a chromatic mediant key in the B section, as well as an introduction and coda); and Matt Dennis and Earl Brent’s “Angel Eyes” as performed by Ella Fitzgerald on her 1994 *First Lady of Song* album (rounded, sectional, symmetrical, and also 32-bar song form). To demonstrate balanced binary form, I draw upon two-part dance pieces from the Baroque era such as Handel’s Minuet in F Major.

In sum, it is possible to introduce students to two-part forms using music written by underrepresented composers. Not only do the pieces offered in this lesson plan demonstrate the most common manifestations of binary form, but they also expose students to composers who have been neglected in mainstream music study. For students who rarely encounter works by composers who share some aspect of their physical likeness or identity (that is, non-white and/or non-male), seeing composers whose identities align more closely with theirs, included side-by-side with the canonical composers, can be an act of empowerment. Role models sharing gender, racial, and/or socio-economic identity are essential to encouraging students to compose and succeed in musical activities in which they are underrepresented (Citron 1993, 66; Green 1997, 242).

Bibliography

- Citron, Marcia J. 1993. *Gender and the Musical Canon*. Cambridge: Cambridge University Press.
Green, Lucy. 1997. *Music, Gender, Education*. New York: Cambridge University Press.
Laitz, Steven G. 2016. *The Complete Musician: An Integrated Approach to Theory, Analysis, and Listening*. New York and Oxford: Oxford University Press.

A FORM-FUNCTIONAL APPROACH TO BINARY FORM ANALYSIS

Andreas Metz

Topic: Binary form analysis.

Goal: Students will be able to analyze movements in simple, balanced, and rounded binary form as well as small ternary themes.

Background: Ability to identify standard cadence types such as half, imperfect, and perfect cadences; ability to detect modulations; familiarity with the concepts of closely related keys and prolongation desirable, but not required.

Binary form, also known as two-part form, counts among the most important types of form in Western art music. It appears regularly in music of the Baroque, Classical, and Romantic eras, and is also occasionally featured in music of the early twentieth century. Binary form is important also because it set the stage for sonata form; more specifically, continuous rounded binary form can be understood as a miniature version of the sonata form. Yet despite its omnipresence and historical significance, binary form receives limited attention in the music theory classroom. Therefore, students do not always fully comprehend the ubiquity of this type of form in different stylistic periods or the significance of binary form as a forerunner of sonata form.

I attribute the perceived neglect of binary form in the music theory classroom largely to an uncertainty in connection with one of the most heated debates in the history of music theory: whether the rounded binary form comprises two or three parts. Whereas proponents of the two-part view prefer the term “rounded binary,” proponents of the three-part view prefer Caplin’s term “small ternary.” While both views are accepted, they still raise pedagogical challenges for the instructor when teaching binary form. For example, how can the two-part view of the simple and balanced binary form be reconciled with the ternary view of the rounded binary form? Or, is it feasible and desirable to engage students in a discussion about the advantages of either view? To meet these challenges, I propose a distinction between the terms “rounded binary” and “small ternary,” reserving the latter for a section of music that exhibits the structure of a rounded binary form but lacks the repeats of both reprises. I also advocate for a more detailed method of binary form analysis than is customary in order to better prepare the students for sonata-form analysis.

In the following analyses, I favor the two-part view of the rounded binary form and employ a form-functional approach based on Denes Bartha’s concept of the quatrain. Focusing on formal function allows me to elicit fairly detailed analytical observations from the students without having to address the potentially challenging style-specific aspects of theme construction. Bartha’s concept of the quatrain postulates that each of the two reprises of a binary-form movement expresses

two formal functions: whereas the first reprise expresses the formal functions *initiation* and *continuation*, the second reprise expresses the formal functions *digression* and *conclusion*.¹ In the following musical examples, the beginning of each formal function is indicated with the letter “S” which stands for “sector.”² The number next to “S” identifies the type of formal function: S1 indicates initiation function, S2 continuation function, S3 digression function, and S4 conclusion function. Figure 45.1 illustrates this form-functional approach and highlights characteristics of each sector.

The *initiation sector* (S1) occupies roughly half the length of the first reprise. Its main purpose is to establish the key and to introduce the thematic material characteristic of the movement. It typically ends with a cadence or simply a return to tonic harmony. The first sector is frequently followed by a short rest in one or more voices, which often signals the end of the initiation function.

The *continuation sector* (S2) tends to feature the same motives and rhythms as the initiation sector. Like the initiation sector, it occupies roughly half the length of the first reprise. However, in contrast to the initiation sector it usually ends with a stronger cadence in the home key or a closely related key. If the second sector ends on tonic harmony, the first reprise is said to be *sectional* implying that the music could theoretically end at this point in time. However, if the second sector ends on a harmony other than tonic, the first reprise is said to be *continuous* implying that the music must continue (Laitz 2012, 389–395). If the first reprise modulates, the goal of the modulation is predictable: If the movement is in a major key, the goal of the modulation will be the dominant (V). If, on the other hand, the movement is in a minor key, the goal of the modulation will be either the relative major (III) or the minor dominant (v).

The *digression sector* (S3) is so named because it tends to emphasize harmonies other than the tonic or destabilize or depart from the home key. Composers often rely on the following techniques to achieve this effect: (1) model-sequence technique; (2) pedal points on scale degrees other than the tonic, often on the dominant; (3) prolongations of harmonies other than the tonic, often of the dominant; and (4) modulations to closely related keys.

BINARY FORM

A (Reprise I)

B (Reprise II)

: Sector 1 (<i>initiation</i>)	Sector 2 (<i>continuation</i>) <i>sectional or continuous</i> :	: Sector 3 (<i>digression</i>)	Sector 4 (<i>conclusion</i>) <i>rounded, balanced, or simple</i> :

Sector 1 (*initiation* function):

- establishes the key
- introduces the main thematic material (i.e. main motives and rhythms)
- ends with a cadence and/or a return to tonic harmony, often resulting in a tonic prolongation
- occupies roughly half the length of the first reprise

Sector 2 (*continuation* function):

- typically features the same motives and rhythms as sector 1
- ends with a cadence in the home key or a closely related key
- occupies roughly half the length of the first reprise
- If sector 2 ends on tonic harmony, the first reprise is *sectional*. If sector 2 ends on a harmony other than tonic, the first reprise is *continuous*.
- If the movement is in the **major mode** and sector 2 modulates, the goal of the modulation will be the **dominant (V)**. If the movement is in the **minor mode** and sector 2 modulates, the goal of the modulation will be the **relative major (III)** or the **minor dominant (v)**.

Sector 3 (*digression* function):

- emphasizes harmonies other than the tonic or destabilizes or departs from the home key
- often features model-sequence technique and/or a pedal point on or prolongation of the dominant
- may emphasize more than one closely related key

Sector 4 (*conclusion* function):

- reestablishes the home key; may begin with tonic harmony or a transitional passage leading back to the home key
- If the opening idea from sector 1 is repeated at the beginning of sector 4, the movement is in **rounded binary form**; the return of both the home key (tonic) and the opening idea is sometimes referred to as *double return*. If the endings of sectors 2 and 4 are identical (except for the key), the result is a musical rhyme and the movement is in **balanced binary form**. If there is no return of the opening idea of sector 1 or the ending of sector 2, the movement is in **simple binary form**.

Figure 45.1 Binary form summary.

The *conclusion sector* (S4) often begins after a short rest in one or more voices at the end of the digression sector. It brings the movement to a close by reemphasizing tonic harmony or reestablishing the home key. It may begin with tonic harmony or a few transitional harmonies needed to cancel out the key emphasized at the end of the digression sector. Therefore, in addition to rests, the presence of accidentals may indicate the beginning of the conclusion sector. In contrast to the initiation and continuation sectors, the respective length of the digression and conclusion sectors is less predictable. The digression and conclusion sectors may be comparable or different in length.

Lesson Plan

The following three pieces illustrate binary form analysis and introduce the difference between *rounded*, *balanced*, and *simple* binary form. The instructor can, through guided discussion, elicit the earlier information from the students regarding structure and characteristics. Instructors may choose whether to provide scores or to have students initially perform these analyses aurally in order to develop their aural analysis skills.

The first example is a short piece by the late Baroque/early Classical composer J.C.F. Bach, “Schwäbisch,” from his collection entitled *Musical Leisure Hours*. Provide Figure 45.2 for the students and/or play a recording of it (see Figure 45.2; a copy of the score with and without annotations and a link to a recording are available in the Supplemental Materials).

In form analysis, I always encourage my students to use a top-down approach, starting with observations about the large organization of the piece in question and then gradually zooming in on the details at the musical surface. I model that approach here by asking them to identify the beginning of each of the two reprises, and next the cadences. I then guide them to the understanding that there are four sectors that comprise the piece, and we discuss where they begin and end. Finally, we discuss any notable features characteristic of the four sectors. As you guide

The image shows a musical score for a piece titled "Schwäbisch" by J.C.F. Bach. The score is in 3/8 time and marked "Moderato". It is divided into two systems, A and B. System A contains sectors S1 and S2. S1 is marked "f" and S2 is marked "p". System B contains sectors S3 and S4 (rounded). S3 is marked "f" and S4 is marked "p". The score includes dynamic markings (f, p), articulation (accents), and structural labels: "HC" (Half Cadence) at the end of S2, "PAC (sect.)" at the end of S2, "V_prol." (Vocal prolongation) at the start of S3, and "PAC" at the end of S4. The piece concludes with a final cadence.

Figure 45.2 J.C.F. Bach, *Musical Leisure Hours*, “Schwäbisch” – annotated.

the discussion, use the information to generate the overall organization of the piece and a list of characteristics for each sector, which will eventually turn into Figure 45.1.

Among the features the students may identify in the J.C.F. Bach piece is that the initiation sector occupies exactly half the length of the first reprise and ends with a half cadence (HC), emphasized as a point of articulation by the eighth-note rest in the bass in m. 4. The continuation sector occupies exactly half the length of the first reprise, with a characteristically stronger cadence (here, the perfect authentic cadence (PAC) in m. 8) than the cadence at the end of the initiation sector (the HC in m. 4). Since the continuation sector ends on tonic harmony, the first reprise is sectional. The digression sector begins and ends on dominant harmony, resulting in a dominant prolongation. The eighth-note rest in the bass of m. 12 helps create a boundary between the digression and conclusion sectors. As the students conclude their discussion, I point out that the opening idea of S1 is restated at the beginning of S4, and introduce the term *rounded binary* for the form of the short movement.

We then turn to J.S. Bach's Baroque-era "Little Prelude in G minor," BWV 929, provided in the Supplemental Materials as Figure 3. Our discussion again begins with aspects of large-scale organization and then features of the four sectors; focusing on those aspects of design that are specific to this piece can help us fill in our formal diagram. Students may identify that S2 modulates to the relative major (III), resulting in a continuous first reprise. The presence of A $\flat$ in mm. 9 and 11 and the cadence in m. 12 indicate a digression to the closely related key of C minor (iv), while the presence of the home-key leading tone F $\sharp$ in m. 13 suggests that S3 ends in m. 12 and sector 4 begins in m. 13. I ask the students to compare the endings of S2 and S4, comparing mm. 7–8 (second ending) with mm. 15–16 (second ending). We discuss how the endings are identical except for the key, and that whenever the melodic profiles of soprano and bass at the end of S2 and S4 are identical or nearly identical, the result is a musical rhyme, and the movement is said to be in *balanced binary* form. At this point we can contrast the endings of S2 and S4 of the Prelude with those of "Schwäbisch." Whereas the melodic profiles of the outer voices at the end of S2 and S4 in the Prelude are nearly identical, those in "Schwäbisch" are different; thus, "Schwäbisch" is in rounded rather than balanced form. In situations where the opening idea of S1 recurs at the beginning of S4 (suggesting rounded) and the endings of S2 and S4 are identical (suggesting balanced), the former is marked for consciousness and overrides considerations of musical rhyme.

We next discuss the trio section from Haydn's Piano Sonata in C Major, Hob. XVI: 15; the score and a link to a recording are provided in the Supplemental Materials as Figure 4. At this point students should be used to the process and may be able to lead the discussion more, again beginning with large-scale observations and then turning to details at the musical surface, and continuing to fill in our binary form diagram. Elements they may identify characteristic of this trio include the elision in m. 5: S1 ends on the downbeat of m. 5 because this is where tonic harmony returns, resulting in mm. 1–5 being interpreted as a tonic prolongation; however, the downbeat of m. 5 also functions as the beginning of S2. There is an instance of model-sequence technique in S3, mm. 9–12, destabilizing the home key of G major because the G $\sharp$ s in m. 10 are foreign to the home key. The end of the sequence in m. 12, the rests in the left hand in m. 12, and the presence of a home-key-reinforcing G $\natural$ in m. 11 suggest that S4 begins in m. 13. The students should recognize that the melodic material from S1 does not return in S4, so it is not rounded, and the melodic profiles of the outer voices at the end of S2 and S4 do not rhyme, so it is not balanced. I introduce the concept of *simple binary* form, which features a return to the home key but without a return of the opening idea of S1 at the beginning of S4 and without a musical rhyme. Put more simply, if the piece in question is not in rounded or balanced form, it is in simple form.

After our discussion, in which we will have generated much of the information found in Figure 45.1, I provide the full diagram for the students and highlight the commonalities and differences among the three types of binary form. Figure 45.1 is also available as Fig. 1 in the

Supplemental Materials. Next, the students practice the analysis process individually or in groups. Students analyze pieces by J.S. Bach and Haydn (available as Figures 5, 6, and 7 in the Supplemental Materials) one at a time. After playing a recording, I ask them to do a detailed binary form analysis on the score. This entails the identification of the following: (1) the beginning of each of the two reprises (A and B); (2) the type of first reprise (sectional or continuous); (3) cadences (PAC, imperfect authentic cadence (IAC), and HC); (4) the beginning of each of the four sectors (S1, S2, S3, and S4); (5) the type of binary form (rounded, balanced, or simple); and (6) compositional techniques characteristic of the digression sector (prolongation, pedal point, and model-sequence technique). After a few minutes of individual or group work, we discuss the students' analyses. A key for each piece is available in the Supplemental Materials.

In the remaining time of the lesson, I make my students aware of potential inconsistencies in connection with the repeats of the two reprises. In the High Classical and Romantic periods, the reprise repeats are sometimes omitted or written out. I show and play a recording of Robert Schumann's "Knecht Ruprecht" from *Album for the Young* (available as Figure 8 in the Supplemental Materials) and point out that the repeat of the first reprise (mm. 1–8) is omitted. After that, I show a piano reduction of the Allegretto from Beethoven's Symphony No. 7 (available as Figure 9 in the Supplemental Materials; the recording is of an orchestral performance). I ask the students to identify the reprises; here, the repeat of the first reprise is omitted, and the repeat of the second reprise is written out.

I also highlight the fact that composers employ the binary form to organize entire movements, sections of a movement, and themes. The examples discussed in this lesson demonstrate this nicely; Figures 2 and 3 are entire movements, albeit short ones, and Figures 4 and 8 present sections of a movement. Figure 4 is the trio section of a minuet, and Figure 8 presents the first section (A) of a character piece in ternary form (ABA). Figure 9 is the opening theme of a theme-and-variations movement.

As an assignment, I use Schumann's * * *, #26 from *Album for the Young*, available as Figure 10 in the Supplemental Materials.

At the next class meeting, after a brief review of the characteristics of the types of binary form (rounded, balanced, and simple) and formal functions of the four sectors, I inform the students that there are situations where both reprise repeats are missing, but where the four formal functions (sectors) can still be identified. In these situations, the opening idea from S1 returns, usually in slightly altered form, in S4. This occurs frequently in themes of slow movements, rondos, and theme-and-variations movements of the High Classical period. We then study the Adagio from Mozart's Piano Sonata in D Major, K. 576, provided as Figure 11. Students will notice the return of S1 material in S4, initially suggesting a rounded binary form, but the absence of both reprise repeats produces a ternary design (ABA⁽¹⁾), a so-called *small ternary theme*. My usage of the term "small ternary" is more exclusive than Caplin's in that I retain the term "rounded binary" for musical structures in which the opening idea returns but one or both of the reprises are repeated (Caplin 1998, 71–73). I use two Beethoven examples, provided as Figures 12 and 13 in the Supplemental Materials, as in-class analysis exercises; these can also be used as homework assignments.

The approach to binary form analysis proposed in this lesson plan permits instructors to discuss a stylistically diverse body of music repertoire without having to address the style-specific aspects of theme construction. As a result, the students tend to be more aware of the ubiquity of the binary form in music of different stylistic periods. The approach also tacitly prepares students for sonata-form analysis: The compositional techniques students identify in the digression sector (S3) are regularly featured in the development sections of sonata-form movements. And the point of articulation typically found between the initiation and continuation sectors in first reprises of binary-form movements can be seen to foreshadow the *medial caesura*, the mid-expositional break in movements in sonata form (Hepokoski and Darcy 2006, 23–26). My distinction between the terms "rounded binary" and "small ternary" is an attempt not only to remove some of the

confusion surrounding these terms but also to account for the qualitative differences between musical structures that retain a vestige of bipartite organization by repeating one or both of the reprises and those that do not.

Notes

- 1 The terms “initiation,” “continuation,” “digression,” and “conclusion” correspond to the German terms *Frage*, *Antwort*, *Kontrast*, and *Finaleffekt* proposed by Denes Bartha in his article “Liedform-Probleme” (p. 323). The English terms are not literal translations of the German but rather descriptions of the formal functions that characterize the first and second reprises. In his book *Form in Tonal Music*, Douglass Green already used the term “digression” to refer to the unstable section of music at the beginning of the second reprise. In two of his analyses, Bartha ascribes continuation (*Antwort*) function to the repeats of first reprises (pp. 327–328). I find these particular analyses problematic because they assign two different formal functions to the same passage of music: initiation function to the first statement of the first reprise, and continuation function to the repeat of the first reprise. My analytical approach differs from Bartha’s in that I do not consider reprise repeats in assigning formal function.
- 2 The term “sector” is borrowed from Frank Samarotto who used the term colloquially in music theory classes to describe the functions of the various areas of binary form. The same music theory classes also inspired me to undertake a more formal study of quatrains-based binary form analysis.

Bibliography

- Bartha, Dénes. 1972. “Liedform-Probleme.” In *Festschrift Jens Peter Larsen*, edited by Nils Schiørring, Henrik Glahn, and Carsten E. Hatting, 317–337. Copenhagen: Wilhelm Hansen.
- Caplin, William. 1998. *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven*. New York: Oxford University Press.
- Green, Douglas. 1979. *Form in Tonal Music: An Introduction to Analysis*. New York: Holt, Rinehart and Winston.
- Hepokoski, James, and Warren Darcy. 2006. *Elements of Sonata Theory: Norms, Types, and Deformations in the Late-Eighteenth-Century Sonata*. New York: Oxford University Press.
- Laitz, Steven G. 2012. *The Complete Musician: An Integrated Approach to Tonal Theory, Analysis, and Listening*. New York: Oxford University Press.

46

EXPLORING TERNARY FORM THROUGH THE LENS OF ANALYSIS-PERFORMANCE IN A MOZART ARIA

Elizabeth West Marvin

Topic: Ternary form in a Mozart aria, “Voi, che sapete,” from *The Marriage of Figaro*, Act II.

Goal: Students will understand how ternary form is employed in a vocal genre, and will learn ways analysis can inform performance decisions (e.g. articulating form, coloring harmonic change, and interpreting text).

Background: Ternary form, phrase analysis, secondary dominants, augmented sixth chords, sequence, mixture, and tonicization/modulation.

This lesson explores a Mozart aria typically studied by undergraduate mezzo-sopranos, “Voi, che sapete” (from Act II of *The Marriage of Figaro*). A class focused on this aria provides students with an opportunity to experience in-class performance by peers and coaching based on analytical observations. Active-learning strategies keep students engaged, as do activities designed to foster the three pillars of intrinsic motivation: competency, autonomy, and relatedness (Ryan & Deci, 2000; Marvin, 2018). To reinforce *competency*, we begin with easy-to-hear aspects of large-scale form, then work collaboratively to identify key changes in each section; finally, we analyze harmonic and melodic detail in relation to the text. By incorporating performances from class members or other peers, we reinforce students’ competence as performing musicians. To address *autonomy*, we avoid either a passive or a controlling learning environment, designing instead activities that encourage students to think independently, try out new ideas, and share them. Finally, we encourage a sense of *relatedness* by working collaboratively in small groups, and by supporting peer performers as they refine their interpretations.

The lesson follows an outline form, allowing you to refer to points quickly and to customize the class according to your needs and available performers. In particular, although this plan assumes volunteer performers, you can modify the lesson to incorporate comparative recordings instead, to identify and discuss ways the structure is interpreted by different performers.¹ The Supplemental Materials website provides Spotify links for the recordings referenced here.

I. Introduction

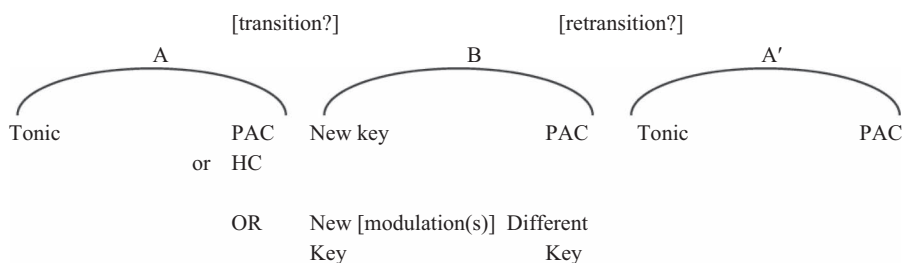
- A. As students enter, play a YouTube video of a staged performance, to set up the narrative context (suggested links available on Supplemental Materials website).

- B. Framing the class: today we explore ternary form in a vocal genre, including the relation of text and music; we'll demonstrate ways analysis might impact performance decisions.
- C. Introduce your student performers and thank them.

II. Setting the Context

- A. Address each question to the class; encourage multiple respondents.
- B. Ask: what sections do we expect to hear in a ternary form? Diagram at the board (three large arches, A–B–A' labels) from student responses. We'll add detail to this diagram as we explore the aria.
- C. From previous study, how might we expect the A section to end harmonically (Figure 46.1a)?
 - Cadences? Either perfect authentic cadence (PAC), a sectional design; or a half cadence (HC), a continuous design.
 - Key change? The A section might be followed by a modulatory transition. (Less likely is a modulation within the A section.)
- D. How might B differ from A? Add tonal possibilities to your diagram, as in Figure 46.1a, as you discuss.
 - B might articulate a new stable key (as in full sectional ternary).
 - B might begin in a new key, but become modulatory as it progresses, to end in another key (as in sectional ternary).
 - B might cadence (in a key other than tonic), then be followed by a modulatory re-transition to tonic for A'.

a) Two typical designs for Ternary Form



b) Ternary form in "Voi, che sapete"

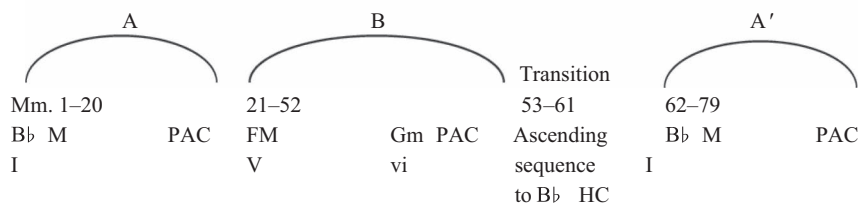


Figure 46.1 Harmonic designs associated with ternary form. (a) Two typical designs for ternary form. (b) Ternary form in "Voi, che sapete".

- E. How is ternary form different from rounded binary?
- Both bear some similarity to an A–B–A' design, but in rounded binary, repeat signs map out two parts.
 - The character of B differs: in rounded binary, B is a “digression” or “harmonic disturbance” that can't stand alone; it is sequential, unstable.
- F. Dramatic context: does anyone in the class know the story of *The Marriage of Figaro*? Who is Figaro? Who is the aria's singer, Cherubino?
- Try calling on singers, who typically do know something of the plot. (See *Wikipedia* link on the Supplemental Materials website.)
 - Figaro is an upstairs/downstairs comic opera and love story (main characters are a Count and Countess, who interact with Susanna and Figaro, their soon-to-be-wed servants).
 - Cherubino is the Count's page, who secretly admires the Countess. This is a “pants role,” sung by a mezzo-soprano woman impersonating a young man.
 - Aria's context: the women are conniving against the Count, who is a philanderer (the Countess wants him back). Cherubino is entranced with the Countess and sings this song about the confusions of love.
 - The guitar is a stage instrument; note guitar-like texture in orchestra or piano.
 - Optional: play the opening of the aria as staged (YouTube), to see the characters, cross-dressed mezzo-soprano, and stage guitar in action.
- G. Text
- Hand out score and translation (available on companion website).
 - Ask a volunteer (possibly a singer) to give a dramatic reading of the text (from the English translation).
 - Ask someone else: tell us what this aria is about, in your own words.
 - To the group: what elements of the text suggest how Mozart might divide it into three sections?
 - Possible answers: the first two lines (A section) are addressed outward, to the “Ladies” using the pronoun “you.” The B section is more inward; switches to “I” throughout, describing feelings. A' is signaled by a repeat of the initial text (“you”). Also, the A section maintains a conversational tone (to the ladies), which changes in B to an agitated tone (using words like desire, freezing, burning, trembling).

III. Performance and Large-Scale Form

- A. Instruction to students: as you listen, mark on your score (list on the board):
- Large formal divisions, identify as A–B–A';
 - The key at the beginning and end of each large section;
 - Transitions or retransitions, if any; and
 - Cadences. Locate each with an arrow; label type if time.
- B. Listen to the student performance.
- After, applaud! Then invite performers to sit for now.
 - Give students a few more minutes to work on score annotations individually.
- C. Group Work (pairs): work with your neighbor to compare your score markings.
- Check location or formal divisions, key identification at the start and end of each section, cadence labels; discuss any disagreements.
 - Did you identify transitions/retransitions? If not, try to locate; look for sequences and modulation.
 - Groups report out: as students report out, add information to your A–B–A' chart on the board, as in Figure 46.1b.

- A (mm. 1–20, B♭ major throughout). Students may also label measures 1–8 as Introduction, A as measures 9–20.
- B (mm. 21–52) begins in F major and ends in G minor; followed by retransition (mm. 53–61, with ascending sequence to a HC in B♭ major).
- A' returns (mm. 62–79, entirely in B♭ major).

IV. Focus on the A Section

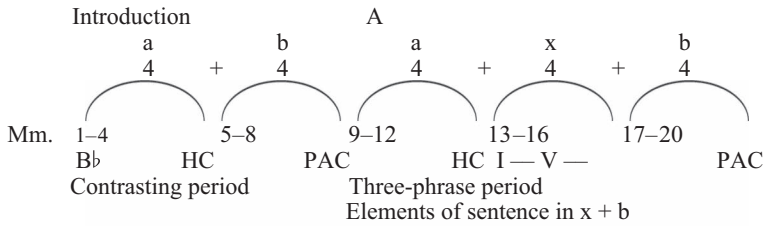
A. Aural analysis (phrase structure)

- Draw five phrase arcs on the board with a “4” above each; have students copy. Invite students to turn over their scores to listen without notation.
- Performers return to front of class. Ask the pianist to play the introduction (mm. 1–8) only, as we listen for cadence types. As a class, conduct along with the performance to hear four-measure groups; count bars aloud as played.
- Introduce the concept of hypermeter (metric organization above the level of the measure). Conduct introduction again in a slow four, one beat per bar, to hear the four-bar hypermeter.
- Together, fill in the cadences at measures 4 and 8 (HC; PAC); assign letters (“a” and “b”) to show contrasting melodic structure. Phrase or period type? Contrasting period (embedded elements of sentence, 1 + 1 + 2 measure groupings in both a and b).
- Figure 46.2 shows phrase analysis; fill in gradually at the board during class discussion.
- Listen again to the entire A section while conducting the four-bar hypermeter. Have students fill in the remaining cadences by ear. Students will probably identify m. 12 and 16 as HC, and m. 20 as a PAC.
- Discussion: how does the vocal part in the A section compare with the piano introduction? Measures 9–12 correspond with 1–4 (“a”); 17–20 with mm. 5–8, (“b”). Mm. 13–16 are new material, an insertion (“x”). Add to form chart.
- What holds the three phrases of A together into a unit? Weak to strong cadences (HC–HC–PAC), and a musical “rhyme” for first and last phrases: mm. 11–12 and 19–20. The A section might be considered a three-phrase period.
- However, the second two phrases (mm. 13–20) resemble a sentence (2 + 2 + 4). Discuss this reading together. We hear a melodic sequence over I and V (mm. 13–14, then 15–16); the V in m. 16 is not a strong HC (because its four-measure unit expresses only I–I–V–V). The second half of the sentence (mm. 17–20) concludes with a PAC in m. 20.

B. Performance of A section, implications of analysis

- Invite the performers back up. Ask: what are some performance challenges of the A section?
- Possible answer: emphasis on two-bar units can make this section sound choppy, segmented (vocal lines are divided in twos by commas or a rest). Ask performers to explore ways to express four-bar phrases, with you coaching.
- Possible ways to articulate four-measure phrases (e.g. mm. 9–12):
 - Avoid breathing after “sapete” and crescendo slightly to “che.”
 - Think of hypermeter to shape strong-weak-strong-weak units.
 - Listen for the underlying stepwise lines (e.g. 9–12 vocal downbeats, B♭–C–D–C),
 - Direct each phrase toward its cadential goal.
- Try performing the A section with two-measure groupings, and again with four-measure grouping. If using recordings, compare Schmiede/Davis with Bartoli/Fischer (see Supplemental Materials website for links). Listen for Schmiede’s *crescendo* in measure 10.²

A section:



B section:

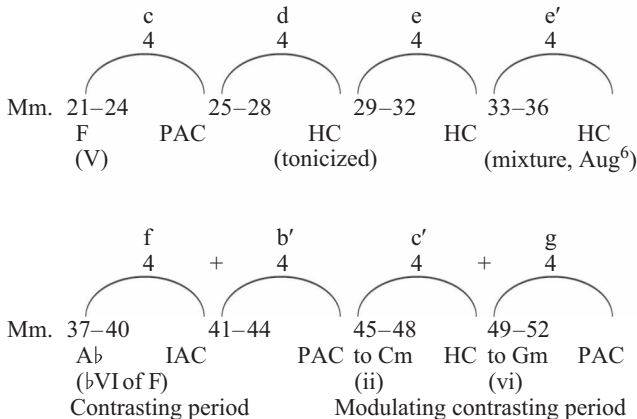


Figure 46.2 Phrase structure in "Voi, che sapete," A and B sections.

- If we consider measures 13–20 a sentence, then measure 16 should not sound like a cadential arrival. Perform once with the pianist making measure 16 seem cadential (slight *ritard*, disconnect articulation from 16 to 17). Then perform again, playing right through measure 16 (with *crescendo*) to 17, uniting these eight measures. Discuss.
- Performers may return to their seats for now.
- Text-music relation: could the two-bar units depict the "simplicity" of youth? Likewise, the section only employs simple diatonic harmonies (just I, ii, and V, with some sevenths). Both hypermetric and harmonic structure could represent unsophisticated, naïve aspects of Cherubino.

V. Focus on the B Section:

- Ask: what changes here in terms of the text?
 - It turns personal, agitated; depicts Cherubino's suffering and pleasure.
 - Discuss: how does the tonal structure mirror Cherubino's unrest? B is less stable tonally, modulations, some chromaticism, fewer PACs.
 - Have students identify all cadences in F major. We hear a PAC in measure 24; after that, cadences in 28, 32, 35 are HC, suggesting instability. Continue adding to your form chart (Figure 46.2).
 - What changes at measure 35: "ch'ora è martir"? Mozart introduces mixture (with A $\flat$), implying F minor. How does this striking change relate to text? A $\flat$ colors the words "which now is suffering."

- We hear the first chromatic chord (other than the occasional secondary dominant) here; it also portrays suffering. Ask students to identify: an It^{+6} to V (m. 35–36).
- Measure 37 initiates a new key (direct modulation): what is it? $A\flat$ major (mm. 37–44).
- What is relationship of $A\flat$ major to the F major local tonic? Tonicization of a mixture chord ($\flat VI$). $A\flat$ was foreshadowed in measure 35 (“ch’ora”); it is $\flat 6$ of F major, which prepares the key of $\flat VI$.
- The instability of B continues, mirroring the confusion of the character: measures 47–48 briefly tonicize C minor; 49–52 move to G minor, where the section ends. (Ask students to find another It^{+6} chord: m. 49, last beat.)
- The B section recycles some melodic material from earlier in the aria. Work in pairs to find these borrowings (marked with a prime in Figure 46.2). Note also, measures 33–36 are a variant of 29–32.

B. Performance implications (for measures 21–52)

- Questions for discussion follow. Either have the performers try each of these as you go, or wait to perform after discussing performance implications for all of B. You may also play and compare recorded performances (see Supplemental Materials website).
- How can we make the start of the B section sound different from A (at m. 21)? Possibilities include change of dynamic, timbre, and articulation. Listen to the Bartoli/Fischer recording for a lighter vocal timbre to mark the start of B.
- How will performers treat the mixture mm. 35–36? Darken the color of the voice to portray “suffering” and to emphasize the influence of minor. In the Ameling/de Vaart recording, the singer lightens her vocal color in the preceding two measures (mm. 33–34) on the sixteenths; then she darkens the timbre of her voice for “ch’ora” and sings with a very closed “oh” vowel.
- The two-bar “problem” is now exacerbated by rests in the vocal part every two bars (mm. 21–36). In the Schmiede/Davis recording, she omits the measure 30 rest altogether, to draw the four measures together.
- After measure 37, those rests disappear and four-bar units are easier to articulate (e.g. in m. 38–39, the singer can connect “Sento” to “l’alma,” adding a crescendo across the bar line). Listen to the von Otter/Pinnock and the Bartoli/Fischer recordings to hear how these singers carry across measures 38–39 with a crescendo, but insert a quick “catch” breath before “-vampar” to arrive at a strong IAC.
- A similar carry-over effect will work across the bar line at measures 46–47 and 50–51 to create four-bar phrases. Schmiede/Davis and von Otter/Pinnock connect measures 46–47 with a crescendo on “bene,” leading to “fuori.” A breath after “bene” would also disconnect a passing $\frac{6}{4}$ chord from its resolution.
- Perform the B section, implementing some of these suggestions.

VI. Focus on the Retransition and Return of A'

- Measure 52 initiates a change from lyrical writing to short bursts of sixteenths in quasi-recitative style, plus an ascending sequence with applied chords: the only extended sequential passage of the aria.
- Have students work in pairs to analyze measures 53–58 for: (1) harmonies and sequence type; (2) hypermetric measure groupings.
- This is an ascending chromatic sequence that alternates secondary dominants with triads; each triad has 5–6 motion above it: in $B\flat$, $V_5^6/IV-IV^{5-6}-V_5^6/V-V^{5-6}-V_5^6/vi-vi^{5-6}$.

- After an entire aria of four-measure phrases, the ascending sequence lasts six measures – another way of portraying Cherubino’s out-of-kilter emotions.
- Performers: have the singer read the translation of this passage aloud. The emotion of the text and rising tessitura calls for an *agitato* interpretation. Most recorded performances feature a marked change in vocal quality here, usually to a breathless, breathy quality (any of the website recordings illustrate this).
- Note the ascending chromatic line in bass; have the pianist bring this out. Paired with the rising line in the voice, Cherubino’s agitation is clear.
- Ask: how does Mozart color “languir” (“languish”) in measure 60? D $\flat$ represents mixture from the minor mode. This calls for a darker vocal color to bring out the pathos. It coincides with the end of retransition, so a *ritardando* would be appropriate prior to the return of A’ in m. 62.
- How will performers mark the return of A’? Comparative recordings are instructive here: some start a *ritard* as early as measure 59, others wait until 61. Most performers articulate A’ with an *a tempo* and softer dynamic. Ameling/de Vaart carry over measures 61–62 without a break, and Ameling adds a *portamento*, linking the vocal phrases. Even so, the return is clear. Von Otter/Pinnock take a very different – but also effective – tack, taking a breath at the end of 61 and inserting a slight pause before initiating A’ at an extremely soft *pp* dynamic level.
- Perform just the retransition into first phrase of A’, incorporating these ideas.
- Ask students to compare A and A’. A’ features an insertion at measure 72, with deceptive cadence, then restarts the phrase (same as mm. 17–20), ending with a two-measure codetta.

VII. Full Performance

- Time permitting, review the main performance ideas for each section, then perform. Students applaud their peers for their contributions today!

VIII. Follow-up Activity or Homework

- Compare the Mozart aria with J.S. Bach’s, “Schafe können sicher weiden” (Cantata No. 208) to explore stylistic differences in different historical eras. (See Supplemental Materials website for links to a score, translation, and recordings.)
- As homework, students listen, mark form, key changes, sequential activity. Grade on “completion” (pass/fail), rather than accuracy, since the Baroque context is so different.
- Next class, listen to the aria and discuss overall form: A (mm. 1–21), B (mm. 21–40), A’ (da capo). Begin a form chart on the board with space to add harmonic and melodic detail.
- Divide the students into three groups, each with a task. Groups should prepare a diagram and be ready to discuss how Bach and Mozart differ.
 - Group 1: focus on the instrumental parts: how do they relate to the vocal part? Do they share melodic material with the voice?
 - Group 2: focus on hypermeter. Does the singer’s melody fit into a 4 + 4 model? How long is each phrase? Are there elided phrases?
 - Group 3: focus on form and harmonic stability. Where do modulations and sequences occur in relation to form? Where is the least stability?
- Groups report out: have one person from each group add their results to the form chart on the board. Discuss and contrast with Mozart’s aria.
- End by listening to several performances to discuss interpretive choices, particularly in the da capo repetition.

Notes

- 1 The Supplemental Materials website provides a piano-vocal score for download, and links to additional public-domain scores (IMSLP), translation, and several recordings. Teachers using Jane Piper Clendinning and Elizabeth West Marvin's *The Musician's Guide to Theory and Analysis* (3rd edition, New York: W.W. Norton, 2016) will find the score and translation in the *Anthology*, pp. 292–298, a recording on the *Musician's Guide* website, and a short overview of the song's form in the textbook, pp. 572–574.
- 2 I will refer to recordings by singer/conductor; more complete information is listed on the Supplemental Materials website, with Spotify links to the recording and timings for the measures under discussion.

Bibliography

- Marvin, Elizabeth West. "What I Know Now: Reflections on Music Theory Pedagogy" in *Norton Guide to Teaching Music Theory* (ed. Rachel Lumsden and Jeff Swinken). New York: W. W. Norton, 2018.
- Ryan, Richard M., and Edward L. Deci. "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions." *Contemporary Educational Psychology* 25, no. 1 (2000): 54–67.

47

SONATA-ALLEGRO FORM

Understanding the Drama

Thomas Childs

Topic: Recognition of sonata-allegro form.

Goal: Students will be able to aurally and visually (with score) recognize the components of sonata-allegro form.

Background: Understanding of closely related keys and modulation; a knowledge of rounded binary form is helpful, but not necessary.

This lesson is intended to be an engaging and memorable way to understand sonata-allegro form and requires a minimum 50-minute class period with an optional second class. The lesson draws parallels between a narrative arc and sonata-allegro form (hereafter, sonata form) as well as between characters and themes.

I begin class by informing the students that we are going to tell a story. I ask students to describe a narrative (story) arc with the goal of arriving at three main sections: exposition (opening, introduction), conflict (ending in climax), and resolution. I sketch this outline at the top of the board (Figure 47.1).

I ask for a volunteer to serve as a protagonist. The student chooses a color and I write their name on the board under the exposition section. I then ask for an antagonist. Using a different color, I place their name beside the first on the board in larger letters. For the purpose of this example, I'll use Michaela (Theme 1) and Connor (Theme 2). I find using different colors reinforces the key scheme integral to sonata form (see Figure 47.2).

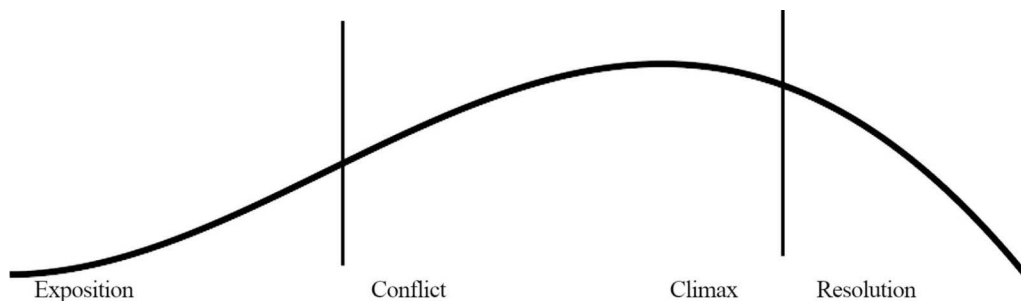


Figure 47.1 Narrative (story) arc.

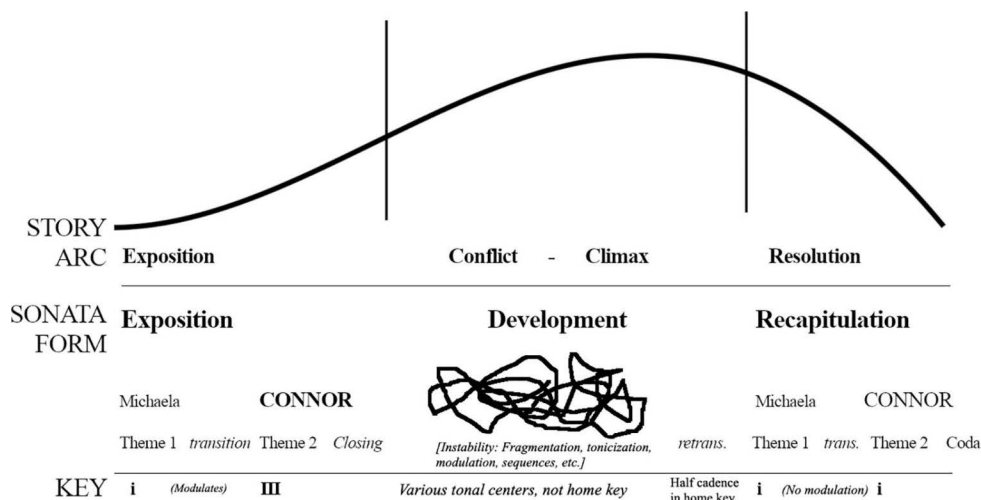


Figure 47.2 Comparison of narrative arc and sonata form.

At this point we begin to draw parallels between narrative arc and sonata form while fleshing out the purpose of each section.

I ask the students: what is the goal of the exposition in a story? As they respond, I highlight responses that indicate that expositions introduce characters and set the scene. We then discuss that sonata form uses the same descriptive, exposition, to describe the opening section, but in sonata form the characters are different melodic ideas and are presented in different keys. Below Michaela's name I'll add "Theme 1" in her color choice. (It is worth noting that theorists use varying terminology for these sections. Primary Theme (P) and Secondary Theme (S) or First Tonal Area (FTA) and Second Tonal Area (STA) are common. The comparison to narrative arc is unchanged.) I ask her to choose whether she wants her theme to be major or minor, and add her key with a Roman numeral underneath Theme 1. I then discuss the most common modulation schemes (major to the dominant, minor to the relative major), and add "Theme 2" below Connor's name in his color with his key, again represented by a Roman numeral.

Next, I ask students for a dramatic explanation for why Theme 2 is written in larger letters. The narrative arc frames the idea of a protagonist underdog facing a larger, stronger antagonist. I have the students discuss how might this be represented musically; potential answers could include orchestration, thematic character, and more Theme 2 material. While orchestration and character can sometimes come into play, Theme 2 is nearly always longer; it is very unusual to hear a longer Theme 1. To tie back into the narrative parallel, sometimes an antagonist is stealthy or seductive rather than overtly powerful, but there is always something for the protagonist to overcome.

Between Themes 1 and 2, add a transition partly in Theme 1's color and partly in Theme 2's. I ask students to consider what the harmonic goal of the transition is: modulation from the key of Theme 1 to Theme 2. I then add closing material in Theme 2's color as an optional ending to the exposition, and ask students what they think the purpose of the closing might be. Responses might include that the closing section works to firmly establish Theme 2's key in the ear, to serve as a punctuation to the end of the section, or to transition back to Theme 1 for a repeat or into the next section. This could be the point in our narrative where the antagonist seems untouchable, their power and security at a maximum.

Now I ask students why there is conflict (an inciting incident or a problem) in a story: it is necessary to build tension and create interest. I ask if anyone knows the name of the analogous section of sonata form: development. I grab as many different colors as I can (excluding Theme 1's color) and make a giant scribble in this section of the diagram. Aside from some comedic relief, this illustrates the musical intent of the section: tonal instability. I'll ask students for ways a composer might create this sense of conflict and instability, with some hints toward the colors (keys) if they are having trouble. We list possible techniques, including melodic fragmentation, tonicization, frequent modulation, secondary chords, sequences, and dominant pedals. An important point to note is the absence of the home key in the development; this is reserved for the recapitulation, the resolution of our conflict.

I add a retransition to the end of the development section, and point out that if the transition serves to move away from my protagonist (and home key), a retransition brings focus back to the protagonist (and consequently, back to the home key). This can be the moment in our story of maximum tension: everything seems hopeless, and the protagonist is losing the fight. The retransition is typically dominant harmonies (often a dominant pedal) ending with a half cadence to set up a return of Theme 1. I play an example at the piano of building tension with cadential, applied chords, and dominant harmonies, leaving students with a half cadence and the aural need for resolution it brings to punctuate the idea.

The final section, our story's resolution, is the recapitulation. The arrival of Theme 1 is the moment of victory. This section proceeds in nearly identical fashion to the exposition with one major change: when Theme 2 returns it is now in Theme 1's key (and color). This is our sense of resolution in sonata form; it represents the protagonist's triumph over the antagonist. (If the home key was minor, feel free to insert a joke about joining the dark side here...)

Some other changes to note: the transition's harmonic job has changed. It still serves as a connecting section between the themes but no longer modulates. This can be a particularly interesting section to compare with the exposition to see how the composer deals with the recap transition. Does the composer introduce new material? Or is the same transitional material reworked?

We've made it to the end of our story and the final scene, the coda. What had been closing material in the exposition is often expanded to become a coda in the recapitulation, providing additional reinforcement for the closure of the story.

Now that we have our full diagram of sonata form, it's time to apply it. A few discussion points:

1. This is a model and it's rare for a composer to follow it strictly. Part of what makes each piece interesting and unique is how a composer will break outside the model. This can be an interesting study once students have some experience following the form.
2. Encourage students to listen with expectation. If they know how the form works, they have specific things to pay attention to. When do they hear modulation? Is there a closing section? How many keys are there in the development? When does Theme 1 return? How is Theme 2 transformed? Does the composer stray away from the model? How?
3. Audiences would have been generally familiar with the way this form worked, at least by the mid-Classical era. The dramatic arc of the form creates an aural story for a listener to follow. Encourage students to put themselves in that mindset when they are listening.
4. If the students have worked on rounded binary form, discuss whether they can recognize how sonata grew (partially) out of rounded binary. In particular, the two key features of rounded binary have clear parallels in sonata form: the digression, which serves as a departure from the opening and creates instability and unrest; and the return of opening material. These are analogous to the development and recapitulation sections of sonata form.
5. Historical context is helpful. Sonata form began to develop in the late-Baroque and early Classical era, particularly with Haydn and Mozart. A piece titled "sonata" does not implicitly mean sonata-allegro form. There is a slow movement sonata form with similarities. Also, this form can be one movement in a multi-movement piece referred to as a sonata.

The first listening exercise I do with students is Clementi's Sonatina in G major, Op. 36, no. 2, *Allegretto*. Clementi doesn't stray outside the model at all in this piano piece, so it's an excellent first example that can be done with or without the score. I highly encourage at least one listen with no score; students can often become caught up in score details and lose their aural focus. A developed skill for form recognition is aural memory which is better strengthened away from rather than with the score.

Clarify the suffix *-ina* as meaning "small" or "little"; this is a sonata form in miniature so each part will pass quickly. Listen through the entire piece once with no comment beyond asking students to listen for the aural story being told. Reiterate the narrative arc of exposition, conflict, and resolution.

Listen again, this time with more direction. I first ask students to listen for the introduction of our two characters. To practice listening with expectation, I ask the students to predict the key for the second theme if Clementi begins in G major. I pause the recording at the repeat of the exposition and ask students to describe the two characters. This can be anything from musical ideas (arpeggiation, scalar motion, etc.) to interpretation (light, bouncy, threatening, etc.). For the repeat of the exposition I ask them to listen more carefully for a modulating phrase connecting the characters and for an ending (closing material) that sounds like an exclamation point to our antagonist, Theme 2.

I pause again briefly before the development to remind students to listen for four elements: the conflict (development), the climax of tension (retransition with half cadence), the return of the protagonist (recapitulation, Theme 1), and the shift in the antagonist's theme (Theme 2 in the home key). One last pause at the repeat allows me to ask students to focus in on the transition material. I then play the final repeat and ask if they noticed a difference from the exposition. It can be helpful to play the two sections back-to-back (0:04 and 1:06 on the recording available on the Supplemental Materials website).

If we are taking time for a more in-depth study including cadence, key, and harmonic use, I will at this point give out the score and have the students revisit the details of the form along with engaging in fuller analysis.

The second listening exercise I use is Mozart's Symphony No. 40 in G minor, KV 550, *Molto Allegro*. I highly recommend starting this one aurally as well (no score). This piece could also serve as an assignment, with either a full score or a piano reduction (both scores are available on the Supplemental Materials website).

Remind the students that the sections will be more substantial for this piece than they were for the sonatina and to use the key areas as an aid to hearing the characters and narrative arc. As a way to approach this piece without a score, project a timer where the class can see it as they listen. Have students mark where they hear each section begin and give some descriptives for the two characters. (A handout for this listening exercise is available on the Supplemental Materials website.) Ask students to compare times with classmates and note any differences. If time allows, the differences can lead to interesting discussion.

I define the sections as follows:

- **Exposition:**
 - Theme 1 [Primary theme, FTA] (m.1)
 - Transition (m. 21)
 - Theme 2 [Secondary theme, STA] (m. 44)
 - Closing material (m. 88)
- **Development:** The development section can be approached with varying degrees of detail, depending on the time you want to spend. The least detailed version should find the beginning of the development and the retransition.
 - m. 104, with some transitional material in mm. 100–103.

- Key areas in the development:
 - F# minor (m. 104)
 - E minor (m. 112)
 - D minor (m. 119)
 - Measure 122 begins a descending fifth motion: C major (m. 122), F major (m. 125), B♭ major (m. 127), E♭ major (m. 129)
 - D minor (m. 134) – *false retransition, unresolved dominant pedal in D minor*
 - B♭ minor (m. 140)
 - C minor (m. 143)
 - G minor (m. 146)
- Retransition can be labeled as early as m. 146 with the move to dominant function in G minor. Measure 153 would also be acceptable as a clear dominant pedal emerges.
- **Recapitulation:**
 - Theme 1 (m. 165)
 - Transition (m. 184, note the extended transition driven by a melodic sequence in the strings)
 - Theme 2 (m. 227)
 - Coda (m. 276)

Mozart follows the model we've defined fairly closely, with several areas of note that can generate a more detailed discussion. First, the development has a false retransition, with a substantial dominant pedal and half cadence for the wrong key (D minor rather than G minor). When Theme 1 does reappear, it creeps in rather quietly, overlapping a descending chromatic wind passage after a loud burst of motivic back-and-forth between strings and brass. Second, the recapitulation transition is extended from the exposition by means of a melodic sequence (mm. 199–202) and subsequent harmonic sequence (mm. 203–209). Third, the closing material from the exposition is extended in the coda section with an ascending chromatic line (mm. 281–285) and a return of the opening motive over a brief tonicization of the subdominant (mm. 287–292).

I use questions to help students discover these moments: what changes occur from the transition in the exposition to the one in the recapitulation? What is added to the closing material in the coda? Can they hear a moment in the development that sounds like it's headed back to Theme 1 and doesn't actually arrive?

As a conclusion to the lesson, have students sketch out their own narrative arc in conjunction with a model of sonata form including key schemes (Major to V, minor to III). They should be able to include each section and understand the exposition, conflict, and resolution of the form.

As a follow-up assignment or to assess retention of the form, Clementi's Op. 36 has five more sonatinas whose opening movements could all be used either aurally or with score. One challenge is that the transition is sometimes difficult to recognize until mid-phrase. Encourage students to use the repeat of the exposition to home in on its location.

My goal with any theory work with my students is to have the concepts transcend beyond the page and into their musical consciousness. Aural tracking of form, assisted by the use of narrative structure, is one method I've found to bridge the written work into their experiences creating music.

48

CONCERTO FORM

Transforming a Sonata into a Concerto

Patrick Johnson

Topic: Concerto form.

Goal: Students will be able to analyze the form of a classical concerto's first movement.

Background: Ability to analyze sonata-form movements; previous introduction to concerto form.

As an adolescent, Mozart transformed three piano sonatas by J.C. Bach into piano concertos, effectively teaching himself how to write concertos and helping to codify a form that combined the Baroque ritornello principle and sonata form. This lesson plan involves the first movement of one of the J.C. Bach sonatas, op. 5 no. 2 in D major, and its corresponding concerto setting by Mozart, KV 107 no. 1. Students will become better equipped to analyze the form of Classical-concerto first movements by first analyzing J.C. Bach's original solo movement; next, designing their own hypothetical concerto movement based on the sonata; and finally, encountering Mozart's setting. In addition, students will discover that Mozart wrote very little new music in creating his concerto. The short length and clear formal units of these two pieces make it possible to explore both in a single class period.

This lesson would presumably happen toward the end of a course involving large forms, undergraduate- or graduate-level. I have assumed that students are fluent with sonata form, although analyzing the straightforward J.C. Bach movement can double as a review if needed. I also assume that students have had a prior introduction to concerto form, perhaps a single class. In my experience, this lesson is an effective reinforcement activity, although it could be adapted to become an introductory one instead.

The lesson reflects such pedagogical techniques as student-centered engagement (e.g. small-group work, various modalities), contextual teaching (e.g. engaging with repertoire rather than constructed models), and comprehensive musicianship (by including historical context).

Each student should have access to the score of J.C. Bach's Sonata in D major, op. 5 no. 2, i, *Allegro di molto* (available on the Supplemental Materials website). Whether a paper or digital copy, students will need to be able to annotate the score. I include it in my course pack. Students do not necessarily need access to the Mozart score. When the time comes, I display only the first page of the concerto to demonstrate the modest size of Mozart's orchestra, just two violin parts and basso continuo. Before analyzing the sonata, I briefly remind students who J.C. Bach was and I mention that this piece was among the first sonatas in London published specifically for the piano.¹

Transforming a Sonata into a Concerto

To begin analyzing the sonata's first movement, listen once through, asking students to find the main sections (exposition, development, recapitulation) and label cadences (include key areas) on their own score. I use a recording by Bart van Oort on a fortepiano; a YouTube link is provided on the Supplemental Materials website. Then form small groups and listen again, perhaps skipping the repeat, with the goal of labeling the formal subsections (Main Theme, Transition, etc., using whichever system of sonata labels your students are accustomed to). Depending on the class, your students may be able to analyze the movement in a single hearing. Students then compare their findings with their classmates in the groups. Because the sonata's texture and form are fairly simple, this will likely only take a few minutes. Briefly summarize the results as a whole class by identifying the sections and subsections, either by writing on a projected score or in list form (see Figure 48.1). One feature worth noting is that the recapitulation's Transition ends with a perfect authentic cadence (PAC) (m. 87) rather than the more common half cadence (HC).

With the brief analysis of the sonata's form now complete, it is time for some imagination. Back in small groups, students should discuss the following questions for several minutes.

Imagine that you had to create a piano concerto based on this sonata movement. What would it take, beyond the orchestration efforts (and hiring an orchestra!), to transform this movement into concerto form? How much of this imagined concerto is, in essence, already written? What sections of the concerto are missing? Could you draw upon J.C. Bach's existing thematic material to create the missing sections? If so, how? Try to be efficient (i.e., don't do more work than you need to!).

Keep in mind that this should be framed as a speculative activity. You should not give any hint that the Mozart concerto exists. That payoff comes later. Since these pieces are not standard repertoire, students are unlikely to be familiar with them prior to class. I have encountered only one student in approximately ten times using this lesson who was aware of them.

Exposition	m. 1
Main Theme	m. 1
Transition	m. 9
Medial Caesura	m. 18
Second Theme	m. 19
Closing Theme	m. 35
Development	m. 43
Retransition	m. 61 (following vi:PAC)
Dominant pedal	m. 65
Recapitulation	m. 73
Main Theme	m. 73
Transition	m. 81
Medial Caesura	m. 87 (note the PAC rather than a HC)
Second Theme	m. 88
Closing Theme	m. 104

Figure 48.1 J.C. Bach, Piano Sonata in D, op. 5, no. 2, i (*Allegro di molto*).

Now discuss as a whole class. The students have likely determined some or all of the following. Fill in any gaps as needed.

The sonata movement's large sections (exposition, development, recapitulation) could become the piano part of the concerto's three solo episodes (S1, S2, and S3 respectively). In other words, the soloist could essentially play J.C. Bach's notes as written while the orchestra plays softly underneath. This orchestral material would obviously need to be written, but it would be accompanimental and is of less concern in this form-oriented discussion.

The orchestral ritornellos (R1-R4) are missing, so you would need to create these and, if desired, a cadenza. How could you use the existing thematic material from the sonata in crafting the orchestral ritornellos? Although you might need to compose some original music, at the very least R1 (the orchestral "preview") could be comprised mostly of themes from the sonata. It could begin with the Main Theme, followed by the Transition, and perhaps include the Second or Closing Theme (probably not both because the soloist usually presents some new material in S1). You would have to ensure that R1 ends in the tonic key, as is customary. This could be accomplished by either keeping R1 in D major throughout or by modulating back to D major at the end of the ritornello. For R1 to remain entirely in D major, which is perhaps the more likely solution, you would need to modify R1's Transition so that it does not modulate.

Now comes the fun part. After the earlier discussion, I usually say, "So, perhaps R1 would sound something like this," and I start playing a recording of the Mozart concerto. (A link to Murray Perahia's 1984 recording with the English Chamber Orchestra is available on the Supplemental Materials website.) The first thing we hear is J.C. Bach's Main Theme as played by a small orchestra. (On this recording, Perahia plays continuo during the tuttis). There are usually smiles at this moment, and often one of the students will say something like "Wait—you mean someone has actually done this?" Now is a good time to explain what we are listening to and provide a little historical context. Be sure it is clear to students that this piece represents the young Mozart's efforts to learn how to write concertos.

I explore the Mozart setting almost entirely without a score. Instead, I display an interactive timeline created with Audio Timeliner software (see Figure 48.2). This provides a visual map of the entire movement and the ability to easily compare sections aurally by clicking back and forth. You can also color-code the bubbles to emphasize certain aspects of the piece (a color version of Figure 48.2 is provided on the Supplemental Materials website, along with the actual timeline file). For example, I assign a single unique color to the few bubbles that represent Mozart's contribution of original material. On my timeline these few bubbles, and only these, are green. (I wait a few minutes before explaining the contrasting bubbles; see below.)

Now play R1 in its entirety, asking the students to listen carefully for how Mozart constructed his opening ritornello. What thematic material did Mozart use from Bach's sonata, and does our theoretical design match any or all of the section? Students will indeed hear the R1 that

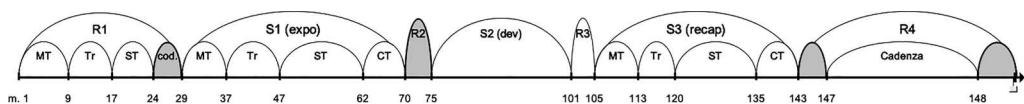


Figure 48.2 Mozart, KV 107, no. 1, i (*Allegro*).

they speculated about. Mozart's R1 remains in D major throughout. After the Main Theme, the Transition begins just as in the sonata's exposition, but Mozart indeed modifies it to remain in the key of D major rather than modulating to the dominant. It is also slightly shorter than in the exposition. Thereafter is the Second Theme, also shortened, heard in D major. Instead of including Bach's Closing Theme, however, Mozart provided five measures of his own new music as a codetta to R1 (mm. 24–28). The five measures are actually just two measures (mm. 24–25) that are immediately repeated, plus Bach's triple hammer-blow gesture in the fifth measure. Thus Mozart wrote only two measures worth of original material to create his R1. Mentioning this will also likely elicit smiles from students.

The extent to which you explore Mozart's concerto movement will depend on the amount of time remaining. The vital information to convey is that, just as we hypothesized, Mozart indeed used Bach's exposition, development, and recapitulation as the solo episodes S1, S2, and S3, respectively. In other words, the sonata essentially "survives" intact, becoming the solo part in the concerto. (See below for a few minimal exceptions.) Apart from the cadenza, Mozart only composed *seven measures* of original thematic material in this movement, some of which he reuses in several places. For example, the five-measure codetta of R1, mentioned earlier, reappears in A major as the short R2 (mm. 70–74) and again in the D-major tonic as the last five measures of the movement, immediately following the cadenza. (To reiterate, this five-measure unit itself contains two measures that are repeated plus a measure of Bach's.) The interactive timeline mentioned earlier allows me to quickly compare these sections aurally by clicking from one bubble to the next. This is when it becomes clear that the few bubbles with the contrasting color (green in the color version online) represent the very little material of the movement not adapted from Bach's music.

Mozart's contributions are not only modest in length but also quite generic. Consider, for example, the five tutti measures that he composed at the beginning of R4 (mm. 143–147) leading to the cadenza. They consist merely of an orchestrated harmonic progression that ends on the customary cadential $\frac{4}{4}$, with no melodic-motivic material to speak of.² These five measures plus the two measures (mm. 24–25) that Mozart repeats to create the R1 codetta represent the total of seven measures of original music that he composed for the body of the concerto movement. The majority, as we have seen, is either Bach's exact material or is clearly based on it. How efficient!

Students are typically delighted to find that Mozart composed so little original music for this concerto. Highlighting this is not only humorous, but I have found that it also helps students relate to the composer. Understanding his efforts to learn how to write concertos seems to help them view Mozart as a human being who developed skills rather than a god-child who arrived on earth with fully formed talents.

The only ritornello not yet accounted for is R3 (retransition, mm. 101–104). A quick look reveals that to create R3, Mozart simply gave the last four measures of the sonata's development (Bach mm. 69–72) to the orchestra rather than keeping it for the soloist. However, since these four measures are a varied repetition of the preceding four, the soloist is not entirely denied this material. Mozart only eliminated two measures of the Bach sonata. The last measure of the exposition and the last measure of the recapitulation are replaced by the first measure of R2 and R4, respectively. Both of these discarded measures contain the triple hammer-blow heard elsewhere.

Having analyzed the Bach sonata, designed their own concerto arrangement, and explored Mozart's setting, students should better understand the nature of concerto form and its relationship with sonata form, as well as be prepared to analyze other concerto-form movements. In addition, maybe their view of Mozart has evolved, and perhaps they will even consider creating their own concerto arrangement of an existing sonata-form piece.

Notes

- 1 Wolff, Christoph and Stephen Roe. 2001“Bach, Johann [John] Christian.” *Grove Music Online*. 13 October, 2018. www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-6002278196.
- 2 Hepokoski, James and Warren Darcy, *Elements of Sonata Theory: Norms, Types, and Deformations in the Late-Eighteenth-Century Sonata* (New York: Oxford University Press, 2006), 467.

Bibliography

- Hepokoski, James and Warren Darcy. *Elements of Sonata Theory: Norms, Types, and Deformations in the Late-Eighteenth-Century Sonata*. New York: Oxford University Press, 2006.
- Rosen, Charles. *Sonata Forms: Revised Edition*. New York: W.W. Norton & Company, 1988.
- Wolff, Christoph and Stephen Roe. “Bach, Johann [John] Christian.” *Grove Music Online*. Accessed 13 October, 2018. www.oxfordmusiconline.com

PART VII

Popular Music



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

POPULAR MUSIC IN THE THEORY CLASSROOM

John Covach

Over the past 20 years or so, popular music has become an increasingly significant area of study among music theorists: journals regularly feature articles focused on various analytical and theoretical aspects of pop, conferences routinely include papers on pop, and monographs and collections addressing various styles and issues make it clear that popular music is now an accepted part of the professional discourse. While the consideration of popular music has developed considerably in musical scholarship, its role in undergraduate teaching – and especially in the core theory courses – is still being explored. It might seem logical, given its increased importance in the field, that popular music should be included among theory offerings, and perhaps within the core music-major courses as well. There are nonetheless valid arguments against such inclusion. One might argue, for instance, that the study of harmony and voice-leading of the common-practice period was never really meant to be comprehensive in a broad sense, even with regard to classical music. Our teaching of tonal theory has tended to focus on mostly Germanic music from Bach to Brahms, and especially on those aspects of the music that are most highly developed in that repertory. The strength of such a relatively narrow focus is that it allows for more depth of study: the repertory may be limited, one might contend, but this allows us to dig deeper into the music. From this “traditionalist” perspective, there is no advantage to including popular music in such discussions; the resulting breadth would only detract from the current depth.

If one does want to include popular music in the theory classroom, on the other hand, there are two general approaches that may be employed; we might label these the “mild revision” and “fundamental revision.” In the mild revision, pop is incorporated into teaching not only by broadening the repertory to include music beyond classical, but also by expanding the ways in which music can be considered. One might compare pop and classical examples in terms of harmonic usage, for instance, pointing out parallels and differences, or explore approaches to form in the two styles. Including pop repertory might also encourage an increased focus on rhythm and meter, as discussions engage issues of syncopation, groove, and ostinato. Though it offers the prospect of broadening the classroom repertory while providing students with expanded ways of understanding music’s structure, however, the mild revision does not change the central focus of theory instruction. In spite of the introduction of non-classical music, the mild revision is still driven by musical values and priorities shaped by eighteenth and nineteenth-century art music. The fundamental revision, by contrast, recalibrates these values to include those of pop music and balances these new elements with those of classical music. Rather than adding pop as an enrichment to a conceptual approach driven primarily by classical repertory, the fundamental revision reformulates the basic approach to

theory instruction. Thus, the mild revision broadens the traditional model, leaving its foundations in place while the fundamental revision rethinks the model from the ground up. Let us explore these two approaches in greater depth.

The Mild Revision

As mentioned earlier, undergraduate theory offerings – and especially those in the theory core – have traditionally focused on common-practice classical music, as well as on twentieth-century music (with emphasis on pcset and twelve-tone analytical techniques).¹ In the study of tonal music, harmony and voice-leading have been primary concerns, resulting in approaches that privilege these dimensions over others and that assume (if only tacitly) the practices found in this music to be normative. Thus, considerations of tonal harmony as it occurs in popular music may be measured against the norms of common-practice harmony. In many cases, this approach works smoothly and does no disservice to the music; there are certainly many (maybe most) passages in the music of Jerome Kern, Cole Porter, Irving Berlin, and Richard Rodgers, for instance, that conform to common-practice usage. In other popular music, however, the stylistic norms diverge considerably from those of common-practice harmony and (especially) voice-leading. A representative instance that illustrates this divergence can be found in “Can’t Get Enough,” a track recorded by the British rock band Bad Company and released in 1974.

The song opens with an introduction (0:00–0:19) employing I, ♭VII, and IV in C (see Figure 49.1). According to the traditional approach, the use of ♭VII ought to be a chromatic harmony of some note, especially since the opening tonic chord is a major triad, leading us to assume – at least provisionally – the key of C major. But while the overall movement of this progression from I to IV is fairly conventional as a prolongation of tonic, there is nothing at all remarkable in this musical context about the ♭VII. In a sense, this is not the same ♭VII as one might hear in Beethoven or Brahms, where such a chord could constitute a moment of noteworthy chromaticism. As the verse unfolds (0:19–0:42), we hear the V and ♭III chords included in the last four measures. Adding these five major triads up, it is clear that the sonorities are built on the C minor pentatonic scale, with major triads built on C, E♭, F, G, and B♭. In the rock style of the second half of the twentieth century, these chords are normative; and in this sense they can be considered “diatonic.”² Note as well that the cross relations resulting between the B♭ in the ♭VII chord and the B in the V chord, or between the E in the I chord and the E♭ in the ♭III chord go relatively unnoticed stylistically. This is partly because voice-leading does not drive the harmony forward in the same way it does in common-practice music. There is voice-leading at work, of course, but it is comprised here mostly of parallel chords – fifths and all – played up and down the guitar neck.

While a traditional analytical approach might do a disservice to the harmony in “Can’t Get Enough,” making it seem more chromatic than it really is in its own stylistic context, a traditional approach to dissonance treatment works fairly well for this song. It is sometimes the case (and especially in melodies that are influenced by the blues) that the notes in a vocal or instrumental melody do not align with the notes in the harmony. Pop scholars often call this the “melodic-harmonic divorce,” stressing that at such moments the seemingly dissonant melody notes are better understood within the overall tonal orientation of the melody itself: they are not truly dissonances in the traditional sense.³ But the vocal melody in the verse and chorus of “Can’t Get Enough” mostly aligns with the harmony, so there is very little melodic-harmonic divorce there. Indeed, the central guitar solo of the track (1:43–2:21), played by two guitars in harmony, mostly follows the accompanying harmonic structure, especially in the first eight bars of the verse and throughout the chorus.⁴ In fact, if one were to search for passages in rock music where the harmonic-melodic divorce is present, the guitar solo might be the first place to explore, since

Words and music by Mick Ralphs, produced by Bad Company. Contained on the album *Bad Company*, which reached #5 in the UK and #1 on the *Billboard* 200 chart in 1974. Reached #5 on the *Billboard* Hot 100 when released as a single in 1974.

Instrumentation: electric guitars, electric bass, drums, and lead vocal; two extra lead guitars added for instrumental and chorus and one extra guitar added during repeated chorus sections from 2:36 ff.

Meter and Form: $\frac{12}{8}$ ($\frac{4}{4}$ shuffle). Contrasting verse-chorus form, with multiple choruses and Coda at end.

0:00-0:19	Introduction , 8 mm., I – $\flat$ VII – IV pattern introduced
0:19-0:42	Verse 1 , 12 mm., I – $\flat$ VII – IV, then V – $\flat$ VII – IV – $\flat$ III
0:42-0:57	Chorus , 8 mm., I – IV, ends on V – I – V
0:57-1:05	Interlude , 4 mm., reprise of Introduction
1:05-1:28	Verse 2 , 12 mm., as before
1:28-1:43	Chorus , 8 mm., as before
1:43-2:06	Verse (instrumental) , 12 mm., two guitars in harmony, drums accent 2 and 4
2:06-2:20	Chorus (instrumental) , 8 mm., bass breaks into walking pattern
2:20-2:36	Chorus , 8 mm., vocal line varied
2:36-2:51	Chorus , 8 mm., variation continues, lead guitar enters
2:51-3:06	Chorus , 8 mm., variation continues, lead guitar interjects
3:06-3:21	Chorus (instrumental) , 8 mm., lead guitar solos, vocal interjects
3:21-3:36	Chorus (instrumental) , 8 mm., lead guitar continues solo
3:36-3:51	Chorus , 8 mm., vocal returns as guitar soloing continues
3:51-4:13	Coda , 8 mm., reprise of Introduction, with added guitar soloing

Mix:

left	left center	center	right center	right
high rhythm guitar		vocal		low rhythm guitar
	high harmony guitar	bass guitar	low harmony guitar	
		drums		
		lead guitar		

Figure 49.1 Bad Company’s “Can’t Get Enough,” form and mix scene analysis.

blues-based solos often do not align with the harmonies that support them in a traditional manner. Yet in “Can’t Get Enough,” the lack (mostly) of melodic-harmonic divorce and the emphasis on vertical alignment created by the two-part harmony actually constitute an allusion to traditional harmonic relationships that steps somewhat outside of the 1970s rock style. So just when the song seems chromatic from a traditional perspective, it isn’t; and just when it seems traditional, it is referring outside of the rock style.

Our brief consideration of this Bad Company track makes it clear that if pop examples are going to be used in the theory classroom, we need to be sensitive to their stylistic context, and this forces us to expand the ways we understand harmony, voice-leading, and texture. And while there may be many pop examples that offer parallel examples to classical ones, we need to be careful not

to confuse things that appear similar with things that actually are similar. From this perspective, the traditionalist has a good point: including seemingly similar examples drawn from pop threatens to dilute an understanding of common-practice usage. On the other hand, even though the mild revision remains driven by the traditional concerns of music theoretical instruction, it may nevertheless make important stylistic distinctions in the service of exposing students to a broader range of musical practices and repertory. As pop examples are incorporated, and while consideration may be given to alternative approaches to harmony, voice-leading, and texture, traditional techniques of harmony and voice-leading as found in classical music ultimately remain the focal concern and are considered the central normative models.

The Fundamental Revision

The fundamental revision seeks to recalibrate the central topics in the music theory classroom, first by approaching the traditional topics of harmony and voice-leading in a way that does not privilege classical music, and second by broadening the range of topics engaged in instruction. Harmony, for instance, may be initially approached from a perspective that is general enough to include both popular and classical styles, and voice-leading might be cast as relationships between tones that may be exploited (or suppressed) in various ways, depending upon style. The idea of the melodic-harmonic divorce can provide an introduction to issues of musical texture, exploring the various ways in which elements in a texture can align vertically or not. Popular music provides a fruitful context for thinking about issues of rhythm and meter, in addition to topics in groove and repetition – issues that might be explored profitably in twentieth-century classical music as well. The importance of the recording studio (and the attendant technology) in popular music invites listening deep into textures for aspects of timbre and placement, and the importance of improvisation in jazz, blues, rock, and bluegrass encourages a consideration of how such solos might be structured.

To explore how the fundamental revision might differ from the mild revision, let us briefly consider the introductory section of Deep Purple’s “Smoke on the Water,” a track released in 1972 that is within the same 1970s British blues-rock style as “Can’t Get Enough.” The track begins with a distinctive four-bar guitar riff, played in parallel fourths; the upper notes of this riff employ the first three members of the G minor pentatonic scale (G, B♭, C), plus the “blue note” D♭, which functions here as a chromatic upper neighbor to the C (see Figure 49.2). The fourth below this line employs D, F, and G, along with the chromatic upper neighbor A♭. After two statements of this four-bar riff in the guitar alone, the organ enters (0:17), doubling the guitar part, while the drums introduce a steady sixteenth note figure on the hi-hat, adding the snare on beats two and four of the fourth statement (0:25). The bass guitar enters for the fifth and six statements of the riff (0:34), chromatically ascending from E in an anacrusis figure that lands on G at beat one and provides an eighth-note tonic pedal that breaks off on beat three of the third measure to double the final C, B♭, and G in the guitar riff. Note as well the addition of a bass drum pattern in the drums, filling in the eighth-note spots not already occupied by the snare, on the sixth statement (0:42).

In terms of the traditional pedagogical concerns, there is not much in this passage to relate it to common-practice music. We might point out the use of pedal point in the first half of each four-bar statement, and perhaps the implication of an overall harmonic movement of IV–♭III–I in the second half. The use of minor pentatonic material here provides a new perspective compared to its use in “Can’t Get Enough,” as the pentatonic material is stated more melodically than harmonically in this introduction. There are no cross relations like the ones in the Bad Company example, since triads are not used, but there is chromaticism in use of the blue-note figure, D♭–C (doubled a fourth below). The most noteworthy aspect of this passage is probably its use of texture. The pentatonic riff in the guitar and the pedal point in the bass form two

Words and music by Ritchie Blackmore, Ian Gillan, Roger Glover, Jon Lord, and Ian Paice, produced by Deep Purple. Contained on the album *Machine Head*, which reached #1 in the UK and #7 on the *Billboard* 200 in 1972. Reached #4 on the *Billboard* Hot 100 when released as a single in 1973.

Instrumentation: guitar, organ, bass, drums, and vocal, with extra guitar added for solo during instrumental verse and chorus.

Meter and Form: $\frac{4}{4}$. Contrasting verse-chorus form with a hint of compound AABA.

0:00-0:51	Introduction , 24 mm., (4 + 4) + (4 + 4) + (4 + 4) using 4 mm. guitar riff
0:51-1:25	Verse 1 , 16 mm., 4 + 4 + 4 + 4, i – bVII - i
1:25-1:38	Chorus , 6 mm., 4 + 2, IV – bII – I, harmony vocal added
1:38-1:55	Interlude , 8 mm., 4 + 4 using 4 mm. pentatonic guitar riff
1:55-2:28	Verse 2 , 16 mm., as before with more active organ part
2:28-2:41	Chorus , 6 mm., as before
2:41-2:58	Interlude , 8 mm., as before
2:58-3:31	Verse (instrumental), 16 mm., 16th-notes on snare, bass more active, i – iv - i
3:31-3:39	Chorus (instrumental), 4 mm., based on chorus, IV - bVII
3:39-3:56	Interlude , 8 mm., solo overlaps into first 4 mm., otherwise as before
3:56-4:29	Verse 3 , 16 mm., as in Verse 2
4:29-4:42	Chorus , 6 mm., as before
4:42-5:35	Coda , 16+ mm., 4 + 4 + (4 + 4) using 4 mm. guitar riff, then fade on vamp, organ improv

Mix:

left	left center	center	right center	right
guitar		vocals		organ
		bass guitar		
		drums		
		lead guitar		

Figure 49.2 Deep Purple’s “Smoke on the Water,” form and mix scene analysis.

layers in terms of pitch structure; the organ part reinforces the guitar layer while the drums add a rhythmic layer. The bass and guitar layers are “divorced” (or “stratified”) until the middle of the third measure of the pattern, where they come together on the C–B–G figure (“coordinated”). We can thus observe a kind of “textural rhythm” in which the layers alternate 2 $\frac{1}{2}$ measures of stratified texture with 1 $\frac{1}{2}$ measures of coordinated texture.⁵ This stratification occurs mainly in the pitch domain, since the rhythm of these parts is strongly coordinated by the $\frac{4}{4}$ meter, which is reinforced by the drums layer. The layered quality of this example is further highlighted by the manner in which the instruments are presented – that is, one or two instruments at a time until the texture is complete.

If we turn to the verse (0:51–1:25) and chorus (1:25–1:38) sections of “Smoke on the Water,” we can see that the verses are made up of a harmonic progression (bass, organ, and guitar) that moves from *i* to $\flat$ VII and back, accompanying a vocal melody built on the G minor pentatonic scale. The texture is mildly stratified, as vocal melody notes in the second half of the four-bar phrases do not quite align with the harmony in the instruments. The harmony in the chorus moves from IV to $\flat$ II and then to *i* and features a strong coordination with the melodic material.⁶ Overall, the harmony suggests G minor; the lack of a sixth scale degree makes it unclear in the verses whether the mode is Aeolian or Dorian, but the IV in the chorus suggests Dorian, while the $\flat$ II seems borrowed from the Phrygian mode. There is an interesting variation to the verse and chorus materials that occurs later in the track during the guitar solo (2:58–3:47): during the four-bar verse phrases (2:58–3:31) the harmony moves from *i* to *iv* and back, replacing the $\flat$ VII heard previously and altering the harmonic rhythm slightly; and in the chorus (3:31–3:39), the movement is altered to IV– $\flat$ VII, with the duration of each harmony doubled in comparison with previous choruses. The sense of variation is further reinforced by a change of rhythmic feel in the drums in comparison with the two previously sung verses, as the snare now shifts to a repeated sixteenth-note pattern reminiscent of the hi-hat pattern from the introduction and the bass employs running eighth notes.

The musical features of “Smoke on the Water” noted here, while distinctive in their own way, are very much in keeping with the practices of 1970s rock music. It is nonetheless difficult to imagine – and perhaps precisely because they are indicative of the differences between pop and classical – how classroom discussion of the features noted here could be used to amplify, enrich, or expand the core topics in the mild revision approach. It might be useful to present an example like “Smoke on the Water” occasionally, maybe to emphasize how musical materials can play a role in defining stylistic difference – but a fuller understanding of the norms of the rock style would require that topics such as pentatonic harmonic and melodic usage, stratified and coordinated textures, and approaches to rhythmic feel (among others) be introduced and supported with a wide variety of examples.⁷ Including popular music in the curriculum in this more fundamental way would require significant class time – time not spent on traditional topics. One challenge posed by the fundamental revision thus comes down to determining a balance between how much of the traditional curriculum to retain and how much to remove in order to make room for new topics. After all, incorporating popular music into the curriculum does not mean abandoning classical music, but it does mean spending less time on it.

Both “Can’t Get Enough” and “Smoke on the Water” offer additional opportunities to discuss features of popular music, and features of the 1970s blues-rock style in particular. In the discussion of “Can’t Get Enough,” I noted that the guitar solo (1:43–2:20) is mostly not stratified. But stratification does occur later in the track. From 2:20 forward, the lead vocal and then the lead guitar introduce melodic material in these repeated choruses that is primarily based on the C minor pentatonic scale without much concern for the specific harmonies in the accompaniment. The vocal melody in the previous choruses was not stratified; this new stratified texture in these later choruses illustrates how stratified and coordinated textures can occur not only in the same song (or in the same section, as we saw in the introduction of “Smoke on the Water”) but also between different instances of the same section. Our discussion of “Smoke on the Water” highlighted the changes in the accompaniment during the central guitar solo that create a fresh rhythmic feel for that section (2:58–3:39); a similar change can be seen during the central guitar solo in “Can’t Get Enough” (1:43–2:20), as the drums provide a new and strong emphasis on beats two and four during the instrumental verse, while the bass breaks into a new walking pattern during the instrumental chorus. A focus on tracking the relationship between stratification and coordination is not normally a concern in traditional theory instruction, nor is taking into account changes in rhythmic feel that arise in repeated material. Both topics, however, would enrich any consideration of these tracks that understands them on their own stylistic terms.

Attention to recording and production can also be integrated into theory instruction.⁸ Recording technology and production play a significant role in popular music, especially in music recorded after the mid-1960s. By the late 1960s/early 1970s, stereo had eclipsed mono as the standard technology for both artists and listeners. Stereo creates an audio field in the space between the left and right speakers; though sound is actually only coming from these two sources, we nevertheless can hear sounds that seem to be coming from the center, as well as to various degrees from the left and right. Classical recordings often use this “panning” to simulate the way an ensemble would sound in a concert hall, with instruments panned at some position from left to right according to where they would be placed on stage. Popular music sometimes uses this “aural snapshot” approach, but often the mix on a pop recording will take advantage of opportunities offered by the recording studio. Figures 49.1 and 49.2 provide “mix scene” analyses, and each situates the vocal and instrument parts as they are heard in stereo.⁹ The mix on “Can’t Get Enough” is perhaps the more interesting of the two: while it is fairly typical to place the lead vocal, bass, and drums in the center position, “Can’t Get Enough” features two rhythm guitars panned to the left and right. The guitar on the left plays higher voicings while the one on the right plays lower ones. These positions remain throughout the track, though when two additional guitars enter during the central solo, they are panned left center (higher part) and right center (lower part). When the lead guitar enters at 2:36, it is positioned in the center, where it remains throughout the rest of the track. By contrast, the mix for “Smoke on the Water” remains close to the aural snapshot mode, with the vocals, bass, and drums in the center while the guitar is to the left and the organ to the right. The only change is during the guitar solo, when this added guitar part is panned to the center, filling the spot otherwise held by the lead vocal. The mix scene analyses in Figures 49.1 and 49.2 draw our attention to the music in ways that do not arise much in the consideration of classical music – at least not in the theory classroom. While the mixes presented here are relatively uncomplicated ones, mix scene analyses can be much more involved. As with other aspects of these two tracks discussed thus far, the traditional approach would avoid such mix analysis altogether, the mild revision might introduce it as a special topic but not pursue it in depth, and the fundamental revision would likely include it as a core topic.

Curricular Change?

Elsewhere I have argued for both the traditional perspective (Covach et al. 2012) and the fundamental revision (Covach 2017). I have resisted the mild revision principally on two counts. First, the mild revision risks casting popular music as a variant of classical, as mentioned earlier in the discussion of “Can’t Get Enough.” It views pop through a music-theoretical lens created for classical, possibly producing a distorted image and seemingly serving an understanding of classical while doing a disservice – however unintentionally – to pop. Second, because the mild revision is guided by the concerns of classical, it opens the potential for placing popular music in a secondary position in terms of value. Using classical as the model casts popular music as a style of lesser cultural worth and reinforces the biases inherent in the divide between highbrow and lowbrow (or even middlebrow) culture.¹⁰ While the mild revision certainly can be executed with a sensitivity that avoids such pitfalls, its cautious approach to the pedagogical use of popular music renders it, to adapt Arnold Schoenberg’s well-known phrase, the middle road that does not lead to Rome.¹¹ If one is committed to emphasizing the important features of common-practice music, it is best to keep popular music largely out of the discussion, perhaps reserving consideration of this music to a course devoted exclusively to pop.

I have embraced the fundamental revision in my discussion of the Integrated Curriculum (Covach 2017). The Integrated Curriculum offers a revision of the entire undergraduate music major, both for the Bachelor of Arts and Bachelor of Music degrees, and encompasses theory,

musicianship, history, ensemble, and lessons. The core idea driving the Integrated Curriculum is that students are musicians first and specialists second. Departments and music schools are urged to revise their programs so that they may welcome a broad range of musicians and not only those whose experience is in classical or jazz. Theory and history courses, especially in the first year, ought to present a wide range of styles without creating any sense that one style is superior to another. Such courses can still be demanding: the goal is to challenge all but privilege none. For students whose principal background is in popular music, ensembles and studio lessons in pop must be established, as well as courses in songwriting, arranging, music business, and recording and production techniques. Pop students should be challenged to engage other styles of music, and classical and jazz students should be challenged to engage pop. In such a context, the fundamental revision becomes not only a way of rethinking theory but also a guide to rethinking other aspects of the music curriculum.¹²

Curricular change can be difficult, and especially changes that require rethinking the fundamental purpose of a degree. It is also important to acknowledge that all departments and music schools are not the same: they can have very different students, faculty, goals, and purposes. While there are advantages to standardization across the discipline, the diverse range of programs makes a one-size-fits-all solution seem too limiting. Popular music can be incorporated into programs in various ways. The traditionalist may prefer to have devoted classes in pop theory, maintaining her focus on classical music and preserving the resultant depth. Others may want to add a bit of pop to diversify the teaching repertory and introduce new ways of thinking about the music. Still others will opt to refashion their courses to include popular music in a more fundamental way. No matter the scenario, it seems certain that we will be seeing more popular music in the theory classroom.

Notes

- 1 See Clendinning (2017) for a detailed discussion of traditional curricula (including the use of popular music in leading textbooks), as well as for consideration of the many issues that introducing popular music into the curriculum raises.
- 2 For a discussion of the harmonic practices that can be found in rock, see Everett (2004). Fuller treatments of rock harmony may be found in Everett (2009) and Doll (2017). See also Moore (2012), Tagg (2016), and Temperley (2018). For a detailed treatment of pentatonic elements in rock music, see Biamonte (2010).
- 3 The term “harmonic-melodic divorce” is first used by Moore (1995), who cites Winkler (1978) for the idea. The term is then developed by Temperley (2007) and Nobile (2015).
- 4 The guitar duet in the last four bars of the instrumental verse (1:58–2:04) “divorces” the accompanying harmony through an emphasis on the C minor pentatonic scale, but falls back into “reconciliation” with the harmony for the instrumental chorus.
- 5 I discuss the ideas of stratification, coordination, and textural rhythm more fully in Covach (2018). My use of the terms “stratification” and “coordination” are employed to account for a broad range of possibilities, including more than two layers and not limited only to the melody and accompaniment. See also the harmony guitar solo in “Can’t Get Enough” (endnote 4) for another instance of stratification and coordination in a single section.
- 6 Temperley (2007, 335) cites this feature in “Smoke on the Water” as an instance of what he terms the “loose verse, tight chorus” model.
- 7 See Clendinning (2017) for a similar discussion of Katy Perry’s “Roar” (292–296) and Queen’s “Crazy Little Thing Called Love” (297–301).
- 8 See Zak (2001) for a detailed discussion of recording techniques in popular music.
- 9 Moylan (2009) uses the term “lateral positioning” in his discussion of mix scenes. See also Dockwray and Moore (2010).
- 10 See Palfy and Gilson (2018) for an extended discussion of the “hidden curriculum” in the music theory classroom, as well as data collected from undergraduate students that reinforce the idea that students perceive classical music as being more influential than other types of music in the study of theory, even

when this value is not made explicit in the teaching and examples from other styles have been used. The authors also suggest four categories of action (2018, 104) that in some ways parallel my traditional, mild revision, and fundamental revision categories.

- 11 This phrase arises in Schoenberg's 1926 critique of Stravinsky's neoclassicism. He writes: "I wanted to attack anyone who seeks his personal salvation by taking the middle road, because the middle road is only road that does not lead to Rome" (Jenkins 2015, 283–284).
- 12 For an outline of the Integrated Curriculum and discussion of each of its components, see Covach (2017, 324–330).

Bibliography

- Biamonte, Nicole. 2010. "Triadic Modal and Pentatonic Patterns in Rock Music." *Music Theory Spectrum* 32 (2): 95–110.
- Clendinning, Jane Piper. 2017. "Teaching Popular Music in the Music Theory Core: Focus on Harmony and Musical Form." In *Coming of Age: Teaching and Learning Music in Academia*, edited by Carlos Xavier Rodriguez, 289–312. Ann Arbor: Maize Books.
- Covach, John. 2018. "Analyzing Texture in Rock Music: Stratification, Coordination, Position, and Perspective." In *Pop weiter denken: Neue Anstöße aus Jazz Studies, Philosophie, Musiktheorie und Geschichte, Beiträge zur Populärmusikforschung* 44, edited by Ralf von Appen and André Doebring, 53–72. Bielefeld: Transcript Verlag.
- Covach, John. 2017. "High Brow, Low Brow, Knot Now, Know How: Music Curricula in a Flat World." In *Coming of Age: Teaching and Learning Music in Academia*, edited by Carlos Xavier Rodriguez, 313–333. Ann Arbor: Maize Books.
- Covach, John, Jane Piper Clendinning, and Charles J. Smith. 2012. "Pedagogy and the Classical Canon." *Mosaic: Journal of Music Research* 2: 1–5.
- Dockwray, Ruth and Allan F. Moore. 2010. "Configuring the Sound-Box 1966–1972." *Popular Music* 29 (2): 181–197.
- Doll, Christopher. 2017. *Hearing Harmony: Toward a Tonal Theory for the Rock Era*. Ann Arbor: University of Michigan Press.
- Everett, Walter. 2009. *The Foundations of Rock: From "Blue Suede Shoes" to "Suite: Judy Blue Eyes"*. New York: Oxford University Press.
- Everett, Walter. 2004. "Making Sense of Rock's Tonal Systems." *Music Theory Online* 10 (4). www.mtosmt.org/issues/mto.04.10.4/mto.04.10.4.w_everett.html
- Jenkins, J. Daniel, editor. 2015. *Schoenberg's Program Notes and Musical Analyses*. New York: Oxford University Press.
- Moore, Allan. 2012. *Song Means: Analysing and Interpreting Recorded Popular Song*. Burlington, VT: Ashgate.
- Moore, Allan. 1995. "The So-Called 'Flatted Seventh' in Rock Music." *Popular Music* 14 (2): 185–201.
- Moylan, William. 2009. "Considering Space in Music." *Journal on the Art of Record Production* 4. www.arpjournal.com/asarpwp/considering-space-in-music/
- Nobile, Drew. 2015. "Counterpoint in Rock Music: Unpacking the 'Melodic-Harmonic Divorce.'" *Music Theory Spectrum* 37 (2): 189–203.
- Palfy, Cora S. and Eric Gilson. 2018. "The Hidden Curriculum in the Music Theory Classroom." *Journal of Music Theory Pedagogy* 32: 79–110.
- Tagg, Philip. 2016. *Everyday Tonality II*, version 2.6.3, New York and Huddersfield: The Mass Media Music Scholar's Press.
- Temperley, David. 2018. *The Musical Language of Rock*. New York: Oxford University Press.
- Temperley, David. 2007. "The Melodic-Harmonic Divorce in Rock." *Popular Music* 26 (2): 323–342.
- Winkler, Peter. 1978. "Toward a Theory of Pop Harmony." In *Theory Only* 4: 3–26.
- Zak, Albin. 2001. *The Poetics of Rock: Cutting Tracks, Making Records*. Berkeley and Los Angeles: University of California Press.

50

THE BEATLES’ “DAY TRIPPER”

A Tortured Stretching of the Twelve-Bar Blues

Walter Everett

Topic: The purpose of this class is to introduce (or review) twelve-bar blues form, illustrate the Beatles’ early adoption of same, and then examine one of their songs, “Day Tripper,” that expands the form to excruciating lengths for text-painting purposes.

Goal: Students should be able to identify a twelve-bar blues structure, recognize when the model’s phrase lengths or harmonic content have been adapted, and consider how the lyrics might suggest how such adaptations might be expressive.

Background: Students should be able to count measures in common time, recognize diatonic roots and chord color by ear, and have an understanding of harmonic relations including tonicization and augmented-sixth chords. The one-hour lesson (with additional suggestions below for a longer duration or a more advanced syllabus) could be integrated into a module in the undergraduate core involving chromatic harmony, or an upper-level tonal analysis class, or any seminar at the undergraduate or graduate level dealing with popular music. Analysis may be accomplished completely aurally or with the aid of a score.

Lesson Plan

The Twelve-Bar Blues Model

We must begin with an understanding of the formal, phrase-rhythmic, and harmonic basis of the twelve-bar blues model, as created in the area of the American Mississippi delta. The form consists of three four-bar phrases in bar form, *a a' b*, its chord changes appearing thus, in a structure that should appear on a chalkboard or projected on a screen:

<i>a</i>	I		I		I		I	
<i>a'</i>	IV		IV		I		I	
<i>b</i>	V		(IV)		I		I	

Typically, the melody of mm. 1–4 – all supported by I harmony – is repeated (perhaps varied) in a second phrase, with mm. 5–6 on IV answered by mm. 7–8 on I. The contrasting third phrase has a new melody (sometimes based on the same rhythm and a related pitch structure as in phrase *a*). This moves from V in m. 9 back to I (m. 11), often through a passing IV in m. 10. (“IV” is parenthesized in the model because V may continue through bar 10.) Bar 12, then, may prolong the I achieved in bar 11 (as shown), or it (or just its anacrusic ending) may be replaced with a

The Beatles' "Day Tripper"

retransitional $V^{(7)}$ for a “turnaround” to the second strophe, a repeated twelve-bar structure with new lyrics. All triads are major, and minor sevenths may appear on any chords, including the tonic. (Sometimes the seventh on I appears first in m. 4, thereby serving as an applied V^7 to the following IV.) In classic blues, the lyrics of phrase *a* are repeated exactly in phrase *a'* (or perhaps with ornamentation such as with an “oh Lord” or the like added in m. 5 or 6); in rock music, there is often a new lyric for *a'*. For advanced classes: the optional passing IV may be understood as the triadic doubling of the V^7 seventh, as usual in heterophonic styles such as much hard-rock music. Thus, mm. 9–10 are not properly considered to be a “retrogressive” motion from V “to” IV; IV is merely a cushioning set of neighbors to the third and fifth of I, softening the V^7 –I cadence.

Conventional Twelve-Bar Examples

Once these general points are understood, have students recognize the standard form in one or two illustrations. Play a classic example or two of the twelve-bar blues pattern. Suggested: Robert Johnson’s “Sweet Home Chicago” (1937; F major) or Willie Mae (“Big Mama”) Thornton’s “Hound Dog” (1951; E $\flat$ major), both of which adhere to the earlier model (links to these and all other recordings mentioned in this lesson are available in the Supplemental Materials). As in standard usage, the form begins when the vocalist enters, following an instrumental introduction of any length. While listening, students should be encouraged to count bars (or, given access to instruments, play along with the bass lines and/or chord changes); the instructor should trace the diagram for orientation, pointing to individual bars as necessary. After each example, ask whether the first line of lyrics is repeated for the *a'* phrase. (Yes, in both cases.) Does either artist ornament harmonies in mm. 1–8 with passing or neighboring chords? (Thornton does not; Johnson moves to a neighboring IV chord in m. 2). Ask whether or not m. 10 uses the “softening” IV chord. (No, both songs maintain V^7 harmony.)

In an advanced class, harmonic embellishments – elaborations of the diagram – can be exemplified. Passing, chromatic, mixture-derived, and extended-tertian jazz chords can appear. Varied performances of the same composition can show flexibility in harmonic expansions; suggested examples include T-Bone Walker’s “Stormy Monday Blues” and the Allman Brothers’ “Stormy Monday” (as played at New York’s Fillmore East in 1971).

The Beatles' Standard Blues Usage

The American blues form was adopted by British rock groups in the 1960s. The British Beatles are not known for their blues writing; of their more than 210 studio recordings, only six incorporate twelve-bar structures. Several of these date from the early 1964, at a time when the group made a conscious effort to appeal to an American audience. The verse portion of “Can’t Buy Me Love” (C major, 0:08–0:25) can serve to demonstrate the Beatles’ adoption of the standard blues form; this song was once famously covered by American blues legend Ella Fitzgerald. Note the variation of lyrics in the *a'* phrase, and the fact that the IV of m. 10 continues through m. 11 – an unexpected variation of the usual harmonic rhythm.

“Day Tripper”: Verse/Refrain

First play bars 1–8 of the first verse of “Day Tripper” (1965; E major) which follows the twelve-bar blues conventions given earlier. The recording opens with a ten-bar instrumental introduction (0:00–0:17), entirely on I^7 harmony, that establishes tonic for the blues structure that begins with the vocal entry. This intro consists of two bars with a lead-guitar ostinato pattern alone, another two doubling that by a second lead guitar and electric bass, the next four bars adding tambourine

plus I^7 chording on rhythm guitar, and then a two-beat anacrusis on toms brings in the drums to complete the instrumental texture for the ninth and tenth bars. Some or all of this may be played to give the class a tonal and metric context for the vocal form that follows. The conventional bars 1–8 of the blues, which turn out to embody the first half of Verse One, constitute the repeated phrase, “Got a good reason for taking the easy way out” (0:18–0:31).

Once mm. 1–8 are understood, play the complete first verse (0:18–0:45), which comprises 16 (not 12) bars. Work with students to complete a diagram of the verse’s four four-bar phrases. It is recommended that, at first, Roman numerals be written as if the tonal center of E major is maintained throughout, thus:

<i>a</i>	I^7		I^7		I^7		I^7	
<i>a'</i>	IV^7		IV^7		I^7		I^7	
<i>b</i>	II^7		II^7		II^7		II^7	
<i>c</i>	IV^7		III^7		VI^7		V^7	

The lyrics of mm. 9–10 and of 13–16 are constant in all three verses, making the last four bars act as a verse-ending refrain; the lyric of mm. 11–12 is altered in the third verse, making all of mm. 9–16 a variable verse-ending refrain. (An advanced group may wish to consider whether mm. 9–16 constitute two four-bar phrases, as shown, or a single eight-bar phrase. Whether one prefers hearing three or four phrases, the twelve-measure bar-form is unequivocally stretched to 16 measures.)

It should be recognized that the chord palette contains major-minor seventh chords built on each of the first six degrees of the E major scale, with altered scale degrees appearing as the lowered sevenths of I and IV, and as the raised thirds of II, III and VI, thus completing the chromatic aggregate among chord members for a maximally colorful harmonic vocabulary.

Once the chord collection is established, function should be determined. Ask if any scale degrees seem to be tonicized; isolate mm. 13–15 by playing IV^7 – III^7 – VI on the piano and/or by replaying 0:39–0:43. C# major, the VI area, is tonicized by virtue of an applied German augmented-sixth chord in m. 13: the “ III^7 ” can be interpreted as the dominant of VI (C# major), with the “ IV^7 ” before it serving as an enharmonic Ger^{+6} . Roman numerals can therefore be changed to show the tonicization of VI, with the A^7 chord functioning as a pivot (IV^7 in E major, reinterpreted as Ger^{+6} in C#), and this could generate a discussion comparing the *composer’s* likely guitar-based creation of the vocabulary as conceived along the E major scale, and the *listener’s* tonicizing hearing, based on the chord functions. (If it is argued that #4 in the German⁺⁶ of C# [F*, here spelled as G] descends rather than rises, point out that this occurs in the classical literature as well, as when Mozart elides traditional voice-leading.) The German sixth is somewhat unusual in rock music, although John Lennon – the Beatle who composed “Day Tripper” – had previously used it to end the half-cadential bridge of “I Call Your Name.” The refrain-ending VI^7 – V^7 motion might be heard as a transposed punning reference to the withheld V^7 – IV^7 of the abandoned prototypical blues structure’s mm. 9–10. It can now be revealed that the song’s large-scale form is that of Instrumental Introduction (ten bars, 0:00–0:17) – Verse 1 (16 bars, 0:18–0:45) – Instrumental Interlude (four bars of I^7 , 0:46–0:52) – Verse 2 (16 bars, 0:53–1:20) – Instrumental Break (12 bars, 1:20–1:41) – Instrumental Interlude (four bars of I^7 , 1:41–1:48) – Verse 3 (16 bars, 1:48–2:16) – Coda (fading out, 2:17+).

The lyrics of the “Day Tripper” verses help us interpret how the digressions of mm. 9–16 might make sense. Only because of the stylistic ubiquity of the twelve-bar pattern does the listener understand immediately in bar 9 that things have taken a wrong turn and lead into a seemingly hopeless quagmire, evading any clear goals. Instead of moving in m. 9 to V for the expected harmonic high point, the refrain is a highly chromatic response that wanders widely, obscuring any harmonic goal and stretching the twelve-bar model beyond familiar

proportions, making for diversions by a day-tripping "Sunday driver" (Verse 3, 2:05–2:08) that are ambiguous in both phrase rhythm and harmony. The Beatles sit on four equivocating bars of a major-minor II^7 chord, as if having difficulty finding a productive direction; this chord does not function as V^7/V . The single bar of tonicized VI^7 (m. 15) sidesteps to one of V^7 (m. 16), a retransitional half cadence, just as the singer's persona emerges from darkness into light. The full excursion from m. 9 lasts eight, instead of four, bars; the refrain "it took [the singer] soooooo long to find out" appears in all three verses, indicating that he has been led down and off the garden path in an extension unrelated to our model – he's lost in the weeds. We learn in the second verse (0:52–1:05) that the song's object is "a big teaser." Gratification has been delayed far too long; it is now understood that the song's teasing character will bring no release, and melismas (on "day" and "so") in chromatically distant tonal centers work as ciphers for the singer's intensifying frustration.

"Day Tripper": Instrumental Break

Salvation, however, arrives at the end of a twelve-bar instrumental break, most of which prolongs the tension. Standing on a B^7 dominant chord that lingers beyond the half cadence ending Verse 2, the ostinato appears in a tense new position at 1:20, transposed for the first time to B, a fifth higher than the opening presentation. All guitars have their individual roles here, most prominently George Harrison's on the ostinato and Paul McCartney's bass simply repeating the fifth-scale-degree root as a dominant pedal, at first once per beat but then dividing all beats from 1:31 onward, adding to the agitation. McCartney picks up his Epiphone Casino to protest the oppressive environment in a wanton, note-bending bluesy solo overdub at 1:31–1:41, beginning just as the bass revs up. For his part, Lennon chugs away on a rakish power chord (sounding only the root and fifth of V) that grows in dynamic intensity through the climactic peak of this retransitional passage.

While tension is thus prolonged, it is intensified by a second overdub, this one from Harrison: all 12 downbeat rests are followed by a sustained second-beat articulation of a new pitch, rising stepwise from $\hat{5}$ (1:20) up an octave (1:33) and beyond, soaring another fifth to $\hat{2}$ (1:40). This backbeat line – climbing out of murky depths to find the unmistakable sunlight of a tense high register – is colored by Harrison's use of an effects pedal, forcing an overdue realization of each of the 12 notes in the diatonic twelfth-spanning scale, each tone fading into existence from obscurity to clarity.

Resolution arrives only in the break's orgiastic culmination. Overdue realization is what this instrumental passage, and the song as a whole, is all about. The final dawning of the recognition of past deceptions is expressed with the "Ahhh!" of parallel vocal triads ascending the scale to V, exploding in a gradual, measured acceleration of articulations: The first "Ah!" slurs together three full-bar chords (1:31–1:35); after a breath, the second "Ah!" sustains for two bars (1:36–1:39), and then a third "AH!," the "Eureka!" moment, erupts in a single bar (1:40–1:41). The deception is finally uncovered. Everything once pent-up begins to spill over at the return of the tonic ostinato at 1:42, but not with a full and immediate release; the resolution of tension, the subject persona's unaccompanied climax, washes over a stop-time tambourine shake before a spasmodic fill (1:44) returns the drums with dynamic suspended-cymbal crash, rhythm guitar and band as a whole to its senses at 1:45 so lead-singing McCartney may direct an exasperated third verse; note the vexed heightened pitch on "tried" at 1:48 and, for the final last-straw falsetto "soooo long," at 2:09–2:11. The song's subject took the singer only "half the way there," but he discovers his destination in the understanding that he had been just a plaything all along. Frustration persists beyond resignation in the lowered seventh scale degree that endures through the fade-out coda.

Exercises

1. Discussion questions:
 - a. Do Johnson and Thornton sing in the major mode?
[No, they both sing to the minor-pentatonic collection, also heard in McCartney's guitar solo.]
 - b. Does the seventh of I⁷ ever resolve in "Day Tripper"?
 - c. Does "Day Tripper" convey a misogynist viewpoint?
2. Compare Elvis Presley's cover recording of "Hound Dog" to Thornton's original. How do their chord patterns differ?
[Presley's band inserts a passing IV in bar 10, whereas Thornton's does not.]
3. Study the following examples and explain how phrase rhythm and chord changes in each vary from the traditional twelve-bar model:
 - a. Little Willie John, "All Around the World" [14 bars, with mm. 9–10 repeated]
 - b. Mongo Santamaria, "Watermelon Man" [same structure as in "All Around the World"]
 - c. The Rolling Stones, "19th Nervous Breakdown" [17 bars: 4 + 4 + 9]
 - d. The Fendermen, "Mule Skinner Blues" [follow the second verse: 20.5 bars: 5 + 6.5 + 9!]
 - e. James Brown, "Cold Sweat" [follow the second verse, at 1:21: 30 bars: 16 + 10 + 4. This extensive expansion of I⁷ is the origin of the "funk" style.]
4. The classic early blues can be irregular even in the lengths of individual bars. How do chord changes suggest a changing meter, with beats added or skipped, in the opening verse of Robert Johnson's "Kindhearted Woman Blues" (1936)?
[In an otherwise common time, m. 4 is given three beats; m. 8 has two, m. 9 has five, and m. 11 has three.]

Additional Considerations, for a More Advanced Class

Significant harmonic relationships in "Day Tripper" can be traced in other Beatles songs: the chromatic side-step of II⁷–IV⁷ comes from the I–II–IV–I chord succession in the verse of "Eight Days a Week" (1964, D major), the verse ending of "Yesterday" (1965, F major), and others. The building of major triads on the first six scale degrees in "Day Tripper" prefigures "I Am the Walrus" (1967, A major), wherein major triads are built on *all seven* degrees of the Aeolian scale, preparing an unusual coda that streams triads in outer-voice contrary motion (top voice ascending the A Dorian scale while the bass line descends on A-Aeolian roots), creating a remarkable play of dissonance in the chord progression, A–G–F–E⁷–D^{add9}–C^{add#11}–B^{addb6}–A.

51

MAKING BORROWED CHORDS ‘POP’

Teaching Modal Mixture through Popular Music

Joshua Albrecht

Topic: Borrowed chords in popular music.

Goal: Students will be able to quickly recognize and analyze borrowed chords in popular music, will be able to sing through the tendency tones involved in modal mixture, and will be able to articulate the expressive effect of the mixture chords.

Background: Students should have been introduced to all of the borrowed chords, their primary functional uses, and should have some facility in analyzing common practice classical music with borrowed chords.

In this short lesson of about 30 minutes, students have the opportunity to hear several examples of borrowed chords in popular music. The primary activity of the lesson is analytical listening, in which students are aided in applying principles of modal mixture to familiar musical situations. This lesson is designed to follow an introduction to borrowed chords – students should already know which chords are borrowed chords, should have some facility in applying Roman numerals or other labels to borrowed chords, and should be able to describe the functions of the chords and the tendencies of the active tones of those chords, particularly lowered $\hat{6}$ in the major mode. However, it wouldn't be too difficult to modify the following lesson plan so that it could be used as an introduction to borrowed chords.

Why should a significant amount of class time be spent listening to popular music examples of modal mixture? There are several reasons why I have found this lesson to be one of the most engaging of the term. A common complaint of theory students is that what they learn feels disconnected from what they do. Most students are already familiar with the sound of borrowed chords in popular music, although they may not realize it because they do not have a label with which to categorize their experiences. Once students are familiarized with the idea, they tend to be able to recognize the sound of borrowed chords in popular music immediately. By demonstrating that the theoretical machinery they are learning applies to music they have listened to their entire lives, an abstract concept can be made more real. Even analysis of Western classical music may not sufficiently ground the concept for students, partly because it is becoming increasingly common for incoming students to be less immersed in this tradition and more immersed in listening to other styles. Moreover, one of the functions of aural skills instruction is to connect labels students learn in theory class with aural phenomena students are already familiar with but haven't yet built

categories for. By the end of the lesson, students should realize that the theoretical knowledge they've gained about modal mixture connects to their already familiar experiences in listening to popular music.

It can sometimes be difficult to find popular music examples of topics covered in music theory courses, but examples of borrowed chords abound in popular music. The central activity in this module is listening to popular music examples from all over the dial, including the Beatles, Queen, Billy Joel, Radiohead, Green Day, Bruno Mars, and Death Cab for Cutie, among others. I typically start class by reviewing the basics of what they've already learned about borrowed chords. Specifically, I ask students to supply the common Roman numerals involved in modal mixture, to describe how the chords typically function, and to discuss the characteristic tendency tone involved and the typical resolution of the tendency tone. I then inform students that they may be more familiar with borrowed chords than they realize; that, in fact, they've likely heard these sounds their whole lives in listening to popular music and have simply not known what they were. I then tell students that the purpose of the day's lesson is to illustrate their implicit knowledge through listening to several examples of modal mixture in popular music.

Table 51.1, available at the end of this chapter and in the online Supplemental Materials, lists the collection of songs from which I draw for my class. There are many more examples that could be used than are provided, and the reader is encouraged to supplement my examples with their favorites. Generally, the ordering of the rows corresponds to the order in which I play the songs in class, although there are more selections than I typically have time to play in class. Three very loose considerations inform my order of the rows: more popular/well-recognized songs, more obvious or simpler use of borrowed chords, and earlier release dates tend to be presented earlier. Of course, it is up to the instructor which songs are played, in which order, and how many songs to leave out or add.

The first two columns of Table 51.1 list the artist and song title, the third column provides the key of the canonical recording, the fourth and fifth columns list the formal section of the song and the exact time that the borrowed chord appears, the sixth column provides the chord progression in Roman numerals involving the borrowed chord with a few chords for context, and the seventh column provides moveable-*do* solfège syllables to sing that emphasize the tendency tones over the chords in column six. Table 51.1 can be used for just the preparation of the lesson, or it can be used as a handout for students so that they can more easily sing along with the excerpts. Modified tables missing some fields may also be used so that students may more actively engage by filling in the information on their own or in groups. The online version of the table also includes links to the recordings referenced in the table (typically Spotify links).

In class, I try to get through as many examples as I can in the time I allot for this lesson. As I progress through the examples and students begin to be able to hear and anticipate borrowed chords, I engage students with deeper levels of processing. The first two or three examples are presentational in that I do most of the heavy lifting in drawing students' attention to the borrowed chords when they appear. Typically, I start with "I'll Follow the Sun" by the Beatles. In this famous song, the borrowed chord happens during the bridge. Leading into the bridge, IV is tonicized with a secondary dominant, and I draw students' attention to this chord we've recently discussed when it occurs by writing V^7/IV on the board as it plays, followed by IV and then iv when the borrowed chord arrives. (Even though the IV chord has a chromatic minor seventh on it, I usually don't bother to distract from the main point by mentioning this.) This chord progression happens twice in the bridge, and during the second presentation I'll point to the chords again as they occur. After identifying the chord progression for students, I stop the recording and ask students if they've heard this sort of sound before. I then lead a short discussion by asking students how the chord sounded to them and what effect it had on their perception of the bridge. Typical

Table 51.1 Songs Used to Illustrate Borrowed Chords in Pop Music. Songs Are Roughly Ordered by Order of Presentation in the Lesson

Performer/source	Title	Key	Formal section	Time	Chord progression	Solfège
The Beatles	"I'll Follow the Sun"	C	Bridge	0:33, 0:42	I-V ⁷ /IV-IV-iv-I	do-te-la-le-sol
The Beatles	"Till There Was You"	F	First verse	0:14	I-vii ^{♭9} /ii-ii ⁷ -iv-I	sol-sol-la-le-sol
Lou Ann Barton	"It's Raining"	A	Verse	0:20	I-V ⁷ /IV-IV-iv-I	do-te-la-le-sol
Bryan Adams	"Everything I Do (I Do It for You)"	D ^b	Chorus	3:39	I-V-IV-iv-Cad ⁶ -V-I	do-ti-la-le-sol-fa-mi
Joel Mabius	"Spoon River"	D	Intro, Verse	0:11, 0:24	I-V ⁹ /IV-IV-iv-I	do-te-la-le-sol
Plain White T's	"1 2 3 4"	D	Intro, Chorus	0:07, 0:17	I-V ⁶ -vi-V-IV-iv	do-ti-do-ti-la-le-sol
Don McLean	"Vincent"	G	Bridge	2:21	ii ⁷ -V ⁷ -I-I-vi-ii ⁷ -iv-I	fa-sol-do-(ti)-la-la-le-sol
Death Cab for Cutie	"I Will Follow You Into the Dark"	C	End of Intro, End of the chorus	0:20, 1:10	vi-I-V/vi-vi-IV-iv-I	la-sol-si-la-la-le-sol
Green Day	"Wake Me Up When September Ends"	G	Beginning	0:21, 0:39	I-V ⁶ -vi-P ⁶ -IV-ii ^{♭6} -I	do-ti-la-sol-la-le-sol
Radiohead	"Creep"	G	Beginning	0:16, 0:36	I-V ⁷ /vi-IV-iv-I	sol-si-la-le-sol
Boulder Acoustic Society	"Now Is the Hour"	F	Beginning	0:10, 0:23	I-IV-ii ^{♭6} -I-V ⁷ -I-V ⁷ /IV-IV-iv-I-V ⁷ /V-V	do-la-le-sol-fa-mi-sol-la-le-sol-fi-sol
The Stellas, with Lennon & Maisy	"Leavin's Not the Only Way to Go"	A ^b	Verse	0:40	I-IV-iv-I	sol-la-le-sol
Idina Menzel (Frozen)	"Do You Want to Build a Snowman?"	E ^b	Verse	0:32	I-ii ^{♭6} -Cad ⁶ -V-I	sol-le-sol-fa-mi
Jodi Benson (The Little Mermaid)	"Part of Your World"	F	Chorus	1:34	I-V ⁴ /IV-IV ⁶ -iv ⁶ -Cad ⁶ -V-I	do-te-la-le-sol-fa-mi
Auli'i Cravalho (Moana)	"How Far I'll Go"	E	Verse Chorus	0:46 1:09	vi-V ⁶ -I-ii ^{♭6} -I I-V-vi-ii ^{♭6} -I	la-ti-do-le-sol/do do-ti-la-le-sol
Adele	"Make You Feel My Love"	B ^b	Beginning	0:06, 0:13	I-V ⁶ -VII-IV-iv-I-V ⁷ /V-V ⁷ -I	do-ti-te-la-le-sol-fi-fa-mi
Bruno Mars	"When I Was Your Man"	C	Chorus Pre-chorus	1:13 0:45	vi-V ⁷ /V-IV-iv-I vi-iii-WII-V	la-la-la-le-sol do-ti-te-ti
The Beatles	"I Want to Hold Your Hand"	G	Bridge	0:50	v-I-IV-ii-v-I-IV-IV-V	te-do-do-re-te-do-la-ti-la-ti
Tom Waits	"Picture in a Frame"	E ^b	Verse	0:40	I-V ⁷ /IV-IV-VII ⁷ -Cad ⁶ -V-I	do-te-la-le-sol-fa-mi
Billy Joel	"Just the Way You Are"	D	Intro Verse Bridge	0:00 0:16, 0:22 2:19	I-ii ^{♭4} I-vii ^{♭6} /V-IV ^{M7} -vi-V ⁷ /IV-IV-iv-I I-V ⁷ /IV-iv-WII-V ^{sus}	sol-fi-fa-la-te-la-le-sol do-te-le-te-do
Queen	"Somebody to Love"	G/C	Bridge	1:47	I-V ⁷ /IV-V/C: II-V ⁷ /IV-IV-iv-V ⁷ /ii(G: V ⁷ /V)-V	do-te-la-le-sol-la-le-sol-la-le-sol[G: do]-ti
Queen	"We Are the Champions"	F	Chorus	0:42	I-iii ⁷ -IV-vii ^{♭9} /ii-ii ⁷ -Ped ⁶ -vii ^{♭3} (arp)-I-ii ⁷ -i ⁶ -IV ⁷ -V ⁷	do-ti-la-te-la-sol-fa-mi-fa-me-fa-re

answers are that the chord is attention-grabbing, that it intensifies the drive to resolve on I, or that it makes the lyrics it sets sadder when talking about leaving his love.

The second song I'll typically play is the Beatles' rendition of "Till There Was You." For this second song, I'll still identify the chord progression for the students by writing the chords on the board as they play. Often I'll supplement the recording by playing through the tune and chord progression on the piano after they've heard the recording. It can be helpful as students start to listen for these chords for students to hear them in simpler textures with block chords rather than the more complex textures of the recordings. Table 51.1 provides the key of each song as well as several context chords around the borrowed chord to aid with playing the chord progressions at the piano. Again, a short discussion about the effect of the chord and the tendency tone can help solidify the concept.

By the third song, the Plain White T's "1 2 3 4," a good portion of the class is typically starting to pick up on the skill of listening for borrowed chords. For this song I'll ask students to identify the chords by raising their hands when they hear the borrowed chord. Some students may miss the first occurrence, but by the second occurrence of the chord most students raise their hand on time. After sketching the Roman numerals of the chord progression on the board, I'll ask students to sing along with the solfège from Table 51.1 for this example while I play the chords on the piano, *do-ti-do-ti-la-le-sol*. Then, I play the recording for them and ask them to sing with the recording.

Unlike the earlier examples, the fourth song, "Vincent" by Don McLean, has only one borrowed chord in the entire song. Given the length of this song, I'll typically start playing the recording at about 1:05 so that students can hear a full verse and chorus before the bridge where the chord shows up. Again, I ask students to anticipate the chord and raise their hand when they hear it. Typically, I get a few false positives before the chord shows up, but McLean saves the chord for 2:21 into the song in the bridge, immediately before describing Van Gogh's suicide. This leads to a discussion of bringing out the poignant moments in music through the use of borrowed chords, and presages the next example, "I Will Follow You Into the Dark" by Death Cab for Cutie. I point out in this recording that the chord also accompanies the line in the chorus that describes dying. In this example, because *vi* is first tonicized before the borrowed chord, there's a nice *sol-si-la-la-le-sol* motion. I point out to students how the same enharmonic pitch functions two different ways here — first as a raising of *sol* to lead up to *la* and then as a lowering of *la* to pull back down to *sol*, and I have them sing this line along with the recording.

Examples progress in this way, with students being asked to continue raising their hands when they hear the borrowed chord. Around the fifth or sixth example, when most students start demonstrating the ability to hear the chords in music, I begin to ask students to raise their hand *before* they hear the borrowed chord. When students demonstrate they can do this, I follow this up with a short discussion of musical grammar in popular music. We discuss how there are certain musical cues that signal when borrowed chords are going to appear in popular music, and that the chord progressions involving borrowed chords tend to show predictable patterns. I also mention how music students tend to be skilled at internalizing these statistical regularities. At this point, I also discuss the difference between how borrowed chords are used in classical and popular styles. In the former, borrowed chords tend to be used primarily as strong predominant chords that intensify motion to the dominant, whereas in popular music borrowed chords tend to push back to tonic, and the lowered scale degree six is a tendency tone that pushes to the fifth of the I chord rather than the root of the V chord.

Bruno Mars's "When I Was Your Man" is interesting in two ways. First, the lead-in to the IV chord is actually V^7/V . This works due to its smooth voice-leading, and the cancellation of *fi* to *fa* foreshadows the lowering of *la* to *le*, two chromatic descents that underline just how sad Bruno Mars is that he is no longer your man. Second, this is the first occurrence in this list of $\flat VII$, appearing in the pre-chorus.

The Beatles’ “I Want to Hold Your Hand” is notable in that it is the first example of a minor *v* chord. This usage is a bit more complicated, though, in that the minor *v* almost seems to dislodge *G* as a tonal center in the bridge. Rather, I hear the *D* minor chord moving to *G* major as implying *ii–V* in *C* major. It’s only when *C* moves to *D* major at the end of the bridge that I hear *G* re-established as tonal center. This use of minor *v* is more consistent with common practice usage, and is a nice tie-in with the idea of extended tonicizations in classical music.

In “Picture in a Frame,” Tom Waits first tonicizes *IV*, then uses *IV* as a tonicization of *♭VII*. The voice-leading involved is especially apparent in the instrumental interlude, wherein two saxophones outline the voice-leading strands involved in nice counterpoint.

Finally, if time or class interest permits, the most complicated examples are Billy Joel’s “Just the Way You Are” and the two Queen examples, “Somebody to Love” and “We Are the Champions.” The introduction of “Just the Way You Are” features a nice tonic prolongation with *ii*^{♭4}₂, but it is the verse and bridge that bring the most interest. In “Somebody to Love” the moment that sounds like a borrowed chord is technically *♭VII* moving to *♭vii* in *G* major (*F* major to *F* minor). Given the context of the preceding examples, though, it is difficult not to hear this as a local *IV–iv* motion, suggesting a reinterpretation of the tonicized *IV* as instead a pivot to *C* major. In “We Are the Champions,” Queen uses a fully diminished *vii*^{♭4}₃ chord. Interestingly, on first hearing the chord, it is easy to mistake it for minor *iv*, with *B♭* in the bass and the characteristic *♭6* above it. However, Queen then arpeggiates through the chord, revealing that it is a fully diminished leading-tone seventh that leads back to *I*. We are then treated to a minor *i*^{♭6}₅ chord over the playground taunt that leads back to the cadence.

After the lesson is completed, I ask my students to find examples of their own. Part of their next assignment involves searching their own libraries for the usage of borrowed chords in popular music. They must identify the artist/song, the key, the time in the track (on Spotify or YouTube, with a link provided) that the borrowed chord appears, and the Roman numeral of the borrowed chord. Students typically have fun searching their libraries, and I take a few minutes at the beginning of the following class to play through some of the students’ examples.

52

CHROMATIC MEDIANTS IN POPULAR MUSIC

Victoria Malawey

Topic: Introduction to chromatic mediants using popular music.

Goal: Students will be able to spell chords related by chromatic mediant and identify chords and key areas related by chromatic mediant, both aurally and in written form.

Background: Prerequisite skills include spelling major and minor triads and major and minor thirds fluently, and solid understanding of what notes are diatonic to any tonal key.

One of my favorite topics to teach in chromatic harmony classes is chromatic mediants because the topic engages a wide range of repertory, including some great popular music recordings, and it works at different levels of structure musically – not only as local-level chord relationships but also as global key relationships. Plus, chromatic mediants have an immediate colorful effect to which most students respond positively. I teach this lesson at the end of the fifth week of a fourteen-week semester of a course on chromatic harmony, after students have learned about secondary dominants and modulation to closely related key areas, though the concept can be easily taught at any time to students who can spell major and minor triads and who understand the concepts of diatonicism and chromaticism. I developed this lesson plan for a diverse group of liberal arts college students, most of whom were taking music theory to fulfill a requirement toward the music major or music minor as part of their Bachelor of Arts degree. The lesson can be easily adapted for conservatory students, provided they are receptive to examples from popular music repertory. This plan is ideal for any instructor who wants to incorporate more popular music recordings in their teaching, with emphasis on interactive student engagement.

I begin the lesson with an overview in two parts: first, I define chromatic mediants as major or minor chords that are related by third to tonic (in other words, built on some form of scale-degree $\hat{6}$ or $\hat{3}$) and that have at least one note outside of the key; and second, I demonstrate (with student participation) what all of the possible chromatic mediant chords are in relation to C major and C minor. Figure 52.1 demonstrates the content of this exercise. I emphasize that chords sharing the same quality will have a common tone (also shown in Figure 52.1) that can be used to smooth connections between chords related by chromatic mediant.

After presenting the basic concepts, I distribute a handout (available as part of this collection's Supplemental Materials, titled "Guide"), which presents a series of musical examples. I play a recording of each example for the students after they work through a prompt on the handout that requires them to spell chromatic mediants and tonic chords and identify the common tone between them (when appropriate) that are used in each example. In what follows, I will briefly describe the salient characteristics of each example and show the chromatic mediant chords in boldface.

Chromatic mediants related to C major:

	A major,	A $\flat$ major,	A $\flat$ minor,	E major,	E $\flat$ major, and	E $\flat$ minor
	VI	$\flat$ VI	$\flat$ vi	III	$\flat$ III	$\flat$ iii
Common Tone:	E	C	n/a	E	G	n/a

Chromatic mediants related to C minor:

	A major,	A minor,	A $\flat$ minor,	E major,	E minor, and	E $\flat$ minor
	$\sharp$ VI	$\sharp$ vi	vi	$\sharp$ III	$\sharp$ iii	iii
Common Tone:	n/a	C	E $\flat$	n/a	G	E $\flat$

Figure 52.1 Chromatic mediant chords in relation to C major and C minor.

Audio Example 1 offers an excerpt of Donna Summer’s 1977 upbeat hit, “I Feel Love,” at 1:23 with the chord progression $||: I - \flat III - IV - V :||$ in C major. (A link to this recording, and all others mentioned, is provided in the Supplemental Materials.) In this example, the chromatic mediant ($\flat III$) simply substitutes for a diatonic mediant. To illustrate, I play the diatonic progression $|| I - iii - IV - V ||$ at the piano followed by the progression used in the example, after playing the audio recording.

Audio Example 2 is an excerpt from a heart-wrenching recording by Björk called “Lionsong” (from her 2015 album, *Vulnicura*) at 0:33, which uses the chord progression $||: D - F - B\flat M7 - E\flat :||$ in F major. This is a sophisticated use of a chromatic mediant because of its temporal placement at the beginning of the progression, prior to the tonic proper (understood as tonic only after the progression has been repeated), and because of the use of another chromatic chord (E $\flat$) later in the progression. Here the chromatic mediant chord adumbrates tonic function. I interpret the D – F motion as providing tonic function, the B $\flat$ M7 as providing predominant function, and the E $\flat$ as providing dominant function.

The bridge section of Tori Amos’s “Crucify” (*Little Earthquakes*, 1992) at 2:28 comprises Audio Example 3 and uses the progression $||: (VI) G\sharp M - (I) BM :||$ in B major. This example contrasts with the previous two as the chromatic mediant is used in a *shuttle*, or a repeated harmonic oscillation, with tonic, a common device used in a lot of pop music recordings. This is the first time the chromatic mediant appears in the entire recording, and its use here in the bridge provides welcome harmonic contrast. Amos’s playing and singing emphasizes the common tone of D $\sharp$ between the two chords, which I argue acts as a glue to connect them in what could otherwise be a jarring chromatic effect.

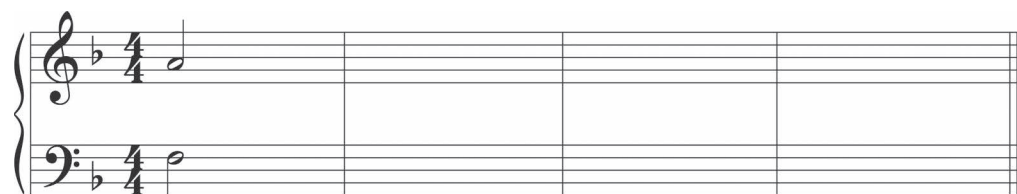
Audio Examples 4 and 5 use a harmonic oscillation between the chromatic mediant and tonic similar to the Amos example, and they share the same key of B major and the same chord progression $||: (I) BM - DM (\flat III) :||$ with the common tone of F $\sharp$. Radiohead’s “Backdrifts (Honey-moon Is Over)” (Audio Example 4) from their 2003 album, *Hail to the Thief*, uses this progression in a relatively short passage at 1:28–1:40 for harmonic contrast, and Broken Bells, “Trap Doors” (Audio Example 5) from their 2010 self-titled album uses the same progression for a longer time from the beginning of the track. Before and/or after playing the recordings, I will have the students sing and hold the common tone as I play the changing chords at the piano.

Finally, Audio Example 6, Ratatat’s “Tropicana” (2006) uses a repeated progression $||: AM (I) - FM (\flat VI) :||$ in A major, with a common tone of A. It is similar to the previous examples in that it comprises a somewhat static harmonic oscillation. Again, I have the students sing

the common tone of A as I play the chords on the piano, either before or after they listen to the recording.

Time permitting, we explore how the common tone between chromatic mediant can also be used as a striking means of modulation. Two examples from diverse genres demonstrate this phenomenon. First, the recording of Punch Brothers’ “Familiarity” (from their 2015 album, *The Phosphorescent Blues*) begins in G major at 7:00 and modulates to B $\flat$ major at 7:10, with the common tone of D connecting the two key areas. Second, the second movement of Mozart’s Piano Concerto no. 17 in G Major at m. 90ff starts in C major, ends on G (V) with a G in the top voice, which becomes scale-degree $\hat{3}$ in E $\flat$ major. A link to a recording of this passage, performed by Leonard Bernstein, is provided in the Supplemental Materials. Both examples are satisfying and dramatic, showing how this technique can work in two contrasting genres. In addition, both excerpts come from extended pieces in which the common-tone modulation becomes even more striking because of its temporal placement within the examples. Sometimes there is not sufficient time to cover the concept of modulation by common tone in a single class period. When this occurs, I simply save the modulating examples for the next class period, after students have had a chance to more fully absorb the mechanics of spelling chromatic mediant chords.

For courses that integrate ear training with written analysis, the instructor can add into the lesson an aural skills dictation exercise of a short modulation to a chromatic mediant key by common tone. This exercise helps students connect the striking aural effect of such modulations with the intellectual knowledge of the phenomenon in a practical and efficient way. Success at this exercise requires not only adequate aural skills but also mastery of chromatic mediant relationships (a “mind training” skill, to borrow Michael Rogers’ term). All dictations I use in class that modulate to chromatic mediant areas place the common tone in the soprano voice and always proceed from the tonic chord in the original key to tonic in the new key at the point of modulation. Consistency with this aspect of dictation design is critical to ensuring students’ success at the activity. Figure 52.2 shows one possible harmonic dictation that can support this lesson’s content.



FM: — — — — — — — — —



FM: I IV Cad $\frac{6}{4}$ V I DM: I IV Cad $\frac{6}{4}$ V I

Figure 52.2 Modulating harmonic dictation by common tone.

Best practice for ensuring student success in this type of dictation involves several important steps. First, before any playing, give the students some time to determine and write down the chromatic mediant key choices given the starting key, as well as the common tones between tonics of the original key and each of the chromatic mediant areas. Before the initial playing, I remind students of the goals of the exercise: to notate the outer voices (bass and soprano) and provide a Roman numeral analysis beneath the staff. I also emphasize that the common tone will appear in the soprano voice for this exercise. I encourage students on the first hearing to sketch as much of the opening chord progression in the tonic key as possible and mark the point of modulation (always a striking moment any student can latch onto if they direct their attention to it). Once they have determined the point of modulation, I suggest they focus on the soprano note that connects the two tonic chords, since this will be the common tone that enacts the modulation. Students can refer to their pre-dictation notes to then determine what key choice is most logical given the correct common tone. Then on the final hearing(s), students may notate the chord progression that establishes the new key in the proper key. If a student gets stuck and cannot identify the common tone, I encourage them to listen for chord function and notate Roman numerals for the progression in the new key. At some point, they can make an educated guess, choose a key, and then realize the progression they have written in Roman numerals in notation to complete the dictation.

Finally, after introducing all of the new concepts, I like to take a few minutes to apply the new knowledge to their broader understanding of all chromatic and diatonic key relationships. I present them with a key relations flowchart (available as part of the collection's Supplemental Materials, titled "Flowchart"), and I conduct a drill verbally with the students in which I present them with a series of two different keys and they must identify the relationship between the two. This can be a fun activity to make into a low-stakes competition or to snake around the room giving each student a different problem to solve on the spot.

It is important to require students to engage the new material on their own after the class session concludes. To this end, I assign the students a worksheet to complete for the following class period (available in the Supplemental Materials, titled "Assignment") with spelling chromatic mediant chords, identifying key relationships, and analysis of Josephine Lang, "Gedenke Mein," mm. 62–70 and Brahms, "Selig sind, die da Leid tragen," mm. 35–47. If you split the lesson material into multiple class sessions, the assignment can also be broken into relevant parts based on what was covered in each class. The analysis examples are difficult, so I usually let students work in groups on the analysis portions of the assignment, and I encourage them to listen to recordings of each excerpt and use their ears as much as they can to help confirm new key areas. Either on the day the assignment is due or in the next class period after I have had a chance to review the completed assignments, I usually take some time to discuss the analysis excerpts and go over answers so that the students can receive quick and effective feedback on their work. If the assignment is not going to be collected, I will have students contribute their answers quickly going around the room or at the board for the chord spelling and key relationship identification sections. The more immediate the feedback, the better off the students will be.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

PART VIII

Who, What, and How We Teach



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

CHALLENGES AND OPPORTUNITIES OF TEACHING MUSIC THEORY AT COMMUNITY COLLEGES (AND ELSEWHERE)

Nathan Baker

Teaching music theory at the community college presents several challenges, including inexperienced music students, a heavy teaching load, and potential isolation as the sole music theorist on the faculty. Challenges, however, can be reframed as opportunities – after facing these challenges, we find ourselves better off than we would have been without them. In this chapter I will examine common problems facing the theorist in the community college music program and discuss how grappling with these potential difficulties can lead to unexpected opportunities. I will also note that the provided strategies for dealing with these challenges can be profitably applied to improving music theory pedagogy at *any* type of institution.

While I am writing from the perspective of a specialist in music theory, it is also important to acknowledge that many institutions do not have a specialist in music theory on their faculty, instead having their music theory courses taught entirely by non-specialists. Community colleges in particular tend to have smaller programs that require a great deal of flexibility in their faculty members, who may often find themselves teaching outside of the area they focused on most in graduate school; in my tenth year at Casper College, for example, I took over the low brass studio and developed a course in film and video game music, both developments requiring me to expand my teaching expertise beyond just music theory. If you are a non-specialist being asked to teach music theory, I hope that you find the advice in this chapter to still be of some value. I would also highly recommend that you make contacts and friendships with theory specialists outside of your institution – many of us in the theory pedagogy community are happy to mentor non-specialists (as well as beginning theory specialists)!

Challenges and Opportunities of Serving Community College Students

The first challenge I will address is the deficient experience level of incoming students. Community colleges are often open enrollment institutions, which means we typically have several new music majors who have never read music before. Many of our students, given their varying levels of talent, have career goals quite different from the typical conservatory student. Music theory instruction at the community college must be exceptional to make up for this challenge – while excellent teaching can bring out hidden potential in a student who seems at first glance to be unpromising, our students are simply not prepared enough to succeed *despite* poor pedagogy! From

working with students at Casper College I have learned how to see and bring out the potential of each student, tailoring my teaching to each individual whenever possible. In this section I will discuss how I adapt my teaching to the needs of my individual students, not only in addressing their unique learning styles and forms of neurodiversity but also in ensuring that my curriculum is relevant to their past experience, current interests, and future success.

In 2010 then-Secretary of Education Arne Duncan noted in his remarks at the White House Summit on Community Colleges that “from their very beginnings, community colleges have never shrunk from challenges – whether it was working with disadvantaged students, first-generation students, older students, part-time students, or immigrants” (Duncan 2010). The students who come to study music at Casper College and many other community colleges are very different in many ways from the driven high-achieving students found at conservatories or even students accepted into a music program at a four-year state institution. According to the American Association of Community Colleges (Phillippe and Tekle 2018), 36% of community college students are first-generation students who have not grown up in an environment that taught them successful learning strategies. They often come from lower socioeconomic situations and must balance their schooling with the jobs they take to support themselves (and possibly their families as well – 17% of community college students are single parents) while they attend school; as a result, 63% of community college students only attend part-time. Twelve percent of community college students struggle with documented disabilities such as dyslexia, while many others cope with anxiety or depression. Most have a relatively limited musical knowledge, and a significant number don’t even know how to read music yet. All of them, however, come with a sincere love of music and a hope that we can help them learn and grow and have a successful future.

Open-Enrollment Programs

Like many community colleges, Casper College is an open-enrollment institution. This means that while we do audition our incoming students (largely to assess where they are at and, often, to award scholarships), we are not allowed to deny them a place in our program. It is thus absolutely critical that we identify significantly underprepared music students and provide them with the remediation that they require to catch up to their more prepared peers. One way our music department decided to assess a priori knowledge was to administer a placement exam. As a new professor of music theory at Casper College, it fell on me to design this placement exam. I soon discovered that our placement exam needed to be much more basic than similar exams given at other institutions. Rather than learning which students could skip a semester or two of music theory, we needed instead to determine which students were not yet prepared to succeed in the first semester of the sequence! Our current placement exam consists of the following sections (note that our exam is considerably more basic than that of the average four-year institution – since most of our students would be considered underprepared at larger schools, we are only attempting to identify those who are critically in need of remedial intervention):

1. In the clef of the students’ choice, they identify the letter name of three randomly chosen pitches.
2. The students’ ability to recognize shapes and patterns is tested¹; some example patterns we ask them to continue are “CBA, DCB, EDC, ____” and “12345, 135; 45671, 461; 56712, ____” (specific patterns used change from year to year).
3. A very basic aural skills test: identify which of two pitches is higher or lower, identify the melodic contour of a recorded example, and identify the correct meter of a recorded example.

Music Fundamentals and Remediation

The placement exam itself, while quite helpful, was not sufficient to solve our issues of high attrition rates among our underprepared students. The Casper College Music Department made three other changes to help our underprepared students succeed:

1. The music fundamentals course, while recommended to our underprepared students, had not previously been a required course; it is now a required course for all students who do not pass the placement exam.
2. The music fundamentals course was previously designed as a precursor to the theory sequence. We discovered, however, that many of our fundamentals students, having passed the course in the fall, were leaving the program or forgetting their newly acquired knowledge and skills before they could start the theory sequence in the following fall semester. (Our institution is not large enough to support a trailer section of the theory sequence.) We now offer fundamentals as a co-requisite to the first semester of the theory sequence, ensuring that students benefit from extra instructor time and attention in fundamentals as well as associate with their more prepared student peers in the core sequence.
3. Offering the placement exam at the start of fall semester meant many students who discovered that they required the course had to scramble to rearrange their schedule to fit the fundamentals course into it. This often led to students not bothering to take fundamentals or getting frustrated and giving up on college early in the semester. As a result, I created an online version of the placement exam in Moodle. Incoming students now take the exam in the academic testing center shortly before their initial summer advising session, and the results are immediately available to ensure that their advisor places them in the proper course.²

Standards-Based Grading

In addition to making our initial placement system more robust, I have switched to a standards-based grading system in the courses I teach.³ For each theory course, I have defined objectives that the students need to master by the end of the semester, and the students are given a variety of quizzes. These are often administered in a ten-minute weekly individual appointment in my office, which gives me the opportunity to provide individual students with strategies specific to their own needs and weaknesses. Larger institutions may have teaching assistants administer the appointments. Students are also given assignments that provide them with opportunities to demonstrate their mastery of said objectives. This variety allows me to match our neurodiverse students with a method of assessment that works for them rather than forcing all students into a one-size-fits-all approach. I grade each opportunity to demonstrate proficiency on the following scale: 4 (perfect mastery), 3 (satisfactory mastery), 2 (demonstrating progress, but not yet satisfactory), or 1 (clear lack of understanding of the objective). Students not content with their score are given further opportunities to practice and improve their mastery of a given objective. I do not particularly care whether students pass an objective on their first attempt or whether it takes them 50 attempts; the point is that they are allowed (and required) to keep trying until they get it right.

This mastery approach means that a student is never so far behind that they feel entirely unable to catch up. (I often encountered this motivational issue with my struggling students in the past after they had received zeroes on several assignments and low scores on a test or two.) As a further bonus, because students are required to demonstrate at least a satisfactory mastery of every objective to pass the class, with a perfect mastery of each objective being required to earn an A, I no longer have students who manage to earn enough points to barely pass their way through the course sequence without actually having mastered the skills and knowledge they were supposed to acquire.

Improving Pedagogy and Curriculum

Finally, improving my own teaching and curriculum significantly boosted student success. The reality is that my students are generally not academically proficient enough to succeed if my course design is poor; rather, they need to be served by exceptional course design to truly experience success. I have drawn upon current literature on music theory pedagogy, music cognition, and other related topics in order to create a music theory curriculum quite different from that featured in most contemporary music theory textbooks. There are certain abstract theoretical approaches commonly found in many traditional classrooms that provide a great deal of difficulty to most students while at the same time offering them limited musical benefit (if any benefit at all). Two examples are:

1. Teaching students to try to perform sight-singing and melodic dictation by relying on the intervals between adjacent notes rather than perceiving notes and patterns of notes within their tonal context. The research literature is quite clear about the increased cognitive efficiency of the latter approach.⁴ Furthermore, intervals are perceived differently in different contexts; an ascending major sixth, for example, between *re* and *ti* will tend to resolve upward to *do*, whereas an ascending major sixth between *do* and *la* will tend to resolve downward to *sol*.
2. A good deal of time and effort in many written theory classes is spent mastering the inversion of triads and seventh chords. This method of analysis (at the heart of traditional Roman numeral harmonic analysis) is actually quite complicated from a cognitive standpoint: a student must rearrange notes so that thirds are stacked while extrapolating any missing notes (such as the fifth of the chord) and ascertaining which of the notes is in the bass. Then students must remember which inversion symbol is associated with that member of the chord being in the bass. After all that work, what benefit have they actually gained from figuring out which inversion of the chord is present?

At Casper College, we use the more historical analytical approach of figured bass; this merely requires the students to calculate the intervals from the bass note to the other notes and indicate which notes have been altered from the key signature. Not only is this approach much less abstract and cognitively taxing, but their resulting analysis immediately provides an awareness of stability and motion, dissonance and resolution, and localized key centers – key concepts of harmonic flow historically implied by figured bass symbols that are lost when we view figured bass numbers as mere symbols of inversion.

Adding Relatable Content

In addition to improving the pedagogical approaches in my classroom, I have also expanded the content to feature examples from not only the Western classical tradition but also pop, rock, jazz, world musics, and film and video game music. This not only increases students' level of familiarity with music being studied, which increases their comfort level and engagement with unfamiliar musical styles and theoretical concepts, but it also provides students with a grounding in styles of music that they are almost certainly going to encounter in their future musical careers – not being top-level conservatory students, the odds that our students are going to win a full-time position in a professional orchestra or opera company are quite low, but opportunities to play in studios, community musical groups or local bands, and even online recording projects are within their reach. Musical diversity, rather than specialization, is much more likely to prepare them for the opportunities that arise in the twenty-first century.

Challenges of and Solutions to a Heavy Teaching Load

Another challenge facing community college instructors is a heavier teaching load than is common at many four-year institutions. At Casper College, for example, my teaching load includes freshman written theory, freshman aural theory, sophomore written theory, sophomore aural theory, two sections of music technology in the fall, a course on film and video game music in the spring, private instruction in trombone, tuba, euphonium, and music composition, and occasional individual-study courses in theory-related topics ranging from jazz theory and arranging to form and analysis. All of this teaching happens without any graduate or undergraduate teaching fellows to help with the grading! While this was indeed a heavy challenge at first, I discovered that it forced me to become more efficient with my time and energy. In this portion of the chapter I will discuss some of the techniques I used not only to deal with my load, but ultimately to improve the effectiveness of my teaching.

Teaching is not the only demand on a community college instructor's time. In addition to my teaching duties, I have also served on several key college committees (including a term as chair of the faculty senate). Like many other musicians, I am also involved in the music scene of the community in which I live. I am on the board of our community's largest arts organization, and I perform as a trombonist with the Wyoming Symphony, Casper Municipal Band, and other local musical groups as well as in the pit orchestra for the college's fall musical each year. In addition, I give a solo recital every three years or so, compose a new piece of music from time to time, and try to stay current on the latest research and trends in the field of music theory at large (as well as hopefully manage to make an occasional contribution of my own).

Many music academics feel a similar pressure on their time. Thus, it is absolutely imperative to stay organized and make the most efficient use of the limited time we have in order to meet the many demands placed upon us while still having time to enjoy extramusical life with our families and friends.

Technology proves to be a saving grace in this endeavor. As a result of not having teaching assistants to do my grading, I found myself early in my teaching career floundering to stay caught up on grading quizzes and assignments. Shortly after my switch to a standards-based grading system, I created a wide variety of adaptive quizzes in Moodle. Now students can take a basic objective mastery quiz as many times as they need to in order to pass off the objective with the exact questions changing each time. As an added bonus from a professor's perspective, these quizzes automatically grade themselves, saving a good amount of time previously spent grading what seemed like endless retakes of quizzes.

This year we have also started using a new online aural skills platform (Yorgason 2017). This platform provides students with a great deal of guided ear-training practice with immediate feedback, again adapting to their individual levels of progress. The students even report that they enjoy doing these activities!

With my time freed up from grading quizzes and homework assignments focused on basic skill acquisition, I am able to focus instead on grading more elaborate and practical assignments such as in-office improvisation activities, short composition assignments, and short analysis papers in which students apply the current music theory concept to a piece of music they are currently learning (or will later learn) in their studio lessons. To save time on grading these assignments while also enhancing the pedagogical value of revision, instead of providing detailed feedback on mistakes on these assignments, I merely mark the mistake with an X and have the students figure out exactly what is wrong and how they need to fix it. They are, of course, welcome to discuss these issues with me during office hours or via email.⁵

Challenges of and Solutions to Program Size and Stability

Another challenge common to community colleges (and other smaller institutions) is program size and stability. With lower enrollments in our music programs than larger institutions, we

occasionally find ourselves in the position of not having enough students to offer a particular class (particularly in an era of higher education budget shortfalls). This happened to me for the first time this year: a smaller than average freshman class last year coupled with the usual attrition rate from the freshman year to the sophomore year resulted in my only having one or two sophomores in second-year theory, which I consequently taught for reduced load credit – I was fortunate enough to have an understanding dean who awarded me reduced load rather than requiring the course to be offered as independent study. Given that the second-year theory courses normally make up a full third of my teaching load, this was a very stressful situation for me, to say the least!

In addition to having fewer students in the program, the size of the faculty is also smaller. Due to statewide budget issues, we have lost some of our full-time faculty positions as older faculty retired and the administration decided not to replace them. This has required those of us remaining to step up and fill in holes that have opened up in the program.

The solution to both of these issues is flexibility and a willingness to step outside of one's comfort zone and contribute to the department in ways outside of one's main area of expertise. The retirement of our brass professor combined with my load shortage led to a new career development for me this year: I am now teaching the low brass studio lessons and the overall brass studio masterclass in addition to the theory sequence. While I was initially quite nervous at the prospect of teaching applied lessons, I applied my research skills to the area of low brass pedagogy and put together a list of pedagogical approaches, standard method books, and solos approachable by first- and second-year students. I have discovered this year the joy of seeing one's applied students improve on their instruments and have gained an improved appreciation for the work done by the non-theorist colleagues in the department.

I have also been teaching a new course on film and video game music this semester. My dean asked the department last spring if any of us would be interested in offering a course on film music and, having a background in video game music, I volunteered to design a course combining the two areas. It has been a lot of work putting together the course and studying up on film music myself, but it has also been one of the most enjoyable teaching experiences of my career.

Finally, I have also done some non-teaching projects for the college in exchange for some load credit in a short year, the largest of which was taking stock of the music section of our college's library and putting together a collection development plan. While working outside of one's area of expertise is never easy nor comfortable, it does provide novelty, variety, and a great deal of personal growth and has actually become one of my favorite aspects of teaching at a community college.

Challenges of and Solutions to Professional Isolation

The last challenge I will examine is how to survive being the only music theory specialist on faculty, from building bridges with non-theorist colleagues to staying involved with the discipline on a regional and national level.

At a community college, there is almost certainly only going to be one specialist in music theory on the faculty (assuming, of course, that the college even has a specialist in music theory). Theorists tend to enjoy discussing our ideas with other theorists, and being at an institution full of beginning music students and performing faculty can easily lead to professional isolation.

Intradepartmental Relationships

It is important to maintain good communication and collegial relationships with the other faculty in the music department. Remember that non-theorist colleagues have likely not studied music theory since their own student days and do not necessarily feel the same obligation to stay current

on recent discoveries and trends in the field. As the music theorist on the faculty, you often have a chance to share your learning with your colleagues as well as with your students. Tone and approach are essential in sharing new information; non-theory specialists are our peers, after all, not our students, and thus rightfully expect to be treated as equals, particularly if they are teaching some of the courses in the music theory area.

Look for natural opportunities to discuss theory matters with your colleagues. In a friendly conversation you might start by asking them what they and their ensembles are currently performing, and when they ask, in turn, what you have been up to lately, you can mention the latest paper you've read or the research you're currently working on. Ask if you can give a brief report on the conference you just attended at a department meeting. I found a periodic theory coordination meeting with the non-theory specialists teaching theory-related courses at Casper College such as music fundamentals and class piano to be invaluable. Instead of using specialist jargon, capture colleagues' interest with a succinct and engaging summary of the topic and then if they express further interest, explain the concept further one on one.

Be open to the value of non-theorist perspectives on music as well. One of my most thought-provoking experiences as a theorist came when I was playing a fundraising gig with some local musicians and realized that all of the songs we were playing featured harmonic "retrogressions," leading me to the creation of an expanded model of harmonic functionality that explains these chord progressions as well as it does common-practice music (Baker 2017).

If your pedagogical approach in the classroom is questioned (something that very well may happen if you adopt some of the more innovative approaches discussed in the theory pedagogy community recently), it is quite helpful to have an annotated bibliography listing the research on which your teaching is based; even if this doesn't convince the faculty member in question, it is invaluable in gaining the support of your department chair and/or dean if a conflict does arise.

Intercollege Relationships

In addition to building and maintaining good relationships within your department, building and maintaining contacts in the larger theory community are essential (perhaps even particularly if you're not a specialist in music theory). Reach out to nearby theorists, particularly other theorists at smaller institutions who may also be feeling professional isolation. Attend regional and national conferences whenever you have the chance, even if you're not presenting anything at the conference – learning new things from others' presentations and making new contacts and friends are well worth it. Actively participate in discussions on theory forums and email lists and look for and take advantage of any opportunities that arise for you to contribute to the field. Particularly, make a point of being involved in the theory pedagogy community – many of us are in a similar situation of having heavy teaching loads and no load release for research, and I have found that conferences and journals focusing on theory pedagogy offer presentation and publication opportunities that are open to non-specialist viewpoints. I have been quite amazed at how many opportunities unexpectedly arise when we simply work to maintain and grow our professional network of fellow theorists and friends.

Unique Opportunities of Teaching at a Community College

It should be noted that, while this chapter has focused on dealing with teaching challenges, teaching at a community college is not merely a succession of difficult problems. It is the very opportunities that arise from the nature of my job that make it the ideal job for me. Seeing the real difference that an education makes in the lives of my students, many of whom are

first-generation college students previously unaware of the world that an education opens up to them, is a grand reward.

The benefit of serving underprepared students is being able to see them work hard, develop their skills and self-confidence, and thrive and succeed at a level they never knew was possible. I work closely with my students and consequently end up developing great relationships with them, personal as well as professional; in addition to former students reaching out to me with musical questions long after leaving my music theory classroom, I have been invited to several weddings and even a baby shower.

In addition to serving our students, at community colleges we often have the opportunity to make an impact in our community at large. As a student music theorist, I never expected to have many opportunities in my career to continue performing as a musician. Living in a smaller community and teaching at a smaller school allow me to perform as a trombonist regularly, not least with the Wyoming Symphony. After all, didn't most of us decide to major in music in the first place because we enjoyed making music as well as studying it?

Although being part of a small musical faculty can threaten one with professional isolation, there are many advantages to being part of a small music faculty as well. I have an incredible amount of autonomy in designing and teaching the core theory sequence. If a new textbook comes out that I think looks promising, I am able to adopt it. If I learn something new at a conference or from a new book, I am able to integrate it into the curriculum. I have also been able to collaborate with my colleagues in the Casper College Music Department – in addition to performing with them and their ensembles, they have been very supportive of the composition studio I have established, offering to perform compositions and arrangements written by myself or my students.

While the thoughts presented in this chapter are particularly pertinent to those teaching at smaller institutions, they can be applicable to all teachers of music theory. After all, we are all constantly seeking to increase our own understanding of music and improve our teaching and curriculum. All of our students can benefit from receiving a more personalized education. All of us find ourselves with more things to do than time to do them and can thus benefit from time-saving teaching technology. And all of us need to build and maintain our professional relationships in and outside of our own departments. By embracing the challenges of teaching music theory at a community college and turning them into opportunities, teaching music theory can be a truly rewarding and enjoyable experience.

Notes

- 1 The key link between pattern recognition and student success in music theory was established by Nancy Rogers, Jane Piper Clendinning, Sara Hart, and Colleen Ganley of Florida State University (Rogers et al. 2017); I highly recommend their research on this matter.
- 2 Another approach currently used at Utah State University is to initially require ALL incoming music students to enroll for music fundamentals; students who pass the placement exam are notified via email that they are allowed to drop the course (Utah State University 2018). I quite like the notion of an opt-out approach to fundamentals rather than an opt-in approach and will be discussing the possibility of implementing this at Casper College with the rest of the music department.
- 3 I was originally introduced to the concept of standards-based (or criteria-referenced) grading via Kris Shaffer's music blog. An excellent discussion of the approach can be found in an article in *Music Theory Online* by Kris Shaffer, Philip Duker, Anna Gawboy, and Bryn Hughes (Duker et al. 2015); the reports by Shaffer and Duker are particularly useful regarding implementing standards-based grading.
- 4 Gary Karpinski's seminal study on aural skills acquisition is an absolute must-read for anyone teaching aural theory (Karpinski 2000).
- 5 I got this tip from Philip Duker in the previously mentioned MTO article that also discussed standards-based grading (Duker et al. 2015).

Bibliography

- Baker, Nathan A. "Tetractys Modes and Third Substitutions: An Expanded Model of Harmonic Functionality." Poster presented at the Pedagogy into Practice Conference, Lee University, Cleveland, TN, May 2017.
- Duker, Philip, Anna Gawboy, Bryn Hughes, and Kris P. Shaffer. "Hacking the Music Theory Classroom: Standards-Based Grading, Just-in-Time Teaching, and the Inverted Class." *Music Theory Online* 21, no. 1 (March 2015). www.mtosmt.org/issues/mto.15.21.1/mto.15.21.1.duker_gawboy_hughes_shaffer.html.
- Duncan, Arne. "The Linchpin: The New Mission of Community Colleges." US Department of Education, October 5, 2010. www.ed.gov/news/speeches/linchpin-new-mission-community-colleges.
- Karpinski, Gary S. *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians*. New York: Oxford University Press, 2000.
- Phillippe, Kent and Rahel Tekle. "AACC Fast Facts 2018." American Association of Community Colleges, 2018. Accessed March 19, 2019. www.aacc.nche.edu/research-trends/fast-facts/.
- Rogers, Nancy, Jane Piper Clendinning, Sara Hart, and Colleen Ganley. "Specific Correlations between Abilities in Mathematics and Music Theory." Paper presented at the Society for Music Theory Fortieth Annual Meeting, Arlington, VA, November 2017. https://societymusictheory.org/files/2017_final_program.pdf.
- Utah State University. Department of Music Area Overview. Accessed October 11, 2018. <https://music.usu.edu/area-of-study/academic>.
- Yorgason, Brent. *InQuizitive for Aural Skills*. Adapted from Gary S. Karpinski, *Manual for Ear Training and Sight Singing*. 2nd ed. New York: W. W. Norton, 2017. <https://digital.wwnorton.com/eartraining2>.

MORE THAN JUST FOUR CHORDS

Teaching Music Theory/Aural Skills to Music Industry Majors

Jennifer Snodgrass

Introduction

In 2004, I was searching for that perfect tenure-track position. I distinctly remember the moment during my interview at Appalachian State when the dean said, “We need you to teach a music theory class for our music industry students.” I had taught a rock history course in my previous position, so I enthusiastically agreed, while in the back of my mind questioned, “How hard could it be?”

The answer? It was very hard. Not because I didn’t love popular music; I was raised on the Eagles and Elton John and fell in love at a Bon Jovi concert. The reality was that I was woefully unprepared. I had never been exposed to the music industry beyond opera tours and contracts. I had no idea how to best relate to music business students because I knew nothing of their environment. I quickly found that the musical concepts my music education or performance majors needed to know simply did not translate into the vocabulary used in the studio or the management board room. And the pedagogy courses I had taken in all three of my degree programs never once mentioned or alluded to how to best teach this specific population, nor did these classes mention much about integration of music beyond the canon.

For the past 15 years, I have dedicated a portion of my scholarship of teaching and learning to better understanding the vocabulary and topics relevant to a music industry student. Through extensive field study, interviews, analysis of literature, and student responses, I have developed pedagogical approaches geared toward the twenty-first-century music student focused on music business, songwriting, and recording. This chapter will highlight parts of my own personal journey in discovering these approaches, along with student responses and other pedagogical trends that highlight the effectiveness and necessity of teaching such material to this growing population.

Music Industry on the Undergraduate Level

Music business programs are becoming more prevalent across the United States and Canada. The Music and Entertainment Industry Educators Association (MEIEA) currently lists over 40 institutions offering bachelor’s degrees under various degree headings such as music business, music industry, songwriting, arts administration, music management, and commercial music.¹

However, even among programs with those degrees, very few have a separate theory/aural skills course for their industry majors. Table 54.1 provides a sample of ten schools offering an undergraduate degree in the music industry field and information regarding their specific course

Table 54.1 Schools with Music Industry Degrees, Courses, and Materials Used

<i>Institution</i>	<i>Degrees</i>	<i>Majors/Concentrations</i>	<i>Separate theory track?</i>	<i>Text</i>
Albright College – Reading, PA	Bachelor of Arts (BA)	Music Industry Studies – Full Major, Co-major	No	<i>Tonal Harmony</i> 8th edition
Belmont University – Nashville, TN	Bachelor of Music (BM)	Commercial Music with concentrations in Songwriting, Technology, Composition and Arranging, Performance and Music Business	Yes, Music Theory for Music Business and Commercial Aural Skills	Online course with Connect for Education for theory course and Chuck Sher's <i>Real Book</i> for Aural Skills
Chowan University – Murfreesboro, NC	Bachelor of Science (BS)	Music Business/Technology	No	<i>Tonal Harmony</i> 8th edition
College of Saint Rose – Albany, NY	Music, Bachelor of Science (BS)	Music Industry	No	<i>Tonal Harmony</i> 8th edition
Delta State University – Cleveland, MS	Bachelor of Science (BS)	Music Industry Studies (BSMIS), Concentrations in Audio Engineering Technology (AET), Music Industry Entrepreneurship (MIE)	Yes, Fundamentals of Sound Cognition	<i>Nashville Number System</i> and <i>Practical Theory Complete</i>
Elmhurst College – Elmhurst, IL	Bachelor of Music (BM) or Bachelor of Science (BS)	Music Business	No	<i>Tonal Harmony</i> 8th edition
Middle Tennessee State – Murfreesboro, TN	Bachelor of Science (BS)	Audio Production	Yes, Commercial Musicianship and Advanced Commercial Musicianship	None
Northeastern University – Boston, MA	Bachelor of Music (BM), Bachelor of Science (BS)	Music, Music Industry, Music Technology, Music Industry Leadership	Yes, Fundamentals of Western Music Theory	<i>Contemporary Musicianship</i>
University of Colorado at Denver (UCD) – Denver, CO	Bachelor of Science (BS)	The only degrees offered at UCD are industry degrees. Music Business, Music Performance, Recording Arts, Singer/Songwriter	Music Theory I-III includes analysis of both popular and classical genres	In-house course packs
University of Miami	Bachelor of Music (BM), Bachelor of Science (BS)	Commercial Music and Production, Music Engineering, Music Business and Entertainment Industries	Yes, Experiential Musicianship I-IV	No textbook reported

names and materials used. Half of these institutions offer a dedicated theory/aural skills course for music industry students, while at other institutions students are still required to take a traditional theory course that uses a text such as *Tonal Harmony*.

More needs to be done in terms of reaching this particular population. While many music theory and aural texts have begun to integrate more popular genres, there are only two widely used theory texts published in the past decade that are written specifically for the music industry student, *Contemporary Musicianship* (2015, 2020) and *The Craft of Contemporary Music* (2017).² *Contemporary Musicianship* introduces students to the basic principles of music theory, aural skills, songwriting, and analysis by using specific classical performers and popular artists to present theoretical concepts. Aural skills is integrated within the text and all aural skills components include exercises in composition and improvisation. The premise of this book is based on how artists use music theory in creative ways regarding performance or writing. On the other hand, *The Craft of Contemporary Commercial Music* seeks to teach both theoretical concepts and basic technology in one integrated approach by combining a “grounding in music notation and theory concepts with a foundation in essential technologies.” Written by both a music theorist and a composer, this text seeks to show how a song/score is put together, both in terms of compositional process and sound engineering. The text highlights how technology and music theory are completely integrated and how both play an essential part in successful commercial music making and production. Table 54.2 shows a small sampling of schools that currently use these two books and how the texts fit into the curriculum in terms of courses. It is incredibly interesting, but not surprising, how *Contemporary Musicianship* is used in commercial musicianship and theory courses while *The Craft of Contemporary Commercial Music* is used in composition and applied technology courses as the audience for the text is aspiring composers of music for media.

Even with these two texts now available, there are still questions on how to best prepare this certain group of students. In order to better understand the questions and move toward answers, I had to seek out an experience beyond my own training and expertise. My experience is best described as a journey, one that has challenged me to think differently and to embrace this world so different from my own.

Table 54.2 Schools and Courses Using Music Industry Textbooks

<i>Contemporary Musicianship</i>	
Institution	Courses
Appalachian State	Contemporary Musicianship
Alabama State University	Musicianship
CUNY-York College	Contemporary Music Theory
Houghton College	Harmony
Portland Community College	Commercial Music Theory
Scottsdale Community College	Introduction to Music Theory
University of South Carolina-Upstate	Commercial Music Theory and Aural Skills
<i>The Craft of Contemporary Commercial Music</i>	
Appalachian State University	Contemporary Musicianship
Millersville University	Commercial Music Lab and Commercial Band
Mercy College	Music Business
MiraCosta College	MIDI 1 and MIDI 2
Methodist University	Intro to composition and arranging
Stephen F. Austin State University	Commercial Recording and Composition

My Moment of Clarity

I'll be the first to admit that those first few years teaching within the music industry curriculum were a challenge. I might go even further to say that it was the worst teaching experience of my career. There really was no difference in how I taught my traditional majors and my industry majors in those early years, with the exception of a pop tune or jazz chart thrown in for repertoire study. My student attendance record was horrendous and I was lucky to have eight (out of more than 20) students show up every Tuesday and Thursday morning. They didn't seem to care as much about grades as my other students, so taking one point off for each absence didn't motivate them in any way. They were in the studio recording until 4 am, so coming to my 8 am was just not a priority. I was frustrated by this. Why wasn't my class important? I didn't understand their world and they certainly didn't want to be part of mine. I was a classically trained opera singer with an analysis focus in twentieth-century choral music. There was no way I could reach these students nor could I gain their respect. I begged my dean to release me from teaching the class and he calmly asked me to stick with it and to see if I could think of a way to reach them.

During a university break, I had an epiphany on how the course needed to be totally revolutionized. First of all, the name of the year-long course was Basic Musicianship I and II. That course title in itself told students within our degree programs that the course was less important or less rigorous from the traditional Theory/Aural Skills I and II; that the industry majors were the "other" in the music building. I quickly changed the course title to Contemporary Musicianship I and II. Second, I decided to make the class participatory. Students were encouraged to bring instruments, to improvise every time I brought up a technique, and I arranged the desks in such a way that rows could not be established. To some it may have been chaotic, but to me, our class meetings became more like being a part of a recording session, although there was no band leader for the full 90 minutes.

Most importantly, I decided to introduce each concept through an artist rather than just a theoretical topic. The first artist I chose was Billy Joel. For two days, my Contemporary Musicianship class talked about Billy Joel's impact on the industry, his songwriting, the lawsuit with his manager, and his overall staying power as a concert artist. We watched videos, we talked about Christie Brinkley, and we sang "Piano Man" as we played along to the chord progressions on the piano and guitars. These two days of conversation had my class hooked. In the third class session, I began to introduce secondary dominants through the music of Billy Joel. We studied his scores, his chord usage, the voice-leading in the piano lines, and we worked to compose in the style of Joel using secondary dominants. Guitars and keyboards were out and students were experiencing how a secondary dominant chord worked through performance and listening. The last thing I taught within that unit was how to write a secondary dominant on the staff.

After the integration of Billy Joel and the change in approach, student attendance was no longer a problem. In fact, I no longer needed an attendance policy. My industry majors stopped me in the hallway to share their latest songwriting experiences. I spent time in the recording studio and went to their songwriting nights to watch my students employ the techniques we were learning in class. I followed up the Joel unit with an extended study of modulation using the music of Queen. "Bohemian Rhapsody" took up two full days of conversation and we discussed how the song re-entered the charts based on its usage in *Wayne's World*. As we watched those movie clips and I watched the previously dreary-eyed (bored) students singing along with Mike Myers and Dana Carvey, I knew I was on to something. This was working. They were learning all the required music theory, but the approach was completely different.

I took a sabbatical a few years later and spent time in the studios in Nashville, worked with artists in Los Angeles, and talked with managers and producers in New York City. This was an important step for me as a scholar and educator. I needed to learn the lingo, I needed to know

more about the careers that they were studying for, and I needed to know what they must know in order to be successful in the field.

What Exactly Does a Music Industry Student Need to Know?

There were four main topics that continually were acknowledged by those in the field as basic fundamental skills:

1. A strong ear, specifically in harmony and melodic lines;
2. Knowledge of chord charts, basic voice-leading, and how to improvise/write chord charts;
3. Knowledge of the Nashville Number System (NNS);
4. The ability to talk intelligently about a piece of music in terms of harmony, melody, and performance.

I use this list as the basis for all of my class planning for the Contemporary Musicianship sequence. I continue to consult with industry professionals to provide guidance and constantly integrate up to date musical examples. The following pages list some of the ways I implement these principles into my own classes along with quotes from industry professionals that help to validate these approaches.

The Importance of Ear Training for All Musicians

Learning every last thing about counterpoint or musical form as a young music student while ignoring basic ear training in how to identify chord sequences and rhythm so one could improvise on a simple bluegrass or rock and roll song, is not the right formula for learning to be musically creative in the 21st century.

(Mark O'Connor, Recording Artist and Composer)

Ear Training is a must. A singer can't simply put her finger on a particular stop, or depress a specific key, and produce the right note. Standing along in form of a seventy-piece orchestra, it is a great advantage to know that it's a D minor chord you are hearing.

(Renée Fleming, International Opera Star)

I integrate ear training every single day in my class for both traditional and industry students. Early within the semester, I present solfège to both populations, as I found that many in the studio use *do*-based solfège as a parameter for discussing pitch. However, unlike my traditional classes, industry students are not tested on how well they can sing the solfège and do not meet with me for one on one assessments, but they are asked to demonstrate their knowledge of hearing solfège within the context of a piece.

Two assignments from the early part of the semester might include the following:

1. Write out just the solfège for the 1st chorus of "From Now On" from *The Greatest Showman*. Using YouTube, search for the cast recording and begin at 2:40.

do ti la

From now on

do ti la sol

These eyes will not be blinded....

2. Write out the solfège for the main chorus from Sia’s “Chandelier.”

do la do ti la sol mi fa sol do la la la ti do mi re

I’m gonna swing from the chandelier, from the chandelier

This understanding of solfège leads to skills in both melodic and harmonic dictation. Transcribing from the solfège to pitches typically is not a problem and students pick this up quickly. One recording engineer at Power Station Studios in Manhattan reiterated the importance for engineers to not only have the ability to write down a given melody but also have the ability to harmonize the melody on the fly within a session. Beginning with harmonic rhythm and using real musical examples from popular literature for harmonic dictation have always been the best approach for my music industry students to begin to gain the skills to harmonize. I do play some progressions on the piano to start and I do have my students play along with me using their instruments as I introduce chord changes; however, I try to integrate real musical examples as soon as possible.

A sample of an introduction to harmonic dictation would be laid out like this:

1. Sing through the following progressions and improvise with singing and instruments in class. Discuss how the bass line works in terms of the use of root position versus the cadential $\frac{6}{4}$.
 - a. I–IV–vi–V
 - b. I–vi–IV–V
 - c. I–V–vi–V–IV–cad $\frac{6}{4}$ –V
2. Play the following three songs and see if students can match the progression with the correct song.
 - a. “Bossman” by Lucky Boys Confusion (Chorus). (Answer: a)
 - b. “If I Had A Million Dollars” by BareNaked Ladies (Chorus). (Answer: b)
 - c. “Thousand Years” by Christina Perri (Introduction and Verse). (Answer: c)
3. Discuss the moving bass line in “Thousand Years” and how the cello line creates strong voice-leading.
4. Improvise along to the recordings using the earlier progressions.

This approach of immersion and experience allows students to truly understand harmonic processes, rather than figuring out the soprano and bass line and using “theory” knowledge to figure out the chords.

Rhythm also plays an important role in aural skills training, and I tend to teach my industry majors a variety of counting methods from the traditional 1-e-&-a to takadimi. Simply playing along to a click track in rhythm is an early skill that must be established and error detection is a key element in rhythmic training. One engineer elaborated, saying,

It’s helpful if as a producer you can quickly identify how fast or slow the musician is playing relative to the click and then possibly adjust the click by a few bpm after consulting with the band to keep the session moving along.

Rhythmic training is not just found in the ability to write something back after playing, but more in the ability to work in tempo and to adjust those tempos as needed in the session.

Chord Charts, Improvisation, and Music Making

Charles Mingus once said ‘You can’t improvise on nothing, man — you gotta improvise on something.’ Bottom line, you have to have something to say. Don’t mumble, and don’t shrug

your shoulders. Be purposeful in everything you say, and everything you play! Whether you're an inexperienced student musician or a professional walking into a new gig, being aware and taking part in the musical conversation is a responsibility that must not be taken lightly.³

(Steve Holley, Grammy Music Education Award Quarterfinalist and Educator)

We are all involved in a musical conversation. The terminology presented in a lead-sheet is often the only written form of communication that a given member in a session will have before recording begins. I teach lead-sheet symbols to all of my students and have them working with chord charts in the first few weeks of the semester. However, the teaching approach for this important skill must go beyond just having the students look at the charts while they listen to a recording or asking them to notate a chord on the staff when given the lead-sheet. In my classroom, students bring in their instruments and play along with the charts in order to understand how changes occur. I also have students use kazoos to start the process of melodic improvisation on lead-sheets. I start an introduction to improvisation with an activity as simple as the following:

1. Ask the class to provide a progression with seven chords, using inversions to create a smooth bass line. One possibility might be I–ii⁶–V⁷–vi–IV⁶–V⁶–I (or similar). You can also just use lead-sheets here.
2. Have students choose one scale degree for each chord using the smoothest possible motion as they move to the next chord. Each chord should be held for four beats. A few students should sing the bass line (or play the bass line on an instrument) while another student could improvise on the progression at the keyboard.
3. Results of the student vocal lines for the earlier progression could sound like:
 - a. *mi-fa-fa-mi-fa-fa-mi*
 - b. *sol-la-ti-la-la-sol-sol*
4. Repeat activity numerous times using lead-sheet symbols and Roman numerals and asking students to create new melody lines.

This is where students begin to understand voice-leading beyond the rules of our traditional part-writing “guidelines.” This activity has produced tremendous results in my class and has been the best way for me to introduce concepts of improvisation, reading lead-sheets, and even voice-leading. Taking this same idea and singing and playing while following a lead-sheet have helped my students to understand harmonic function, reading of charts, and improvisation all at the same time.

I also encourage a great deal of creative music making in my classes through composition. While I still give composition assignments that ask for specific features such as “You need to have a half cadence in measure 4 and a secondary function chord in measure 7,” I have embraced the idea of giving students even more freedom in composing. The final composition assignment for the first semester of my music industry class is to co-write a jingle for a specific product and to perform the jingle in class while projecting the lead-sheet. Some of my favorites have been “More Espresso, Less Depresso,” for the local coffee shop, and “Get Naked,” for the Naked Juice Company. The groups working on these projects are in full communication with each other and quickly learn how to get away from writing down each and every note. The lead-sheets only include the chords and the lyrics. Many of the students perform the main chord structures on guitars or keyboards while some groups sing the vocals in harmony. This act of music making and creation helps them to understand the theory behind the music. I also have them play the jingles for industry professionals who might be interested. I firmly believe that one day I will hear one of these jingles on TV.

The Nashville Number System

I really like the system because it allows students to see the entire form, phrase structure, and harmonic content of a song on a single piece of paper. I definitely think creating charts is great practice for students. How often does a regular theory or musicianship class ask a student to aurally transcribe the harmony of an entire song? This is something every student graduating with a degree in music should be able to do.

(Trevor de Clercq, Music Theorist and Faculty in Department of Recording Industry at Middle Tennessee State University)

Knowing theory/musicianship saves a lot of time. When you're in the creative zone, the last thing you want to do is stop and figure out the technicalities of the music. Theory paves the way for the mind to simply be creative.

(Michael Alvarado, Singer with Us the Duo and NNS chart writer)

When I arrived at Appalachian State, I had never heard of the NNS; I quickly grabbed *The Nashville Number System* by Chas Williams, which was an excellent resource as I trained myself in this system. I was amazed at the simplicity of the charts, and like de Clercq, I was excited that my students would be able to analyze and study music from one page. In his collection of songs in *The Nashville Number System Fake Book*, de Clercq gives an overview of the system saying,

A Nashville number chart does not tell you exactly how to play a song; there is a lot that is left to the player. That is the great advantage of the system: it gives a general roadmap of the song, which the player can then fill in with his or her own expertise and personal style.

(de Clercq 2015, 20)

There are many advantages to this system, most notably the fact that all charts are independent of the key because chord changes are represented by numbers and not lead-sheet symbols. I have seen charts within sessions where the key in the upper left-hand box was scratched out and replaced due to a singer's range that day or a session member's desire to play in a new key. This quick change would be impossible with lead-sheets or written notation. The patterns that come about when looking at the Nashville charts are clear and effective to teach form, repetition, sequences, and even modulations.

For my introduction to the NNS, I hand out charts and within 45 minutes of following the charts along with recordings, my students are improvising and asking why they didn't know about this earlier. The handwritten charts show chord changes and highlight the simplicity and sometimes the more intricate ways that rhythm works in country and popular music. One of my greatest memories is having my class of 25 students playing and improvising to the chart from "You Don't Know Me" by Patti Page. (A colleague had literally picked up the copy of the chart from the floor of the Grand Ole Opry Stage.) As the students were playing and I was singing the lyrics, one of the students said in an excited voice, "Wow, look at that bass line creating that cool chromatic line with secondary function!" I'm not sure if they would have seen that with a notated score or even a lead-sheet. I have found that after I teach this unit, most of my industry majors tend to shift from lead-sheet symbols to Nashville charts.

The Big Picture

If you are going to record music, it is very important that you understand music in every sense of the word, including harmonics, the flow of music, how sounds are translated.

(Pat McMakin, Director of Operations for Ocean Way Recording)

When you are composing, whether it is pop or classical music, you need brain work. You need to understand your why. These musical moments are affecting people in the audience. If you are going to modulate all over the place, I think you kind of need to know why you did it.

(Ben Folds, Popular Music Artist and Songwriter)

The longer I teach within the music industry studies program, the more I am convinced that I am teaching skills that all musicians, regardless of career or degree program, should know. We should all seek to be creative, thinking musicians who use our skills to create, improvise, and discuss music. In my travels and conversations, the majority of those in the music industry field stressed the need for students to be able to discuss music in a general sense in terms of harmony, rhythm, texture, timbres, and melody. They also discussed how those that can read a musical score will have an upper hand, especially in the recording studio. One recording engineer related to me the experience of looking through orchestral scores to find a specific point in a soundtrack and how he was thankful for his time spent studying orchestral scores as well as lead-sheet and melodies.

I reached out to a group of alumni now employed within the music industry field with the following question: “What exactly does a music industry student need to know in terms of theory and aural skills?” The results included the following topics, many of which are duplicates of my own understanding of necessary skills as presented earlier:

1. Being able to transpose a lead-sheet quickly;
2. Being able to harmonize a melody quickly;
3. Basic terminology in musical form (chorus, pre-chorus, second movement, etc.);
4. Basic understanding of rhythm, pitch, time signatures;
5. The ability to be fluid in all genres and styles;
6. The ability to hear vocal harmonies;
7. The ability to read all types of scores, including orchestral and vocal beyond lead-sheets.

Through creative projects, immersion in both scores and lead-sheets, and overall discussion of musicianship, I am confident these topics can be taught to any music student, including those within music industry programs.

My pedagogical journey has been one of trial and error, and it took me a great deal of time to figure out the best teaching style for this particular population. I re-evaluate my approach on a yearly basis and continue to reach out to industry professionals to see how I can best prepare my students in theory and aural skills. I owe that to my students, and as a life-long learner, I’m excited to spend time in the studios and in songwriting sessions every few years. As this area of study continues to grow both in terms of numbers and reputation, I look to my theory colleagues around the country to re-evaluate some of our approaches for these students, to create more readily accessible materials, and to become part of the conversation. As Miles Davis once said, “It’s not about standing still and becoming safe. If anybody wants to keep creating, they have to be about change.”

Notes

- 1 <http://meiea.org/>
- 2 The Berklee Music Theory Books are available for public use but do not seem to be used by other universities and colleges who belong to MEIEA.
- 3 <https://nafme.org/paying-attention-to-the-musical-conversation/>

Bibliography

- De Clercq, Trevor, ed. 2015. *The Nashville Number System Fake Book*. Hal Leonard.
- Feldstein, Sandy. 1982. *Practical Theory Complete*. Spiral bound ed. Alfred Music.
- Kostka, Stefan, Dorothy Payne, and Byron Almen. 2018. *Tonal Harmony*. 8th ed. McGraw-Hill Publishing Company.
- McCandless, Greg, and Daniel McIntyre. 2017. *The Craft of Contemporary Commercial Music*. New York: Routledge.
- “Member Schools.” Accessed September 16, 2018. *Music and Entertainment Industry Educators Association*. http://meiea.org/member_schools.
- Schroeder, Carl, and Keith Wyatt. 1998. *Harmony and Theory: Essential Concepts Series*. Musicians Institute Press.
- Sher, Chuck, ed. 1988. *The New Real Book*. Sher Music Co.
- Snodgrass, Jennifer. 2015. *Contemporary Musicianship*. New York: Oxford University Press.
- Webb, Nick. Published August 17, 2011. “Paying Attention to the Musical Conversation.” *National Association for Music Education*. <https://nafme.org/paying-attention-to-the-musical-conversation/>.
- Williams, Chas. 2005. *The Nashville Number System*. 7th ed. Chas Williams.

INSTRUCTING A RANGE OF EXPERIENCES WITHIN THE MUSIC THEORY CLASSROOM

Cora S. Palfy

The Issue of Ranging Experience in the Classroom

A classroom providing an engaging and enriching experience for each student is an idealistic goal – researchers in the field of education have developed many techniques to address the difficulty of working with learners with varying levels of experience in any given classroom. As a new teacher in a liberal arts institution, I was both intimidated by the challenge of multiple experiential levels and excited by the opportunity to design a classroom fit for all students to access the ideas and strategies for music theoretical and critical thinking. I set to work first understanding the root of the issue, which is access to higher education for a more diverse population, and finding a solution. I offer a strategy, which I call “objective-focused and skill-scalable,” that has worked well within my classrooms.

Universities are using new recruitment strategies to diversify their student bodies, aiming to create a rich and dynamic environment where students’ personal experiences contrast with their peers.¹ Elements such as culture, socioeconomic status, and other identity markers can affect students’ access to teachers, activities, and materials that increase facility and fluency with music literacy. In addition, musicians are beginning to work in more varied media: in today’s classrooms, pedagogues teach a mix of students with ranging interests in performance, education, research, business, and production. The music theory classroom at the university setting, then, is an interesting case study of mixed skill groupings – contemporary students come in with a wide range of personal backgrounds and experience with activities common to the music theory and aural skills classroom such as playing, singing, reading, or notating.

Though it can be an enriching experience to work with students whose interests and desired outcomes for their music degrees widely vary, it is also a source of frustration for many teachers who find that classroom management, movement through content, and expansion of critical thinking skills suffer with many of the techniques suggested for ranging experience levels. Techniques such as individualized instruction (Zahorik 1999; Hiemstra and Sisco 1990; Slavin et al. 1984a, 1984b), pair work (Storch and Aldosari 2012; Wantanabe 2008; Linchevski and Kutscher 1998), group work (Ambrose et al. 2010; Glass 2002), and tracking (Hamilton and O’Hara 2011; Alpert and Bechar 2008; Ansalone 2003; Jones et al. 1990) have all been used, with mixed results, to attenuate the different issues associated with mixed skill groups. Further, pedagogues tend to find that selecting one group to focus on within the varying ranges (such as “teaching down” to students who need extra help, “teaching up” for experts, or aiming for the middle experience level) will inevitably isolate one or more groups within the classroom – experts feeling bored, novices feeling lost, etc.

Music theory pedagogues have suggested different ways of addressing the mixed skill problem: online pre-courses (Yearly 2014); theory boot camps (Gillespie 2000); and tracking² (Jones and Bergee 2008). These proposed solutions are examples of innovative thinking aimed at improving student outcomes and experiences, and are certainly an option for universities with larger student bodies. However, the research cited earlier has shown mixed results whether these interventions work; also, at many smaller schools, these options are not tenable. Thus, the professor is left to engage a wide variety of abilities in the same classroom.

The issues associated with mixed skill classrooms are attenuated if we consider objectives-based learning (Ambrose et al. 2010), wherein lessons are created around an overarching conceptual goal or skills-based task for the day. Ambrose et al. state, “Learning objectives articulate the knowledge and skills you want students to acquire by the end of the course or after completing a particular assignment” (2010, 244). Based on the revision of Benjamin Bloom’s taxonomy of educational goals (Anderson et al. 2013), objectives aim to help make transparent the purpose of learning in order to foster clear communication and higher levels of motivation in students. For example, a lower-level objective might be, “Identify the notes of the V chord in solfège and in multiple keys,” or there may be a more complex goal such as “Improvise/create a novel melody using all three functional categories.” Notice these objectives both give specific ideas about what will be learned but leave open-ended which activities might reinforce the concept. In a mixed skill classroom, relying on objectives encourages students to work toward a goal that has been clearly communicated and shared with them by the teacher. I suggest that the flexibility of activities afforded by the objectives attenuates the problems associated with mixed skill classrooms.

The method I use in my own classroom is what I call “objective-focused and skill-scalable,” and can be easily paired with individual instruction and guidance during activities. In this classroom format, I plan so each exercise can be made more accessible or challenging for the individual learner without detracting from the larger objective. By centering lessons on objectives, the use of objective-fixed but skill-scalable activities ensures that students are all getting the content of the class but are able to achieve it at their individual level of experience.

Coupled with other methods such as group work or pair work, which are helpful for improving lower-expertise students’ performance while engaging experts, this strategy for individual work seems to better not only student confidence in their own performance but also their metacognitive understanding of personal ability and skill. Before each activity, I advise students on how they can scale up or down a given exercise to suit their expertise; during the activity, if a student is struggling with/mastering the level they have chosen, I advise them to decrease/increase the challenge.³ Through their own estimation of ability level and guided practice, students become more aware of their needs as learners. As they work through class activities that invite them to assess their own skill levels, students regularly practice metacognitive thinking (Ambrose et al. 2010, 215), which can then be applied to at-home practice. Students learn to self-assess, asking critical questions such as: “Is this too challenging/accessible for me?”; “What can I add to make this more challenging?”; “How would I ask another student to practice this, and how does that change the way I am practicing?” These questions prompt continual student growth and, importantly, mirror how professional musicians practice and improve.

So what does the “objective-focused and skill scalable” method look like? I suggest that lessons planned around an objective but which use adjustable musical materials, like rhythm duets, play-and-sings, or improvisations, can be made more accessible or challenging through the addition of other musical or kinesthetic elements. These “skill-scalable” materials create a more flexible classroom environment in which the instructor can both push those students who need extra challenge

(e.g. adding a conducting pattern or improvised counter-rhythm to a one-handed chordal play-and-sing at the piano) and ease challenging activities for those students who require more reinforcement of basic skills (e.g. play with only one hand, tap the rhythm first, improvise only in stepwise motion).

The “Objective-Focused and Skill-Scalable” Method

The following examples showcase three ways skill-scalable exercises might be implemented in the classroom. These three activities provide the ability to scale complexity for both the musical material and learning objectives, which progress from the bottom to top of Bloom’s revised taxonomy.

Rhythm Duets: “Demonstrate the Difference between Simple and Compound Meters.”

Purpose: This example forces students to work with interacting rhythmic lines in a meter other than $\frac{2}{4}$, $\frac{3}{4}$, or $\frac{4}{4}$. I ask students to tap the two lines between hands (one hand with a pen, one flat on their desk, or one hand on the keyboard); the students do not have to intone Kodaly, Takadimi, counting, or Gordon syllables (Figure 55.1).

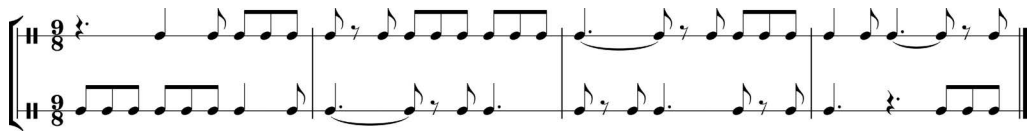


Figure 55.1 Rhythm duet exercise.

Skill-scaling down: Students can perform two-handed tapping on a desk, playing with one hand at a keyboard, or counting aloud in combination with tapping or keyboard playing – this tends to be more difficult as it engages two different parts of the brain, making the experience more multimodal. Students who need more help with this activity can simplify by performing each part separately, backing down the tempo, or integrating. If they prefer not to mix modalities (such as counting and tapping simultaneously), they can simply tap two hands or, alternatively, play with two different notes at the keyboard. Students may also choose to practice with the teacher, taking one part so they can hear the completed rhythm. Two struggling students can also be paired, each taking a line, which affords the opportunity to work through the interacting lines and hear the composite rhythm of the duet.

Skill-scaling up: As more advanced students, particularly pianists or percussionists, get comfortable with the activity, they tend to engage less. While the students who find the activity challenging slowly improve, those who acclimate to the challenge of the activity begin to practice less or more lazily. For those students, I guide progress individually, suggesting ideas to increase the challenge: tap one line while counting the other; add conducting in the hand not playing the piano; improvise a new rhythm with the voice; or create a melody line for one of the rhythms. These provide a sufficient challenge to help those students continue to practice and improve.

In each iteration of these skill-scalable exercises, however, the objective can still be demonstrated: students are still able to show that they understand and can perform the difference between compound and simple rhythm regardless of whether they are performing the advanced or simple versions of the classroom activity.

Play-and-Sing (W. A. Mozart’s “Sehnsucht nach dem Frühling” K. 596):
“Compare the sounds of different chords placed within a standard functional progression.”

Purpose: In this example, mm. 1–2 and 4 use a I chord, and m. 3 uses a V⁷; in my courses, I often ask students to substitute in new chords that could also work with the sung melody, which is the main activity for this example (e.g. using a vii^{o7} in m. 3; using a vi in m. 4, etc.) (Figure 55.2).



Figure 55.2 Play and sing exercise, Mozart’s “Sehnsucht nach dem Frühling” K. 596.

Skill-scaling down: For those students without piano background (or who feel like their skills are not up to this activity), this example can be made more accessible; students might choose to play only the bass line notes, or play block chords instead of the given accompaniment pattern. They may also tap the rhythm against their vocal part if piano proves to be overly difficult for them, or sing the parts separately, later integrating them at a slow tempo.

Skill-scaling up: Advanced students may be encouraged to: add conducting with the right hand as they arpeggiate with the left; create new figuration patterns; improvise a countermelody in the right hand while singing the main melody; or add a percussive element with a pen or pencil against the melody/accompaniment pairing.

Melodic Improvisation: “Create Novel Musical Material Using Notes from the Specified Chords or Functional Categories.”

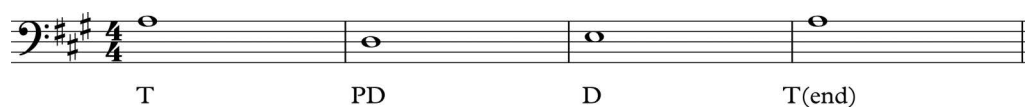


Figure 55.3 Improvisation exercise, which shows a given bassline and blank staff to accommodate an improvised rhythm.

Purpose: A final example from my classroom strengthens memory for function, form, and pitch tendencies. Figure 55.3 is a simplified version of a standard bass line, but might be scaled up for higher-level courses to include secondary dominants, sequences, or chromatic chords. This objective taps the highest levels from Bloom’s revised taxonomy, evaluation, and creation, which demonstrate mastery and integration of concepts. I particularly like improvisation as a teaching tool because students must risk, fail, and recover within the classroom, and it is often clear that they know when they’ve made an error or succeeded. I find that coaching students to experiment with these elements makes them better musicians and helps their practice outside of the classroom increase in effectiveness.

Skill-scaling down: If students are nervous, I sometimes have them improvise only one measure at a time as part of a four-person team. In this iteration, students stand at the board at first beneath “their measure.” This is one way to simplify – pairing or grouping students so they

do not have to process as much information in real time. As comfort increases, students can be encouraged to take longer chunks of the improvisation, culminating in the improvisation of a whole melody line. A further instruction I provide for the benefit of less advanced improvisers is that students are welcome to simply arpeggiate the chord they would be improvising on in each measure – this allows the pressure to wane for those students who are uncomfortable creating a “good” melody, or who have anxiety about performing in front of others. There is also the option, if one has access to a keyboard lab, of having the students improvise on their own over a repeating left-hand bass line. This option alleviates the stress of public performance.

Skill-scaling up: In contrast, some students are completely comfortable performing or can easily create a melody successfully. To those students, I will often assign the task of improvising a novel rhythm underneath their colleagues’ melodies or have them improvise together in a pair with another advanced student to create a contrapuntal line. In addition, I might invite them to use more advanced chords, such as seventh chords in the Predominant, or vii^{o7} as the Dominant, in order to stretch their ears and solfège use.

Conclusion

These examples of objective-focused and skill-scalable exercises highlight how helpful thinking ahead about the larger objective of the lesson is: whether scaled up or pared down to suit the needs of the individual student, the objective is met, and progress toward better musicianship is being made. Further, students feel empowered from their in-class activities to critically examine the effectiveness of their at-home practice and take on the onus of challenging themselves to increase mastery. I have found these strategies very useful in alleviating the difficulty of ensuring growth across all members of a class with mixed skills, and I am hopeful others can implement it with success.

Notes

- 1 The U.S. Department of Education reported in 2015 that the government was taking increasingly active measures to encourage minorities to enroll and finish degrees from institutions of higher education (Fact Sheet 2017). Though there was a slight dip in the overall upward trend, the National Center for Education Statistics (NCES) has recorded a steady rise in the number of minorities enrolled as undergraduates in degree-granting postsecondary institutions, and the NCES projects a continued rise through 2026 (The Condition of Education 2017). These trends are also supported by the United States Census Report from 2016 on higher education (Ryan and Bauman 2016).
- 2 Splitting students into expertise-based sections.
- 3 This mirrors the “just in time” method suggested by Simkins and Maier (2010).

Bibliography

- Alpert, Bracha, and Shlomit Bechar. 2008. “School Organisational Efforts in Search for Alternatives to Ability Grouping.” *Teaching and Teacher Education* 24 (6):1599–1612.
- Ambrose, Susan A., Michael W. Bridges, Michele DiPietro, Marsha C. Lovett, Marie K. Norman, and Richard E. Mayer. 2010. *How Learning Works: Seven Research-Based Principles for Smart Teaching*. 1st edition. San Francisco, CA: Jossey-Bass.
- Anderson, Lorin W., David R. Krathwohl, Peter W. Airasian, Kathleen A. Cruikshank, Richard E. Mayer, Paul R. Pintrich, James Rath, and Merlin C. Wittrock. 2013. *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom’s*. London: Pearson Education Limited.
- Ansalone, George. 2003. “Poverty, Tracking, and the Social Construction of Failure: International Perspectives on Tracking.” *Journal of Children and Poverty* 9 (1):3–20.
- Burris, Carol Corbett, and Delia T. Garrity. 2008. *Detracking for Excellence and Equity*. Alexandria, VA: Association for Supervision & Curriculum Development.

- "Fact Sheet: Focusing Higher Education on Student Success." 2017. *U.S. Department of Education*. Accessed June 13. www.ed.gov/news/press-releases/fact-sheet-focusing-higher-education-student-success.
- Gillespie, Jeff. 2000. "Welcome to Theory Camp! More Than Simple Remediation." *Journal of Music Theory Pedagogy* 14:47–62.
- Glass, Gene V. 2002. "Grouping Students for Instruction." In *School Reform Proposals: The Research Evidence*, edited by Alex Molnar, 95–112. Charlotte, NC: Information Age Publications.
- Hallinan, Maureen T. 1994. "Tracking: From Theory to Practice." *Sociology of Education* 67 (2):79–84.
- Hamilton, Lorna, and Paul O'Hara. 2011. "The Tyranny of Setting (Ability Grouping): Challenges to Inclusion in Scottish Primary Schools." *Teaching and Teacher Education* 27 (4):712–21.
- Hiemstra, Roger, and Burton R. Sisco. 1990. *Individualizing Instruction: Making Learning Personal, Empowering, and Successful*. 1st edition. San Francisco, CA: Jossey-Bass.
- Jones, John, Anthony C. Harris, and Graeme D. Putt. 1990. "Streaming in First-Year University Classes." *Studies in Higher Education* 15 (1):21–30.
- Jones, Rusty M., and Martin Bergee. 2008. "Elements Associated with Success in the First-Year Music Theory and Aural-Skills Curriculum." *Journal of Music Theory Pedagogy* 22:93–116.
- Linchevski, Liora, and Bilha Kutscher. 1998. "Tell Me with Whom You're Learning, and I'll Tell You How Much You've Learned: Mixed-Ability versus Same-Ability Grouping in Mathematics." *Journal for Research in Mathematics Education* 29 (5):533–54.
- Ryan, Camille L., and Kyle Bauman. 2016. "Educational Attainment in the United States: 2015." United States Census Bureau. March 2016. www.census.gov/content/dam/Census/library/publications/2016/demo/p20-578.pdf.
- Simkins, Scott, and Mark Maier. 2010. *Just-in-Time Teaching: Across the Disciplines, across the Academy*. Sterling, VA: Stylus Publishing, LLC.
- Slavin, Robert E., Marshall B. Leavey, and Nancy A. Madden. 1984a. "Combining Cooperative Learning and Individualized Instruction: Effects on Student Mathematics Achievement, Attitudes, and Behaviors." *The Elementary School Journal* 84 (4):409–22.
- Slavin, Robert E., Nancy A. Madden, and Marshall Leavey. 1984b. "Effects of Cooperative Learning and Individualized Instruction on Mainstreamed Students." *Exceptional Children* 50 (5):434–43.
- Slavin, Robert E., and Nancy L. Karweit. 1985. "Effects of Whole Class, Ability Grouped, and Individualized Instruction on Mathematics Achievement." *American Educational Research Journal* 22 (3):351–67.
- Storch, Neomy, and Ali Aldosari. 2012. "Pairing Learners in Pair Work Activity." *Language Teaching Research* 17 (1):31–48.
- "The Condition of Education - Participation in Education - Postsecondary - Undergraduate Enrollment - Indicator May (2017)." 2017. The National Center for Education Statistics. May 2017. https://nces.ed.gov/programs/coe/indicator_cha.asp.
- Watanabe, Yuko. 2008. "Peer-Peer Interaction between L2 Learners of Different Proficiency Levels: Their Interactions and Reflections." *Canadian Modern Language Review* 64 (4):605–635.
- Yeary, Mark. 2014. "Computer-Assisted Instruction and Remedial Music Fundamentals." *Journal of Music Theory Pedagogy* 28:135–157.
- Yonezawa, Susan, Amy Stuart Wells, and Irene Serna. 2002. "Choosing Tracks: 'Freedom of Choice' in Detracking Schools." *American Educational Research Journal* 39 (1):37–67.
- Zahorik, John A. 1999. "Reducing Class Size Leads to Individualized Instruction." *Educational Leadership* 57 (1):50.

MUSIC THEORY PEDAGOGY AND PUBLIC MUSIC THEORY

J. Daniel Jenkins

Music theory can often seem the most forbidding aspect of music study. On more than one occasion, when introducing myself as a music theorist, my fellow interlocutor will admit they once studied or even majored in music, but they just could not “get through” music theory. Even among those who are most devoted to music, there is often little evidence to contradict the perception

that music theory is written for the benefit of other music theorists, that producers of the discourse constitute their own audience, and that this more or less closed circle of writers and readers admits no entrance from, or outlet to, an exterior.

(Steege 2010, 9)

In recent decades, however, academics from a variety of disciplines have shown greater interest in interactions with a wider community. Universities reward volunteerism, both in the application process and in the guise of service-learning courses. Granting agencies and foundations offer funding to encourage research that engages the public sphere. Professional organizations, including the Society for Music Theory, offer panel discussions about careers outside of academia.

The coinage of the term “public music theory,” then, could certainly seem like an attempt to jump on the latest bandwagon in higher education. And while the emerging and growing interest in public music theory is certainly synergetic with other recent trends in service learning, community engagement, and the like, public music theory actually has a much longer history. Anne Young patented board games to teach music theoretical concepts in early nineteenth-century Scotland (Raz 2018). Hermann von Helmholtz’s *On the Sensations of Tones* was part of a popular science movement in Germany in the later part of the nineteenth century (Steege 2010). Many of Donald Francis Tovey’s *Essays in Musical Analysis* were originally written as program notes for the Reid Orchestra in Edinburgh, an ensemble that he conducted (The University of Edinburgh 2017). Arnold Schoenberg and Hans Keller presented music analysis on the radio. Leonard Bernstein used the television to great effect in programs including the *Young People’s Concerts*, *Omnibus*, and *The Unanswered Question: Six Lectures at Harvard*. Therefore, a pedagogy informed by public music theory is, among other things, one that seeks to recover a part of our music theoretical heritage that has been downplayed, rejected, or forgotten.

When Schoenberg received his contract from the University of Southern California in fall 1935, his duties included not only classes but also lectures that were open to the general public. He called one of these series a “School of Criticism,” in which he sought to develop a listener “who knows what he likes and why he likes it” (Jenkins 2015a, 163). Such public lectures, which

Schoenberg also delivered in Vienna, were but one example of his efforts to communicate with the public. Early in his career, he wrote his own program notes, which, like Tovey's, were replete with musical examples. On the radio, Schoenberg delivered analytical lectures on his own music, reaching a wider audience than he could in the concert hall or the classroom. He then repurposed the program note as record jacket liner notes for recordings in an attempt to reach an even wider audience. Finally, at the end of his life, he was in discussions with the BBC to produce a television broadcast about the twelve-tone system, prefiguring Bernstein's successful use of the medium only a few years later (Jenkins 2016, 9–13). Thus, in Schoenberg we see an example of a music theorist who embraced a variety of media in order to communicate about music. Each medium he pursued as a means of public discourse and engagement – program notes, liner notes, public lectures, audio broadcasts, video broadcasts – can be models for assignments in the music theory classroom.

A program notes assignment provides an opportunity for students to improve their writing skills while engaging in music analytical discourse. Even though Margulis (2010) questions the efficacy of program notes, her formulation of notes as either structural or dramatic is helpful. Figure 56.1 shows dramatic and structural notes for the beginning of the Andante (Chorale variations) of Berg's Violin Concerto. For a program notes assignment on Berg's Concerto, you could ask students to listen to a passage and, without using analytical terminology, describe *how* the music sounds. They then analyze the passage. Students can complete row charts, undertake twelve-counts, provide set-class labels or Roman numerals, or use other methods. Rather than ending there, as they might in a traditional theory class, students take the additional step of writing notes that require them to reflect on their initial impressions in light of their analysis. The goal is to guide listeners with both a forecast of *what* they might hear, described in dramatic terms, and *why* the music might sound the way it does, described in structural terms.¹ In addition to dramatic and structural statements, students should research the history of the composition, and include "historical" or "contextual" statements, like those also found in Figure 56.1. Students may gravitate to one of these types at the expense of the other two, but the best notes typically balance all three.

Structural – The Adagio begins with the melody from the Bach chorale, "Es ist genug," played by the soloist. The melody aligns with short segments of different forms of the twelve-note row that the entire composition is based on. The bassoon and string instruments accompany the violin with additional row fragments. All the pitches taken together create the effect of something nearing the key of B-flat major. Bach's familiarly tonal chorale enters at a pianissimo dynamic in the woodwinds. The violins play fragments of evenly-spaced pitches which are clearly distinct from the chorale, and yet echo its opening gesture.

Dramatic – As the dust settles at the end of the Allegro, a plaintive melody emerges, given the barest of support by a few other instruments. The melody dies away, and a ghostly hymn—almost like the memory of a hymn—begins. A violin periodically interjects with fragments that sound neither completely foreign nor germane.

Historical/Contextual – Stricken by the death of Manon Gropius, daughter of family friends Alma Mahler and Walter Gropius, Berg included a Bach Chorale, "Es ist genug," or "It is enough!" reflecting a struggle with the acceptance of death. Not only did he dedicate the work "To the memory of an angel," but the Concerto became a requiem of sorts for Berg himself, who died before the work could be premiered.

Figure 56.1 Program notes for Berg's Violin Concerto.

Writing program notes of any kind inevitably begs the question of terminology. The terminology you choose will be conditioned by the audience you seek to communicate with. Program notes, indeed any foray into public music discourse, thus require forethought about who the target audience is, and this should be a key part of the discussion before students write their notes. Arriving at effective language might require multiple steps. First, as mentioned earlier, students might study the work and develop an analysis that might use technical, analytical terminology. Then they can be asked to paraphrase their analysis in their own words. This kind of writing serves to clarify the analysis and to give interpretative meaning to the results. Finally, the students should revise their notes with the specific audience in mind. Are there any terms that need to be defined? Is the vocabulary age-appropriate? Do the notes communicate something about the composition that will be helpful to the listener? Through this process, students not only learn to write about music but also gain a deeper appreciation of both the specific compositions they are focusing on and the analytical process in general.

Program notes by Schoenberg, Tovey, and others in the early twentieth century would have included both text and musical examples. In program notes we see today, musical examples are much rarer, leaving text alone as the principal means of communication. However, that texted information might not appear solely in print media. For example, the Philadelphia Orchestra has produced LiveNote, a smartphone app that provides an in-time listening guide that changes as the music is played (YouTube 2014). As significant changes in the live performance of the composition take place, the app provides new information to the viewer. Although not every class would be able to develop their own smartphone app, students could be tasked with writing informational slides for a listening guide accompanying a composition they are studying. Visual alternatives to traditional program notes could also serve as models for student assignments. The Toronto Symphony provides listening guides with very limited text and stylized graphic symbols that communicate key, instrumentation, form, etc. (Symphonie Graphique n.d.). Stephen Malinowski's Music Animation Machine freeware allows listeners to create their own animations of a variety of compositions. Whether textual, visual, or in some other medium, the process of creating listening guides provides students an opportunity to study compositional form and process while considering how to communicate the results to an audience outside of the academic environment.

As mentioned earlier, Schoenberg's program notes were also a model for his liner notes. Asking students to write liner notes can be a great way to get them to think about the connections between analysis and performance. For example, in a class on Leonard Bernstein, students were asked to listen to three recorded performances of the same composition: one conducted by Bernstein and two by other conductors. Their task then was to write liner notes for a hypothetical "rerelease" of the Bernstein performance that compared his interpretation to that of the other two conductors. This required students to think critically about what they liked and did not like about each performance, and what were the choices of tempo, dynamics, articulation that contributed to clarifying the harmonic, metric, or formal structures that made a particular interpretation satisfying.

With the advent of streaming audio, which allows listeners to purchase only select tracks rather than a complete album, a specific set of liner notes published as part of a record release are nearly extinct. In some ways, however, newer media have stepped in to fill the void. The advent of blogs, for example, gives multiple people the opportunity to reflect and comment on a recording. Reflecting on a recording is but one way to motivate a blog assignment. The brevity of the standard blog post makes it an ideal venue for students to engage with music theoretical and analytical topics of many kinds.

A program notes assignment can also be easily adapted into a pre-concert lecture assignment. In smaller classes, a few class meetings could be given over to student presentation of pre-concert lectures with or without a slide presentation. In a semester-long course on analysis and performance, you can arrange for end of the term performances with pre-concert or intra-concert lectures as a final project. In a larger class, students could be tasked with discussing one composition in a brief amount of time.² If you do not have class time to devote to delivering lectures, students

can also record pre-concert lectures outside of class, direct address to camera, for concert programs real or imagined.

Video recordings of pre-concert lectures is but one way that to incorporate visual media in to your pedagogy. Gawboy (2018) describes how instructors can use video to teach music theory, but videos can also be a medium for student expression. For example, students could take the slides designed for a pre-concert lecture and use screen capture software to create a videocast. Like blog posts, videocasts need not be limited to the exploration of a single composition or program. Bernstein's use of television provides an important historical model in this regard. Some of the titles of the episodes of his *Young People's Concerts* are phrased in the form of a question such as "What is a Mode?" First semesters students could be asked to create videos for a general audience including "What is a Key Signature?," "What is an Interval?," and "What is a Scale?," which represent lower levels on Bloom's taxonomy. Students could also be asked to answer slightly more advanced questions such as "What Does It Mean for Music to be in a Key?," or "How Can I Find a Cadence?," which require engagement with higher levels of the taxonomy. In answering such questions, students develop their own personal theories of the concepts of "key" and "cadence." Asking them to frame their answers in language that is accessible raises the likelihood that they will remember their theories, and use them in their own teaching and music making. The plethora of YouTube channels devoted to music theoretical knowledge indicates that there is a hunger for such information in this medium.

Just as YouTube channels and other types of video streaming represent an extension of the television in terms of access to visual information, the podcast feed represents an extension of the radio's ability to transmit audio information. In both cases, audiences have more freedom than ever about what information they will access and when.³ Without a visual component, podcast episodes place certain strictures on communication relative to videocasts. Even Schoenberg noted that music, an inherently auditory art form, can be more easily analyzed by "eye than by ear" (Jenkins 2016, 102). Hans Keller (2001), on the other hand, embraced the audio medium of the radio fully, presenting "wordless functional analyses," during which snippets of music were dissected in smaller parts, played one after the other, communicating a possible path of development from one musical idea to the next, with no intervening text to explain further. Whether it includes spoken text or not, a podcast does require students to communicate about music without recourse to visual information – by using sound alone. The sounds involved might be additional music, spoken words, or something else. A flute student in one of my classes made a podcast episode about the first movement of J.S. Bach's Partita in A minor, BWV 1013. The opening of the work, shown in Figure 56.2a, although for a single flute, implies multiple voice-leading lines. As part of a podcast assignment, he recorded himself playing the implied bass line in long tones, and then superimposed that over his recording of rest of the notated music, shown in Figure 56.2b.



Figure 56.2 (a) J.S. Bach, Partita in A minor for solo flute, BWV 1013, I. Allemande; (b) transcription of a recording of (a) for multiple flutes.

The result, which would be helpful to anyone performing or listening to this music, required at least an implicit understanding of Schenkerian principles of voice-leading and reduction. Thus, of all the media discussed earlier, the podcast episode, because of its inherent limitations, could encourage students to discuss their analyses in primarily musical, or at least sonic, terms.

One final lesson to take away from Schoenberg is how to adapt to technological change. Throughout his lifetime, he was quick to adopt new technologies and use them to their greatest effect in his pedagogy (Jenkins 2015b). As new technologies inevitably continue to emerge, the fundamental questions of what it is you are trying to communicate, and more importantly, to whom you are trying to communicate it, remain. Answering these questions first will likely lead to the best results.

The models of public music theory discussed thus far largely adopt a “sage-on-the-stage” approach, in which information is imparted from a knowledgeable “expert” to an amateur. While these models are certainly important, they do not encapsulate the totality of what we might mean by public music theory. Another model we can look to is applied musicology. Charles Seeger (1939) was one of the first to argue for an applied musicology, in analogue to applied sciences:

In most cases, special professions have sprung up whose fields are the application of branches of pure learning to the needs of large-scale undertakings and of everyday life. It has been commonly found, too, that although the bulk of the activity of the applied sciences has been of value for *use*, still many results of value to *knowledge* have been achieved, not only through the accumulation of new data for the parent sciences, but through actual cultivation of the parent sciences within the framework of the applied studies (14).

On what kind of projects outside of academia could applied music theory be brought to bear? One obvious topic is music copyright. Leo (2016) provides an exhaustive study of the history of the use of “expert” testimony in US copyright lawsuits, discussing, among other things, how different analytical methodologies are viewed by the legal community. Asking students to make analytical arguments on one side or the other of a copyright case could prove a very informative assignment. This type of assignment could also motivate political action, encouraging students to write to their representatives, advocating for changes in the law that they believe are necessary based on their musical knowledge. Following Ripley (2016), mock trials on music analytical questions of all kinds could be a pedagogical approach as well.

Other kinds of forensic questions occasionally bring public attention to the importance of music analysis, and these can inspire quite interesting assignments in the music theory class. The “discovery” of six previously unpublished Haydn sonatas by the flutist Winfried Michel in the early 1990s received considerable press attention, as did the subsequent reports that the sonatas were likely forgeries (Beckerman 1994). What kind of musical analytical skills would be necessary to compose a forgery, or to prove that something was a forgery? Composing a forgery could be a way to get students to study a particular composer’s style closely. Students could then be presented with forgeries alongside known examples from the composer’s output, requiring them to apply their music theoretical knowledge to tell the authentic examples from the imposters. The case of pianist Joyce Hatto, who released recordings under her own name that were actually performances by others, was discovered when Nicholas Cook and Craig Sapp were undertaking comparative studies of performances of Chopin mazurkas as part of the Centre for the History and Analysis of Recorded Music (CHARM) at the University of London (Singer 2007). Such a case reminds us of the importance of corpus studies. Corpus studies also provide frameworks to test the type of generalized music theoretical claims that are sometimes made in public scholarship

without supporting empirical evidence. Undertaking a corpus study to test such assertions can also be a beneficial class project.

In Seeger's (1939) discussion of applied musicology, he also described music "as a community or social service" (13). According to Rocheleau (2004), the idea of service learning "can be traced to progressive education and its most influential, original, and systematic theorist, John Dewey" (4). A typology of service-learning includes "service-LEARNING," in which the learning goals predominate, "SERVICE-learning," in which the service goals predominate, "service learning," in which there is no relation between the two (note that there is no hyphen), and "SERVICE-LEARNING," in which the two are brought into balance, and benefit all participants (Sigmon 1994). Service-learning – with the hyphen – involves learning outcomes conditioned by fulfilling a need identified within a community through consultation with that community.

Service-learning can be another approach to public music theory pedagogy. Stevens (2018) asked his music theory classes, "How might you change the world in which you live using your musical knowledge and skills?" His students partnered with a local health clinic to create and record the soundtrack for the clinic's promotional video. In a different project, the students partnered with a senior center on a program focused on memory loss. Students interviewed seniors about an early musical memory, something vivid that shape their sense of identity. They then created new arrangements of songs that the seniors talked about and performed them at the center. Bourne (2017), Peebles (2017), and Williams (2017) have also written about how they have included community partners in their undergraduate music theory and composition classes.

Service-learning projects, or any kind of community interaction, can prove to be quite time consuming (Peebles 2017). A successful project requires a lot of communication, preparation, and planning with the community partner. Instructors continually have to monitor how instructional time is being spent to ensure that learning goals are being met. The benefits of students discovering that their "musical knowledge and skills" have the potential to "change the world" can sometimes seem intangible or difficult to measure, but when done well, such projects prove worth it in the end.

In his watershed work, *Pedagogy of the Oppressed*, Friere (2018 [1970]) writes of a "banking concept" of education, in which "knowledge is a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing" (72). This concept leads to following attitudes and practices:

- a. The teacher teaches and the students are taught;
- b. The teacher knows everything and the students know nothing;
- c. The teacher thinks and the students are thought about;
- d. The teacher talks and the students listen – meekly;
- e. The teacher disciplines and the students are disciplined;
- f. The teacher chooses and enforces his or her choice, and the students comply;
- g. The teacher acts and the students have the illusion of acting through the action of the teacher;
- h. The teacher chooses the program content, and the students (who were not consulted) adapt to it;
- i. The teacher confuses the authority of knowledge with his or her own professional authority, which she or he sets in opposition to the freedom of the students;
- j. The teacher is the Subject and the learning process, while the pupils are mere objects (73).

The banking concept of education results in a pedagogy Friere calls "antidialogical," defined in contradistinction to "dialogical" pedagogy. Figure 56.3 shows the binary oppositions that form the antidialogical and dialogical approaches, respectively.

<u>Antidialogical</u>	<u>Dialogical</u>
Conquest	Cooperation
Divide and Rule	Unity for Liberation
Manipulation	Organization
Cultural Invasion	Cultural Synthesis

Figure 56.3 Comparison of antidialogical and dialogical pedagogies (Friere 2018 [1970], 138–83).

Many of the historical models we have for public music theory, such as pre-concert lectures or program notes, however well intentioned, can often veer toward the antidialogical. The audience in these situations can be viewed as an empty vessel, ready to be filled with knowledge. They may have no agency to question the “expert’s” interpretation or analysis, to develop an interpretation of their own, or to discuss their own interpretation. This is not to suggest that these situations could not be dialogical. Nor is it to suggest that every service-learning project is by definition dialogical. Taking students to a nursing home to perform pieces they have composed in music theory class, with no interaction between the students and the residents other than the residents listening quietly as the students perform, could be an example of an antidialogical outcome of an otherwise well-intentioned service-learning project. This is not to say that the students would not have learned anything from writing the compositions, nor that the seniors did not enjoy the performances, but the entire activity could have been a missed opportunity from the perspective of potential dialogical action among human beings. Stevens’ (2018) memory loss project, on the other hand, provides a model of a dialogical activity between students and seniors.

The foregoing discussion began with the assertion that music theory was a “closed circle” that does not admit an exterior, and while there may be broad agreement about this impression, it is also clear that there is a publicly focused strain within music theory with a long history that continues to this day. As more and more music theorists embrace interactions with those outside the academy, I would argue that public music theory will be most successful not when it centers on the “music theory,” but rather when it focuses on the “public,” what their needs are, what they are seeking to know and to understand, how they are hoping to change, and how we can change to meet their needs. In so doing, we can not only reclaim and celebrate the past of public music theory, but revive it, leading to a bright future.

Notes

- 1 Of course, it is possible to write cogent, persuasive notes without engaging with the particular modes of analysis I have listed here, but it is not possible to write such notes without any analysis whatsoever. Even when their methodologies are not formalized, requiring students to specify the sonic parameters that contribute to their interpretation of a musical passage can be an important prelude to theorizing.
- 2 Slide presentations can be quite elaborate, when speaking about a full concert, or students can be challenged to use only one slide, as in the 3MT, or three-minute thesis, competition.
- 3 The comparison is somewhat similar to how Schoenberg felt about the radio and the phonograph. The radio provided unprecedented access to music performance as compared to the concert hall, which is limited by seating capacity. But the phonograph gave audiences the option to self-select *what* they would listen to and *when* they would listen to it.

Bibliography

- Beckerman, Michael. 1994. "All Right, So Maybe Haydn Didn't Write Them. So What?" *The New York Times*, May 15.
- Bourne, Janet. 2017. "Outside the Classroom: Community-Engaged Learning Projects in Music Theory." *Engaging Students: Essays in Music Pedagogy* 5.
- Friere, Paulo. 2018 (1970). *Pedagogy of the Oppressed*, 50th Anniversary Edition. Translated by Myra Bergman Ramos. With an Introduction by Donald Macedo and an Afterword by Ira Shor. New York: Bloomsbury.
- Gawboy, Anna. 2018. "Teaching Music Theory with Video." In *The Norton Guide to Teaching Music Theory*, edited by Rachel Lumsden and Jeffrey Swinkin, 285–298. New York: W. W. Norton & Company.
- Jenkins, J. Daniel. 2017. "Towards a Curriculum in Public Music Theory." *Engaging Students: Essays in Music Pedagogy* 5.
- Jenkins, J. Daniel, ed. 2016. *Schoenberg's Program Notes and Musical Analyses*. Schoenberg in Words, vol. 5, edited by Sabine Feisst and Severine Neff. New York: Oxford University Press.
- Jenkins, J. Daniel. 2015a. "I Care If You Listen: Schoenberg's 'School of Criticism' and the Role of the Amateur." *Journal of the Arnold Schönberg Center* 12: 149–188.
- Jenkins, J. Daniel. 2015b. "Technology in Schoenberg's 'School of Criticism': A Lesson from the Past." *Engaging Students: Essays in Music Pedagogy* 3.
- Keller, Hans. 2001. *Functional Analysis: The Unity of Contrasting Themes: Complete Edition of the Analytical Scores*, edited by Gerold W. Gruber, Susan Bradshaw, and Michael Meixner. Frankfurt am Main: Peter Lang.
- Leo, Katherine M. 2016. "Blurred Lines: Musical Expertise in the History of American Copyright Litigation." PhD Diss., The Ohio State University.
- Malinowski, Stephen. n.d. "Music Animation Machine." Accessed October 21, 2018. www.musanim.com/index.html
- Margulis, Elizabeth Hellmuth. 2010. "When Program Notes Don't Help: Music Descriptions and Enjoyment." *Psychology of Music* 38 (3): 285–302.
- Peebles, Crystal. 2017. "Engaging Community in a Twentieth-Century Analysis Class." *Engaging Students: Essays in Music Pedagogy* 5.
- Raz, Carmel. 2018. "Anne Young's Musical Games (1801): Music Theory, Gender, and Game Design." *SMT-V* 4 (2) (September).
- Ripley, Angela. 2017. "Mock Trials in the Music Theory Classroom." Paper presented at *Pedagogy into Practice: Teaching Music Theory in the Twenty-First Century*, Cleveland, TN.
- Rocheleau, Jordy. 2004. "Theoretical Roots of Service-Learning: Progressive Education and the Development of Citizenship." In *Service-Learning: History, Theory, and Issues*, edited by Bruce W. Speck and Sherry L. Hoppe, 3–22. Westport, CT: Praeger.
- Seeger, Charles. 1939. "Music and Government—Field for an Applied Musicology." In *Papers Read at the International Congress of Musicology Held at New York September 11th–16th, 1939*, edited by Arthur Mendel, Gustav Rees, and Gilbert Chase, 11–20. Music Educators National Conference for the American Musicological Society.
- Sigmon, Robert L. 1994. "Serving to Learn, Learning to Serve." *Linking Service with Learning*. Council for Independent Colleges Report.
- Singer, Mark. 2007. "Fantasia for Piano. *The New Yorker*, September 17.
- Steege, Benjamin. 2010. "Music Theory in the Public Sphere: The Case of Hermann von Helmholtz." *Zeitschrift der Gesellschaft der Musiktheorie* 7 (Sonderausgabe): 9–30.
- Stevens, Daniel B. 2018. "Community Engagement in the Music Theory Classroom." Paper presented at *Public Music Discourse: In Honor of the Bernstein Centenary*, Columbia, SC.
- Symphonie Graphique. n.d. "Enhancing the Understanding of Classical Music through Engaging Visual Design." Accessed October 21, 2018. www.symphonygraphique.com
- The University of Edinburgh. 2017. "Reid Concerts." Accessed October 21, 2018. www.reidconcerts.music.ed.ac.uk/content/home
- Williams, Natalie. 2017. "Melody Makers: Connecting Student Composers with the Community." *Engaging Students: Essays in Music Pedagogy* 5.
- YouTube. 2014. "LiveNote™—The Philadelphia Orchestra's Concert Hall Mobile App." The Philadelphia Orchestra. Published October 2. www.youtube.com/watch?v=5qr4xTje6RA

ANALYTICAL PODCASTING

William O'Hara

Topic: Podcast-based analysis of popular music.

Goal: Students will be able to craft a complete argument, succinctly describing the important elements of a popular song; illustrate them in real time with performed, recorded, or programmed examples; record their own narration clearly; and use audio editing software to produce a short, polished podcast.

Background: Students should have an understanding of diatonic harmony, melodic construction and/or counterpoint, and rhythm and meter. An understanding of the basic principles of text-setting is helpful, though it can also be included in the unit. I usually use this assignment near the end of Theory II, in connection with discussions of pop harmony; with adaptation, it could be used earlier, or even with non-majors.

The popular podcast *Song Exploder* (www.songexploder.net) describes itself as a place where “musicians take apart their songs and, piece by piece, tell the story of how they were made.”¹ *Song Exploder's* hosts, Hrishikesh Hirway and Thao Nguyen, accomplish this through a combination of narration, interviews with the artists, and recorded examples of the songs being discussed – often including isolated studio tracks, outtakes, or live performances.

With the exception of live interviews, this process is precisely what professional music theorists do in our analytical writing, and one of the primary skills we hope to instill in our students. Inspired by *Song Exploder*, I began giving my undergraduate theory students the assignment to analyze a song or other piece of music in “podcast” format. Analyzing with audio offers another way into music analysis, helping students to capture the dynamic movement and development of music without recourse to notation or diagrams. This medium is especially useful for discussing popular music, which we often analyze using only our own transcriptions, or without reference to a score at all.

In this chapter, I will explore the pedagogical background of analytical podcasting as a form of multimodal rhetoric, describe the relevant lesson plans and outline the assignment prompt, and summarize some student responses to the project.

Pedagogical Background

I began using this project in my undergraduate music theory classes for several reasons. First, I wanted to open up new methods of musical engagement to my students, in addition to

traditional worksheets and quizzes, model compositions, and written analysis papers. Analytical podcasts allow students to study pieces of music in great detail, without making reference to a score; instead, they employ their own transcription and performance skills, or use excerpts from professional recordings, or seek musical insights using computer analysis programs like Sonic Visualiser. By asking them to focus on making a single argument about one song, the format also prepares students to make sustained arguments in prose – a feature of my more advanced music theory classes.

Second, I wanted to increase the proportion of popular music that my classes discussed, particularly in later semesters, when the tendency of theory classes is to find ever more complicated examples from the Western canon. As theory teachers everywhere seek to diversify their curricula, we must seek commensurate ways of expanding our definition of the field itself, and inventing other means of analysis that meet popular musics, world musics, and other genres and repertoires on their own terms. Although the analytical podcast project is particularly effective for popular music, it could be used with any genre. *Song Exploder* itself, for example, features film and television soundtracks (such as Ludwig Göransson's score for *Black Panther*, Alexandre Desplat's *The Imitation Game*, and Ramin Djawadi's *Game of Thrones* title theme) prominently alongside its many pop-oriented episodes.

Finally, I wanted to incorporate the use of multimedia production and editing into my courses. I believe that some competency with audio recording and editing is essential for twenty-first-century musicians. In the absence of a music technology program, the music theory sequence (traditionally focused on imparting to students the professional skills necessary to analyze and compose music) seems to be a natural place to teach the basics of audio production. Introducing students to media production is not only professionalization, however: it ties into broader currents in music studies (such as the burgeoning interdisciplinary field of sound studies). These developments are mirrored in the arts and humanities more generally, from the increasing role of multimodal composition in college writing programs, to the growth of media studies and specialized fields like critical media practice, to the surge of interest among many scholars in broader public engagement. In some ways, the music theory classroom has often been ahead of other humanities disciplines when it comes to multimodal rhetoric: model composition assignments, for instance, have always been a way of asking students to engage with academic knowledge in non-verbal ways. But over the past decade, multimodal composition has occupied an increasingly prominent position in the scholarly and pedagogical literature – including a great deal of attention paid to sonic phenomena like sound, music, and the voice.² The time is right, then, for music theory teachers to learn something about multimodal composition from our colleagues in other humanities disciplines.

The Project

The project prompt (available in the Supplemental Materials) asks students to produce a 6- to 8-minute analysis of a song, illustrated with musical examples. Students are allowed to use excerpts from a recording, sing or perform their examples, or produce synthesized excerpts in Finale/Sibelius, GarageBand, or similar software. Most of my students have chosen one of the first two options.

In the prompt, I tell students to develop a single, focused argument about a song, and I encourage them to study any and all aspects of the music that will support that argument. Sometimes this means harmony or form, or a detailed analysis of how a melody is put together. In many cases, however, students are happy to have an opportunity to discuss aspects like timbre, instrumentation, tempo, rhythm and meter, or production techniques. I outline the process of production,

encourage them to experiment freely and plan extensively before they begin to record, and set them loose. In the past, I have asked students to post their final projects on SoundCloud, encouraging them to develop the habit of posting their creative work on public fora; however, since that website's algorithms have recently become more sensitive to the posting of copyrighted recordings (even though this project is unassailably fair use), most of them now email their final podcasts to me.

Scaffolding

I approach analytical podcasting with the end product in mind, and I scaffold the project with two distinct types of class meetings. First, I teach a unit on harmony and form in popular music using traditional lectures and in-class activities, listening activities, and worksheets. Rather than employ a textbook (or try to fit rock and pop repertoire into the conceptual framework of an existing theory textbook), I use mostly my own materials, assembled from a collection of recent scholarship in the field.³ By analyzing several songs in class (one or two provided by me, the rest chosen by the class), students learn about common chord progressions, form, harmonic function, and the rhythmic elements of popular music. This provides a context for their own analytical explorations.

Second, I conduct a workshop on audio-based analysis and a tutorial on relevant hardware and software. I teach my students to use Audacity, a free audio editor that is available for both Macintosh and Windows.⁴ You can use other software, particularly if you are already comfortable with another editing suite, or if your institution provides students with access to high-level editing software.⁵

Audio Workshop Outline

Before class, I post an example track (I have used Stevie Wonder's "Golden Lady" ever since a student suggested it the first time I taught this lesson) on the course website, and ask my students to bring their laptops to class. Using this example track, I demonstrate some basic editing moves in front of the class: making cuts, excerpting portions of the song (in Audacity, a simple process of cutting and pasting), adjusting the volume level, recording a voice-over, mixing two tracks together, and using fade-in and fade-out to create smooth transitions.⁶ It is also useful to demonstrate some of the interface features that Audacity and other sound editing suites offer, such as the ability to "solo" a track in order to hear it in isolation, or to "sync-lock" two or more tracks so that they can be moved around the project as a group.

Finally, I demonstrate the process of recording and editing a short commentary on "Golden Lady." This shows students how they might construct an oral argument about a song, proceeding from a contextualizing introduction, to a musical example, to an analysis of the interesting features of that example, and so forth. It also demonstrates the process of recording audio and working with files.

I usually tell my students to use either their smartphones or their laptops for their podcasting projects. Dedicated, professional equipment isn't necessary for beginners; it is more important that students learn how to effectively use the tools already at their disposal. I also emphasize the need for students to seek a quiet space for recording (often pointing out or even recording the noises of my classroom's ventilation system or fluorescent lights). For students without access to technology, most college computer labs offer useful software and even loaner laptops. If your department controls its own computer lab, or a music library, you may wish to have Audacity or other relevant software installed on those computers.

After I have played my students the song, I record a rough introduction, simply by speaking into my smartphone, held about eight inches from my face. I might start off by saying something like:

Stevie Wonder's "Golden Lady," from his 1973 album *Innervisions*, is structured by a pair of unusual chord progressions, which we hear first in the verse, and then in the chorus. In the first part of the verse, we hear a chain of four chords. We hear E-flat major, F minor, G minor, and A minor. This repeats a couple of times, so first, let's listen to that progression.⁷

After speaking, I stop and email (or AirDrop) the file to myself, and quickly post it on our course website so students can have access to it. I start a new Audacity project, import the file, and trim the dead air time before and after my narration. Next, I show them how to import an mp3 file of "Golden Lady," select the relevant portion of the music (which begins at about 0:20 in most recordings, just after the piano introduction), and fade it in under the narration with a few seconds of lead-in time. I then demonstrate how to lower the volume of the track after the chord progression has been heard several times, so that narration can continue and the musical example can fade out afterward.

At this point, I open up the process to students, asking both "how might we continue this analysis?" and "how *else* might this podcast have begun?" The latter is the more interesting question: while I began with harmony (which I am somewhat inclined to do as a college music theory professor), I like to ask students what interests them about the song. Students might want to talk about rhythm, wishing to deconstruct the track's sparse groove. They might be drawn to the track's timbral qualities (including the flute or the striking synthesizer that appears during the choruses). Jazz-inclined students might want to explore the extended chords that underpin the chorus. In my post-project surveys (discussed more below), some students noted that the open-ended nature of the assignment intimidated them into staying close to topics we had already discussed in class, but many others welcomed the chance to explore freely; some noted that they felt especially drawn to formal aspects rather than harmony.

Analyzing Audio

Working with an audio file on the computer is also an opportunity to demonstrate some of the available analytical techniques for working with sound. Computer-aided analysis is not necessary for this project, but making it available to students can help support the goals of the assignment by opening up alternate ways of seeing/hearing the music. Programs like Sonic Visualiser (available from charm.rhul.ac.uk) can be used to generate insights for analysis: students can visualize the piece's audible spectrum, track the beat, extract pitch content, or compare different recordings, performances, or remixes of the same song. As shown in Figure 57.1, students might use Sonic Visualizer's "Spectrogram" layer to explore the anatomy of the song without relying on notation, visually comparing the very sparse introduction (Figure 57.1a) with the verse (Figure 57.1b). This might aid them, for example, in discussing the song's arrangement, or the role of the hi-hat cymbal (see especially Figure 57.1b), or any number of other topics related to the track's production.⁸ And while this assignment is generally geared toward music majors who are fluent in music notation, visual analyses might be used to push them out of their notation-centric comfort zone. Or, it could be used to help untrained or non-music students to visualize music in order to talk about it in greater detail.

If there is time in class, I will sometimes lead a session devoted to analyzing the practice of podcasting itself. In such situations, I will often select an episode of a favorite, non-musical podcast (such as *99% Invisible* or *The Memory Palace*), and facilitate a discussion of the many production elements that have come to characterize a contemporary "podcast aesthetic": background

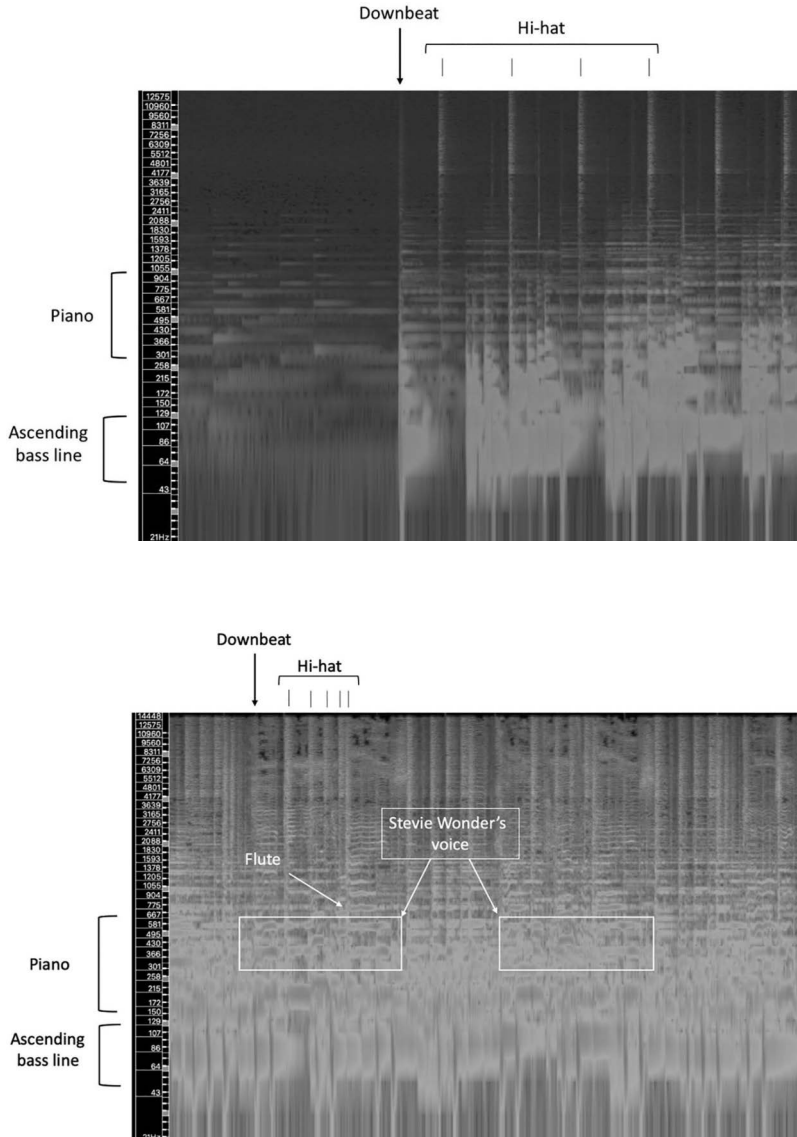


Figure 57.1 Spectrograms of (a) the introduction (0:20–0:23) of “Golden Lady” and (b) the verse (0:39–0:42).

music; a primary narrator supplemented by a polyphonic tapestry of additional voices; live field recordings or sound effects; and a casual tone (often breaking the “fourth wall” or incorporating elements that give behind-the-scenes insight) that develops a sense of intimacy.

Commentary

I have used this project four times in my classes so far. It works well near the end of the second semester of the music theory sequence, or perhaps at the beginning of the third. Combined with other scaffolding assignments, analytical podcasting can be a bridge to more substantial writing assignments in later semesters. The parameters of the assignment may be adapted somewhat, depending

upon when the project happens within the theory sequence (or even outside of it), or the particular skills or interests of your students. When I use the podcasting assignment, my students are already comfortable with triads in both Classical and pop contexts, and are familiar with concepts like secondary dominants and modulation; they have not, however, encountered advanced ideas like modal mixture, nor do they have very much experience dealing with musical form. Given the open-ended nature of the assignment, my students have generally chosen songs that they're ready to deal with. Difficulties may still arise, however. It is best to deal with problems on a case by case basis, by holding office hours for consultation, or by asking students to turn in preliminary materials like an outline or draft, or some form of transcription or graphic analysis. And while I have only used this project in classes of 12–15 students, it could easily scale to larger groups. In my experience, grading multimedia assignments is very quick, particularly if one gives comments in audiovisual form as well.⁹

While I tend to shy away from using detailed rubrics for analytical podcasts – because the prompt is so open ended, and production time so limited – I do look for certain elements, as noted in the assignment (included in the Supplemental Materials). At minimum, the technical aspects of the podcast should not distract from the content. Students ought to speak slowly and clearly, and record themselves in a room without excessive background noise; the audio levels should be loud and clear; and the mixing should ensure that any narration is audible above the music. A higher-level project will be smoothly edited, so that the narration and examples proceed at a natural pace: pauses and errors ought to be edited out, with space left for a natural “breath” between sentences or ideas. Musical examples should fade in and out smoothly. The very best projects will not only be technically competent, but should use the medium to make their argument by smoothly interweaving musical examples with narration, talking directly over the music when appropriate, and using introductory and/or closing music to create a complete, aesthetically satisfying listening experience.

In terms of academic content, the project's primary goal is to ensure that students can make a clear and complete argument about some aspect of the music. Therefore, the most important criterion is the presence of a clear thesis statement, a conclusion, and several well-framed supporting details in between. Because the project is so open-ended (and I encourage students to use it as an opportunity to address ideas we may not have discussed in class), I do not require specific reference to course materials, though citing theoretical concepts is almost always a sign of a strong analysis. And the best podcast projects, like the best written essays, offer creative arguments, strong evidence, and use sophisticated language to make their points clearly and persuasively.

In the spring of 2018, I surveyed my students at Gettysburg College on their reactions to the assignment. Students responded positively to most of the learning goals that I have articulated. One noted that they learned that “I don't need notes on a page to look at a piece,” while another noted that they found it satisfying to “actually pull apart real-world examples of the concepts we learned about.” Some students enjoyed the “semi-anonymity” of turning in an audio recording, while others noted that they would have been just as happy presenting in front of the class; most students agreed, however, that a podcast was the right amount of work, and that asking them to produce video-based analyses might have been too much, particularly at the end of the semester. Finally, when asked what additional activities might have been useful when preparing for or carrying out the project, some students suggested bringing a collaborative element to the assignment by allowing time to share analytical ideas and examples in class – a layer of revision that will surely lead to even more polished results.

Notes

I am grateful to my students at Gettysburg College and Tufts University for their enthusiastic responses to this assignment, and to my colleagues Marlon Kuzmick, Sarah Jessop, and Averill Corkin at Harvard's Derek Bok Center for Teaching and Learning for their feedback on early iterations of this project, and for supporting and encouraging my experiments in pedagogical podcasting.

- 1 "About," <http://songexploder.net/about>.
- 2 On multimodal composition, see Palmeri (2012). On sound recording and production as forms of multimodal composition, see Selfe (2009), Ahern (2013), and Ceraso (2018).
- 3 Some sources I have found especially useful include Doll (2017), Tagg (2014), Nobile (2016), and Shaffer, Hughes, and Moseley (2014).
- 4 Audacity and its associated plugins can be downloaded at www.audacityteam.org. My guide to installing and configuring Audacity is included in the online supplement to this chapter.
- 5 High-end software like ProTools or Logic isn't necessary for a project like this, but building the connections and competencies might be useful if, for example, your institution has a music technology or music production program already in place.
- 6 My guide to audio editing with Audacity is included in the online supplement to this chapter. Lynda.com (requires an individual or institutional subscription) also offers two excellent introductory modules, and YouTube hosts dozens of tutorials on basic and advanced topics in Audacity.
- 7 This narration is based on a file I recorded during an actual class session in March 2017.
- 8 On the use of spectrographic analysis in music theory, see Lehman (2017) and Lucas (2018).
- 9 For more on assessing multimedia projects, see O'Hara (2015).

Bibliography

- Ahern, Kati. 2013. "Tuning the Sonic Playing Field: Teaching Ways of Knowing Sound in First Year Writing." *Computers and Composition* 30/2: 75–86.
- Ceraso, Steph. 2018. *Sounding Composition: Multimodal Pedagogies for Embodied Listening*. Pittsburgh: University of Pittsburgh Press.
- Doll, Christopher. 2017. *Hearing Harmony: Toward a Tonal Theory for the Rock Era*. Ann Arbor: University of Michigan Press.
- Lehman, Frank. 2017. "Form and Ignorability in Ambient Music." Paper presented to the annual meeting of the Society for Music Theory, Arlington, Virginia.
- Lucas, Olivia R. 2018. "So Complete in Beautiful Deformity: Unexpected Beginnings and Rotated Riffs in Meshuggah's *obZen*." *Music Theory Online* 24/3.
- Nobile, Drew. 2016. "Harmonic Function in Rock Music." *Journal of Music Theory* 60/2: 149–180.
- O'Hara, William. 2015. "Flipping the Flip: Responsive Video in the Music Classroom." *Engaging Students: Essays in Music Pedagogy* 3.
- Palmeri, Jason. 2012. *Remixing Composition: A History of Multimodal Writing Pedagogy*. Carbondale: Southern Illinois University Press.
- Selfe, Cynthia. 2009. "The Movement of Air, the Breath of Meaning: Aurality and Multimodal Composing." *College Composition and Communication* 60/4: 616–663.
- Shaffer, Kris, Bryn Hughes, and Brian Moseley. 2014. *Open Music Theory*. N.p.: Hybrid Pedagogy Publishing.
- Tagg, Phillip. 2014. *Everyday Tonality II: Towards a Tonal Theory of What Most People Hear*. New York and Huddersfield: Mass Media Music Scholars' Press.

DESIGNING FOR ACCESS IN THE CLASSROOM AND BEYOND

Jennifer Iverson

Introduction: The Challenges of Inclusion

Below are five scenarios.¹ Have you ever experienced one of them?

1. A seemingly well-intentioned student starts missing your morning classes. You reach out and learn she has a chronic illness and is experiencing a flare-up. She does not have official accommodations from Student Disability Services, but she suddenly seems to need them. What should you do?
2. A talented and prodigious student seems to struggle with reading social cues. He raises his hand to answer every question, and sometimes blurts out the answer before you can call on others. Some students grumble under their breath in frustration. Your student hasn't disclosed any diagnosis such as Autism Spectrum Disorder to you, nor has he asked you for any type of accommodations. How can you get your classroom dynamics back on track?
3. A student who you know to be insightful and well prepared never speaks up in your class. You suspect that the student is very shy, but are concerned because the student's grade in this seminar-style class is yoked to participation. Are you willing to allow the student to demonstrate participation in other ways?
4. You're speaking with your fellow instructors about testing accommodations, when one of them loudly complains, "If he needs all of these accommodations, maybe he should drop out. Clearly, he doesn't have what it takes to be a musician!!" As a colleague, what is the best way to reply?
5. A student does very well in most aspects of your musicianship class, but when it comes to sight-singing exams, they tend to have performance-based anxiety. This anxiety affects their ability to complete the exams. They do not have a diagnosed learning disability and do not have accommodations through disability services. How can you accommodate this student, and should you?

The five scenarios laid out here are exceedingly common, and will resonate with any instructor who has even a little experience in classroom teaching. Semester after semester, we see that musically talented humans come in a range of bodies and abilities. Students' myriad mental, physical, and emotional differences need our attention and management if we are to create productive and safe classroom environments.

Students in our classes often struggle to regulate their mental and physical health as well as their emotional and psychological wellbeing (Price 2011; Kafer 2016). While the earlier scenarios expose our students' abilities and disabilities, only some of them are diagnosable and/or

legally require accommodation under the terms of the Americans with Disabilities Act (ADA). Some of the students are undiagnosed, or need support in other ways that resist clear-cut accommodations. Far from easy problems to solve, these scenarios raise complex issues. To effectively address scenarios like these – in which students may or may not identify and present officially as “disabled” – instructors have to get serious about re-evaluating every aspect of our syllabus policies, our classroom dynamics, and our course design.

In this chapter, I explore ways of making courses accessible to a wide range of possible learners. I call this process “designing for access.” We can begin with questions such as: what is essential about this skill, and what creates an unnecessary barrier? Are there various ways my students can demonstrate mastery? How can I create a more inclusive classroom environment? As we grapple with these questions, we open ourselves to flexible course design and execution. The aim is to move away from a post-hoc accommodations paradigm, in which disability remains stigmatized as a matter of individual difference. Instead, planning for a range of differences, we proactively design courses to minimize barriers and provide maximum access for many learners.

Let me disclose a caveat: the more I have read and thought about accommodations and access, the less certain I am that my classrooms are inclusive and accessible. Though barrier-free spaces are the goal, I pragmatically recognize that no classroom is likely to be maximally accessible for all learners all of the time. Work within critical disability studies problematizes the idea that there is a coherent, frictionless “all,” whose needs can be reliably served in one fell swoop (Dolmage 2017; Hamraie 2017; Williamson 2019). Scholars likewise problematize the erasure of disability and difference within the utopic formulation of “universal” design, which is often praised for benefitting “everyone.” Who is everyone? Why is it that the interests of disabled people have to be aligned with the interests of able-bodied people (“to the benefit of all”) to matter?

For these and many other reasons, I believe it remains necessary – practically speaking – for instructors to work simultaneously within the frameworks of access and accommodation. These are not (yet) mutually exclusive categories. Universal design is not a noun, fixed arrival point, or a destination. There is no reliable recipe or checklist that will guarantee your classroom is universally accessible. “Designing for access” is a verb phrase; it is a process of continual collaboration and revision, in which we collectively learn “new ways to move” (Price 2011, 88; Dolmage 2015, 1). In developing the advice in this chapter, I spent quite a bit of time interviewing campus disability office staff and talking with other faculty about how they handle such issues. I learned the most, however, from listening carefully to my students and colleagues with disabilities as they related their personal experiences. Opinions on best practices vary widely. So, while I would like to claim mastery and expertise, I have come to understand my uncertainty is as it should be. Designing for access means meeting our students where they are. No two classrooms are ever the same, and no two students have the same needs. If teachers can use these uncertainties and tensions to keep curious, keep learning, and keep re-designing, we can offer the most benefit to our students. The following, then, aims not toward conferring a rigid plan, but instead toward inspiring perpetual conversation and curiosity about what accessibility and inclusion might mean.

Toward a More Accessible Classroom

Classrooms are demanding spaces filled with both explicit and implicit expectations. Teachers set the explicit demands based on the syllabus contract and the course content: mastery of certain skills, performance at a certain level, participation in certain formats, completion of certain assignments on certain timelines, and so on. These are not the only challenges in a classroom. Following Margaret Price (2011), we must also recognize that classroom spaces are scenes of many more implicit “kairotic” demands (from the Greek *kairos*, “the opportune or appropriate time,” 60). According to Price, kairotic spaces “are less formal, often unnoticed areas of academe where knowledge is

produced and power is exchanged” (2011, 60). In classrooms, students must navigate highly complex social-emotional challenges, such as how to speak enough but not too much; how to appear knowledgeable but not arrogant; and how to appear present and engaged even when experiencing emotions such as anxiety, depression, or fear. The improvised, real-time, in-person exchanges of classrooms underscore the latent power dynamics of kairotic spaces: the combination of spontaneity with high-stakes professional consequences can be extremely stressful (2011, 61).

Musicianship and theory/analysis classrooms can even further amplify kairotic challenges. Music is a specialized skill, whose norms privilege some bodies and minds while arbitrarily excluding others (Straus 2009; Howe 2015; Cheng 2016). The kinds of barriers students encounter in the musicianship classroom are myriad: repertoire and ways of musicking that may be unfamiliar and forbidding; new, cognitively complex tasks like dictation, sight-singing, and analysis; assignments that privilege some kinds of instrumental engagement, embodiment, and knowledge over others; emotionally intense environments with new instruments, peers, performance pressure, and sometimes (semi) public assessments; time limits calibrated to the quickest minds; and participation expectations that cater to the most verbal and/or musically fluent students.

Examining and mitigating these barriers within our classrooms and curricula do *not* mean that we ought to protect our students from encountering challenges. Increasing access does not mean that students will never experience the sometimes-uncomfortable feeling of growth in our courses. Instead, in designing for access, we commit to engineering assignments, classroom activities, and assessments in ways that welcome multiple kinds of bodies and minds to fully participate. We can both challenge our students toward growth, and design courses that fully support it.

One good first step is to deconstruct the expectation that there is a “normal” student in any sense. The very idea of norms – normal bodies and minds, students of normal intelligence, normal practices that work for most – is a historically conditioned one (Davis 2017). And yet, such ubiquitous, unexamined logic often guides our musical pedagogies: “the way it’s always been done around here” or “how I’ve always learned it” or worse, “the right way to teach it.” As Lennard Davis reminds us, “with the concept of the norm comes the concept of deviations or extremes. When we think of bodies, in a society where the concept of the norm is operative, then people with disabilities will be thought of as deviants” (Davis 2017, 3).

Stepping outside of the deviant-norm-prodigy logic of the bell curve, we can instead conceptualize and meet our students as individuals, who are each deserving of an individualized educational plan.² “I already spend hours on teaching,” you say. “There’s no way I have time to tailor my course material individually for each student.” Understood! I would not advise any instructor to tailor-make the course material for each individual student. And yet, what if we saw our students as agents, as experts in their own learning? What if teachers were able to offer a menu of options for accessing our courses, and allow students to choose their own best path? What if we took seriously the idea that all of our students learn somewhat differently, and understood our role as instructor to be that of partnering with them to approach the course from a position of wholeness and strength?

The dual strategies of Universal Design for Learning (UDL) include anticipating the needs of a diverse cohort within the course design, and creating systems for flexible execution and adjustment as the course unfolds. Table 58.1 distills some of the guiding principles (sometimes called Universal Instructional Design; see Burgstahler and Cory 2008; Meyer, Rose, and Gordon 2014; Dolmage 2015; Quaglia 2015).³ In short, instructors anticipate and allow for human diversity at all stages of the course: in the goal-setting and syllabus planning phase, in the content and design phase, and during in-class delivery and assessment.

The first column of Table 58.1, “Course Goals,” broadly concerns syllabus planning and the affective engagement of students. Ideally, instructors will reverse-engineer the course from the learning objectives, a process often called “backwards design.”⁴ When goals are articulated to

Table 58.1 Universal design for learning guidelines, adapted from CAST (<http://udlguidelines.cast.org>)

Course Goals (the WHY of learning) <i>strive to provide multiple means of engagement</i>	Content and Design (the WHAT of learning) <i>strive to provide multiple means of representation</i>	Execution and Assessment (the HOW of learning) <i>strive to provide multiple means of action and expression</i>
Build Interest	Perception	Physical Action
Optimize choice	Offer multiple media and formats	Vary options for response
Optimize relevance	Offer alternatives for auditory info	Optimize access to tools and Assistive technologies
Minimize threats	Offer alternatives for visual info	Teach reliable practice strategies
Sustain Effort	Symbol Decoding	Communication
Articulate goals with clear logic for <i>why</i>	Clarify vocabulary	Use multiple media in instruction
Give mastery-oriented feedback	Clarify syntax and structure	Allow students to respond in multiple media
Foster community	Clarify methods for decoding text, sound, and notation	Build fluencies in graduated levels of mastery
Self-Regulation	Comprehension	Assessment
Facilitate coping skills and strategies	Supply background knowledge	Provide options to decrease anxiety
Facilitate managing information and resources	Highlight patterns and relationships	Clarify expectations and grading schemes
Develop self-assessment and reflection	Foreground big ideas	Support strategy development
	Promote reliable methods of problem solving	Enhance students' ability to self-monitor progress
	Maximize transfer to other domains	

students, they develop ownership, see connections and relevance, and can more easily offer their investment. With student buy-in, instructors can support self-regulation and self-assessment: everyone is on the same team.

The second column of Table 58.1, “Content and Design,” reminds us that students will always need to access information in multiple media and formats. Furthermore, students will need support in remedying areas of weakness, in decoding unfamiliar texts, in using new methodologies, and in extending their knowledge to new contexts. Instructors should be in the habit of continually circling back in dialogue with students: is this mode of delivery working for you? How can I support your comprehension?

The third column of Table 58.1, “Execution and Assessment,” highlights the diverse ways that students will engage with our course material and with each other. In our networked world, we have more options for communication and engagement than ever. Instructors can minimize anxiety, and maximize access, by providing multiple (technologically aided) options for submitting assignments, assessing progress, and communicating with peers or the instructor. Assessment is a high-anxiety area for students and teachers alike; students want to do as well as possible, while teachers need to ensure academic integrity. Though this is a sticky issue, teachers should give serious thought to the ways they handle every assessment (Alegant 2013; Gawboy 2013). Is it necessary? Is it effective? Are my expectations clear? Upon further reflection, teachers may find that adjusting the design of exams (content, length, format, allotted time, physical space, media, etc.) benefits many learners.

So far, the UDL course design and execution principles that I have been advocating resonate strongly with cooperative and student-centered approaches to music pedagogy (Zbikowski and Long 1994; Duker, Gawboy, Hughes, and Shaffer 2015; Segall 2015).⁵ Music teachers will ideally negotiate UDL perspectives in dialogue with the extant and growing literature on music pedagogy, especially for aural skills, as this is often an area in which students struggle for many reasons (Karpinski 2000; Rifkin and Stoecker 2011). And yet, teachers will undoubtedly encounter new scenarios and new students, whose abilities and needs raise further questions. Teachers need to specifically plan for disabled bodies and minds.

Laurel Parson's (2015) essay on dyslexia in aural skills instruction and Stephanie Jensen-Moulton's (2009) essay on teaching music to a multiply disabled student are both full of extraordinary insights.⁶ Teachers of neurodiverse students will benefit from learning more about the numerous ways autistic students and those with intellectual disability engage with music (Kochavi 2009; Scotto 2009; Carlson 2016; Dell'Antonio and Grace 2016; Bakan 2018). Teachers of blind or visually impaired students will benefit from plenty of preparatory lead-time and the practical guidance laid out in several essays (Pacun 2009; Saslaw 2009; Johnson 2009, 2016). Increasingly, students are struggling with mental illness such as depression or invisible illnesses, in which case, teachers can rely upon the insights of several books and essays (Attinello 2009; Bassler 2009; Deaville 2009; Jackson 2009; Price 2011; Cheng 2016).

Vulnerability and Disclosure

As we think about how to organically plan for and include these types of diverse learners in our class, we can begin with the accommodations statement on the syllabus – the contract you share with the students. If your university allows you to augment their boilerplate, do so. Let the statement be written in first person, be warm in tone, and be collaborative in design. Explicitly discuss your commitment to access on the first day of class. My statement shows that I work within both accommodation and access frameworks:

I am committed to making our classroom as accessible as possible for all students. I would be happy to talk with any of you who have an Accommodation Determination Letter from the Office of Student Disability Services (<http://disabilities.uchicago.edu/> 5501 S. Ellis Ave.) We can speak individually (I respect your confidentiality and privacy). I am open to having a discussion about accommodations/access with the class as a whole if you prefer it. Also, if you do not officially have accommodations but would like to share things about your needs, preferences, or desires, I welcome that. While I actively move toward a paradigm of removing systemic barriers, I also see you each as individuals. Most importantly, I want to know what works for each of you, and also what is/is not working. Please know that the question of collective access and our classroom environment is an open, ongoing conversation.

As students approach you to discuss, you will have to bear in mind the power relationships of the kairotic teacher-student relationship. Moments when students ask for an accommodation – official or not – or share something about themselves and/or their learning style, are moments of high-stakes vulnerability. Students regularly report that professors disbelieve them, question their diagnosis, refuse to implement their official accommodations, or coach them to minimize the degree to which they use accommodations.⁷ Even though you are aiming toward maximum access and universally accessible design, you should never dissuade students from using their accommodations. And when students approach you with suggestions for course design and execution, try your best to adjust.

Likewise, students have differing attitudes toward privacy and confidentiality. Some students will want to keep a diagnosis private and speak with you only (perhaps minimally) about the accommodation. You should never require disclosure, but some students will want to share about their diagnosis, invisible illnesses, personality, life challenges, or learning style, any of which might impact their success in the course. You should meet both styles with compassion and non-judgment. One thing to be constantly aware of is that any moment of negotiation or disclosure is risky for students, especially when they've been regularly disbelieved and questioned by other professors and gatekeepers. Be mindful of your own attitude, and do what you can to make this less of an emotional expenditure for your students.

When it comes to accommodations, the canonical advice is to send students to the campus disability services office. This office exists for several reasons: to keep students' medical and diagnostic information private, to determine what accommodations are needed, to protect faculty from being in the position of adjudicating disabilities and accommodations, and to meet the legal mandate for non-discrimination under the ADA. Bearing these many important functions in mind, however, we should also acknowledge that students' experiences with the student disability services (SDS) office vary widely from campus to campus. Sometimes, the staff advocates for students and forms strong partnerships with faculty. You should, of course, strive for this collaborative relationship with the staff in the SDS office on your campus. Staff may need your help adapting general accommodations such as "double allotted time on exams" to the new and particular difficulties of the musicianship classroom. But as with the variability in faculty reactions, students who use the SDS office sometimes report being disbelieved, turned away, shamed, or not properly serviced. Sometimes SDS offices are under-funded and increasingly overwhelmed, or do not seem to be primarily focused on student advocacy. Students also face barriers to obtaining official diagnoses, including lack of (timely) access to resources, family wealth, (lack of) insurance, shame, and more.

Given this inconsistency in the SDS experience from campus to campus, it may be tempting to advocate for a direct-request paradigm, in which students speak directly with teachers about access needs. Let's recognize that this puts students in the extraordinarily vulnerable position of having to disclose disabilities to a wide range of faculty responses and – given faculty resistance – perhaps going without needed accommodations. Let's also recognize that faculty are vulnerable when they are adjudicators. Faculty are not in a position to judge a student's disability and its consequences. Furthermore, faculty (especially contingent, young, female, and/or people of color) do not have an endless supply of authority, time, and resources to meet a rolling series of requests.

These complicated dynamics of vulnerability and disclosure leave us in tension between accommodations and access. I do encourage you to hear information from any student, but I also encourage you to develop a cooperative relationship with the SDS office. Regularly soliciting feedback from students – anonymous or not, and in multiple formats – is a good way to make sure accessibility stays an open conversation in your classroom. In addition to planning ahead for diverse learners, teachers should save some emotional energy for adjustments, knowing they will be necessary. The best solution to these tensions is to work collaboratively, partnering with students to look for multiple solutions and to create a productive, rich, and supportive classroom environment.

Toward Some Best Practices

UDL principles emphasize multiplicity, and for good reason. Table 58.2 sketches several best practices that instructors can consider and adopt.⁸ I have said a lot about accommodations and communication in the previous section. Furthermore, it is always a best practice to make all information available in multiple formats. This means providing course material and supports

Table 58.2 Summary of best practices for accessible course design and execution

Accommodations	Work cooperatively with students and the campus student disability office. Implement official accommodations with willingness and discretion. Minimize the degree to which disclosures and adjudications are necessary. Build flexibility and feedback loops into the system.
Communication	Welcome students to tell you about their preferences and needs. Allow students to communicate with you, and with each other, in multiple formats. Provide a clear plan for the course, and for each class period. Having expectations reduces anxiety.
Materials and Content	Make course material available in multiple formats: text, video, audio, web-based. Perform OCR on .pdf documents. Describe slides; play score examples in sound. Provide visual supports for sonic information.
Flexible Execution	Offer multiple ways for students to demonstrate participation and engagement. Offer choices for assignments, especially large projects. Allow students to demonstrate mastery in multiple modes wherever possible. Carefully consider time-based barriers, including attendance policies, due-dates, and timed assessments. Reconsider assessment strategies. Offer options that students can use at their own discretion. Save some of your own emotional energy for readjustment and revision, knowing changes will be necessary.

in text, in video, in web-based media, and in sound. A simple but important practice is to make sure all text materials are searchable and readable by screen readers. Sometimes .pdf documents (for instance, scanned book chapters) are recognized as a single image, rendering the text unsearchable and unreadable by digital technology. Optical character recognition (OCR) deconstructs the image and recognizes characters and words, so the text becomes searchable and screen-readable. Instructors can search the web for low-cost or free software that makes documents OCR-compatible.

During the class time, instructors should be in the habit of describing all slides and information written on the board. All score examples should always be played in sound. Likewise, instructors should provide visual supports for audio material. When students with sensory differences are a part of class, instructors should circle back frequently: is this accessible to you? Am I remembering to describe what I write on the board, and play the notation I'm showing? How can I improve?

Finally, instructors can make their classes most accessible to students when they design flexible participation, discussion, and evaluation scenarios. Students should have multiple ways to demonstrate participation and engagement – written, oral, and digitally mediated. Students respond positively to choice and options. Particularly when it comes to large assignments and projects, students do best when they are allowed to showcase their strengths. Instructors should ask: can I allow students to use their primary instrument? Can I allow students to apply their own creativity in some way? Can I allow students to demonstrate mastery in this task in sound as well as in writing (and vice versa)? It may not always be possible to reconfigure every assignment and assessment, but instructors should make a concerted effort to expand their ideas of what counts for comprehension and mastery. When teachers ask themselves, “what is essential about this task?” they may find more options and more flexibility.

I personally find time-based barriers (such as attendance policies, due-dates, and timed assessments) to be some of the hardest to remove. As such, I favor offering students a few exceptions that

they can use flexibly, at their own discretion. These may include dropping a lowest assignment, a chance to revise and resubmit one assignment, one or more unexcused absences for self care, take-home exams when practical, or (when I know several students are struggling) the occasional deadline adjustment offered to the whole class. In my own experience, students respond well to even small changes that allow them autonomy and ownership.

Conclusion

By paying careful attention to the different kinds of challenges students face in our classrooms, teachers can design for access rather than relying solely on accommodations. We can build our classroom environments to welcome students with many kinds of differences. Though it may not be possible to anticipate every challenge in advance, we can make great gains in allowing students to be agents of their own learning. As we design for access, nothing substitutes for an open dialogue between teacher and student: how is this working for you? What do you need? How can I improve? When teachers are engaged in an ongoing conversation about access, they are willing to constantly re-evaluate and continue learning. This is how we invest in the success of each student.

Notes

- 1 I am grateful to my co-teacher and colleague Michele Friedner and the 26 undergraduate students enrolled in our “Disability and Design” course in Spring 2019 for productive dialogue, critique, and guidance. Several students made crucial contributions, including Jaire Byers, Henry Connolly, Sabrina Gill, Katya Gozman, Danielle Lee, Jihana Mendu, Eli Owens, and Natalie Tedards. I have also learned much from discussing this issue with Ailsa Lipscombe and Stephanie Ban.
- 2 In primary and secondary public schools, individualized educational programs (IEPs) give students with diagnosed disabilities access to accommodations and special education. Free and appropriate public education for students with disabilities is guaranteed through high school, but not college, by the Individuals with Disabilities Education Act (IDEA 1974/1990/2004). Universities are bound by non-discrimination law including the ADA 1990/2009) and Section 504 of the Rehabilitation Act (1973). For more on disability law in higher education, see www.higheredcompliance.org/resources/disabilities-accommodations.html (accessed November 15, 2018).
- 3 Much of this material is also freely available on the web: <http://udlguidelines.cast.org> (accessed November 15, 2018).
- 4 Several guides to backwards course design are freely available on the web, for example, from Vanderbilt University: <https://cft.vanderbilt.edu/guides-sub-pages/understanding-by-design/> and from Indiana University: <https://citl.indiana.edu/teaching-resources/course-design/backward-course-design/> and from Stanford University: <https://teachingcommons.stanford.edu/resources/course-preparation-resources/course-design-aids/designing-courses-backwards> (accessed November 17, 2018).
- 5 See also several articles in the *Engaging Students* volumes, all freely available on the web: <http://flipcamp.org/engagingstudents/> (accessed November 16, 2018).
- 6 In fact, an entire issue of the open-access journal *Music Theory Online* (15/3–4, August 2009), from which many of the following citations are drawn, is dedicated to issues surrounding disability. www.mtosmt.org/issues/mto.09.15.3/toc.15.3.html (accessed November 16, 2018).
- 7 For instance, see Alyssa, “Disabled in Grad School: How ‘Out’ Do I Need to Be?” *Inside Higher Ed Blog* www.insidehighered.com/blogs/gradhacker/disabled-grad-school-when-you-tell-me-disability-story (accessed November 17, 2018).
- 8 Dolmage 2015 has a useful appendix of practical “places to start” in implementing UDL: <http://dsq-sds.org/article/downloadSuppFile/4632/700> (accessed May 5, 2019).

Bibliography

- Alegant, Brian. 2013. “Making the Grade (Or Not): Thoughts on Self-Design, Self-Assessment, and Self-Grading.” *Engaging Students: Essays in Music Pedagogy*. Volume 1. (accessed November 15, 2018) <http://flipcamp.org/engagingstudents/alegantSawhill.html>

- Attinello, Paul. 2009. "Time, Work, and Chronic Illness." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018). www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.attinello.html
- Bakan, Michael. 2018. *Speaking for Ourselves: Conversations on Life, Music, and Autism*. New York: Oxford University Press.
- Bassler, Samantha. 2009. "'But You Don't Look Sick': A Survey of Scholars with Chronic, Invisible Illnesses and Their Advice on How to Live and Work in Academia." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018). www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.bassler.html
- Burgstahler, Sheryl E. and Rebecca C. Cory, eds. 2008. *Universal Design in Higher Education: From Principles to Practice*. Cambridge, MA: Harvard Education Press.
- Carlson, Licia. 2016. "Music, Intellectual Disability, and Human Flourishing." In *Oxford Handbook of Music and Disability Studies*, edited by Blake Howe, Stephanie Jensen-Moulton, Neil Lerner, and Joseph Straus, 37–53. New York: Oxford University Press.
- Cheng, William. 2016. *Just Vibrations: The Purpose of Sounding Good*. Ann Arbor: University of Michigan Press.
- Davis, Lennard. 2017. "Introduction: Disability, Normality, and Power." In *The Disability Studies Reader*, 5th ed., edited by Lennard Davis, 1–16. New York: Routledge.
- Deaville, James. 2009. "More than the Blues: Clinical Depression, Invisible Disabilities, and Academe." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018). www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.deaville.html
- Dell'Antonio, Andrew, and Elizabeth J. Grace. 2016. "No Musicking about Us without Us!" *Journal of the American Musicological Society* 69/2: 553–558.
- Dolmage, Jay Timothy. 2017. *Academic Ableism: Disability and Higher Education*. Ann Arbor: University of Michigan Press. Open Access: doi: 10.3998/mpub.9708722
- . 2015. "Universal Design: Places to Start." *Disability Studies Quarterly* 35/2. doi: 10.18061/dsq.v35i2.4632
- Duker, Philip, Anna Gawboy, Bryn Hughes, and Kris P. Shaffer. 2015. "Hacking the Music Theory Classroom: Standards-Based Grading, Just-in-Time Teaching, and the Inverted Class." *Music Theory Online* 21/1 (March) (accessed November 15, 2018) www.mtosmt.org/issues/mto.15.21.1/mto.15.21.1.duker_gawboy_hughes_shaffer.html
- Gawboy, Anna. 2013. "On Standards and Assessment." *Engaging Students: Essays in Music Pedagogy*. Volume 1. (accessed November 15, 2018) <http://flipcamp.org/engagingstudents/gawboy.html>
- Hamraie, Aimi. 2017. *Building Access: Universal Design and the Politics of Disability*. Minneapolis: University of Minnesota Press.
- Howe, Blake. 2015. "Disabling Music Performance." In *Oxford Handbook of Music and Disability Studies*, edited by Blake Howe, Stephanie Jensen-Moulton, Neil Lerner, and Joseph Straus, 191–210. New York: Oxford University Press.
- Jackson, Timothy. 2009. "Escaping from a Black Hole: Facing Depression in Academia." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018). www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.jackson.html
- Jensen-Moulton, Stephanie. 2009. "Music Fundamentals: Three Classes with Daniel Thrush." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018). www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.jensen-moulton.html
- Johnson, Shersten. 2016. "Understanding is Seeing: Music Analysis and Blindness." In *Oxford Handbook of Music and Disability Studies*, edited by Blake Howe, Stephanie Jensen-Moulton, Neil Lerner, and Joseph Straus, 131–154. New York: Oxford University Press.
- . 2009. "Notational Systems and Conceptualizing Music: A Case Study of Print and Braille Notation." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018). www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.johnson.html
- Kafer, Alison. 2016. "Un/Safe Disclosures: Scenes of Disability and Trauma." *Journal of Literary and Cultural Disability Studies* 10/1: 1–20.
- Karpinski, Gary S. 2000. *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians*. New York: Oxford University Press.
- Kochavi, Jon. 2009. "How Do You Hear That? Autism, Blindness, and Teaching Music Theory." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018). www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.kochavi.html
- Meyer, Anne, David H. Rose, and David Gordon. 2014. *Universal Design for Learning: Theory and Practice*. Wakefield, MA: CAST Publishing.
- Pacun, David. 2009. "Reflections on Some Recommendations for Visually Impaired Students." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018) www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.pacun.html

- Parsons, Laurel. 2015. "Dyslexia and Post-Secondary Aural Skills Instruction." *Music Theory Online* 21/4 (December) (accessed November 15, 2018) www.mtosmt.org/issues/mto.15.21.4/mto.15.21.4.parsons.html
- Price, Margaret. 2011. *Mad at School: Rhetorics of Mental Disability and Academic Life*. Ann Arbor: University of Michigan Press.
- Quaglia, Bruce. 2015. "Planning for Student Variability: Universal Design for Learning in the Music Theory Classroom and Curriculum" *Music Theory Online* 21/1 (March) (accessed November 15, 2018) www.mtosmt.org/issues/mto.15.21.1/mto.15.21.1.quaglia.html
- Rifkin, Deborah and Philip Stoecker. 2011. "A Revised Taxonomy for Music Learning." *Journal of Music Theory Pedagogy* 25 (accessed November 15, 2018) <https://jmt.p.appstate.edu/revised-taxonomy-music-learning>
- Saslaw, Janna. 2009. "'Teaching Blind': Methods for Teaching Music Theory to Visually Impaired Students." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018) www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.saslaw.html
- Scotto, Ciro. 2009. "The Symbiosis of Disability." *Music Theory Online* 15/3–4 (August). (accessed November 16, 2018) www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.scotto.html
- Segall, Christopher. 2015. "You, Y'all, We: A Framework for Cooperative Learning." *Engaging Students: Essays in Music Pedagogy*. Volume 3. (accessed November 16, 2018) <http://flipcamp.org/engagingstudents3/essays/segall.html>
- Straus, Joseph. 2009. *Extraordinary Measures: Disability in Music*. New York: Oxford University Press.
- Williamson, Bess. 2019. *Accessible America: A History of Disability and Design*. New York: New York University Press.
- Zbikowski, Lawrence M. and Charles K. Long. 1994. "Cooperative Learning in the Music Theory Classroom." *Journal of Music Theory Pedagogy* 8: 135–157.

59

MUSIC ANALYSIS AND ACCESSIBILITY IN THE MUSIC THEORY CLASSROOM

Shersten Johnson

Topic: Accessible analysis in a unit on fugues.

Goal: These lesson plans build on the traditional learning outcomes of a unit on fugues (see details below) with an eye toward including greater accessibility of material for students with a variety of learning preferences, more options for student responses to the material, and more affective (and thus intrinsically motivating) engagement with the subject.

Background: This unit assumes that students have studied diatonic harmony, melodic and harmonic sequences, tonicization and modulation, phrase elements and cadences, and small forms such as binary and ternary.

Expanding the Sensorium of Understanding

Part of the challenge of trying to understand how music works is that somehow one has to capture the sound-imagery – essentially the vibrations of air molecules – in order to measure, divide, and compare its components. Because of this ephemeral nature, musicians typically rely on annotating printed scores or creating a diagram or chart summary of the sound-image, which allows the analyst to consider relationships and patterns outside the pressures of real-time performance. While the intention is to reduce out musical detail, and while diagrams can often be extremely helpful in this regard, they are primarily visual and thus monomodal. They draw on our deeply ingrained notions that “seeing is understanding.” But, needless to say, overdependence on visual representations of this type can disable a curriculum by limiting accessibility for some students (e.g. those with low vision, aural or kinesthetic learners, and those whose musical experience is based on oral rather than written tradition).

Of course, analysis can be accomplished in a variety of auditory ways (and to be sure we do these kinds of things in our theory classes every day) via live or recorded performances, playing reductions at the keyboard, and helping our students cultivate inner and long-range hearing. Where auditory means of analysis start to slip is in analyzing larger and more multi-faceted pieces (like fugues), when complexity forces the use of a diagram to grasp the whole of the piece.

An effort to broaden the accessibility of music analysis in general, and the unit on fugues in particular, can benefit from borrowing principles from Universal Design for Learning (UDL), which call for employing multiple means of representation, expression, and engagement in order to enrich learning for all students. For an introduction to UDL, please see the links in the Supplemental Materials to online websites that provide background information.

The following lesson plans propose some alternate ways to explore specific concepts through a variety of modalities of understanding that address learner variability.

Multiple Means of Engagement: Why Study Fugues?

I find it valuable to begin by considering learner attentiveness and motivation. What is the hook that will interest students in unpacking the intricacies of fugal process, a topic which, frankly, can seem quite arcane? Readers of this chapter will have many excellent answers to this question. One idea I explore is why other musicians have gotten hooked on this topic in the past. I begin by briefly contextualizing the practice historically, letting students know that throughout much of the Common Practice Era, successfully composing a fugue was a badge of honor for musicians, in part due to the heady calculations needed to make the counterpoint work well. Owing to its very complexity, a fugue was an opportunity to showcase finely honed composition skills, and I liken that to a performer showing off his or her abilities in a virtuosic passage. In addition, I point out that writing a fugue is an exercise in musical logic, one that can be satisfying in the way solving a puzzle is. It is a fundamentally creative act, maximizing the possibilities of a small idea in artistic ways. In short, many musicians get hooked by the sheer musical geekiness and craft of it all. The act of analyzing, in turn, helps us recognize the artistry of that craft.

To bring it forward, I provide examples of living composers who have been drawn to writing a fugue, perhaps on the hook of a pop song or other well-known melody. Please see the Supplemental Materials for links to some examples. I point out that while many students may not spend a lot of time with fugues in their musical lives, learning outcomes from this unit will aid other pursuits in addition to supporting their work in other courses. Finally, I also take a few minutes to preview the choices of responses students will have in the unit's assessments (e.g. performing, writing, composing, etc.) that can appeal to their strengths and preferred means of learning, and that will hopefully allow them to make their work relevant to their own musical lives. These strategies align with UDL principles that recommend providing options for recruiting interest, by optimizing individual choice and autonomy as well as relevance, value, and authenticity.

Multiple Means of Representation: Subjects and Such

I now turn to a discussion of lesson plans that focus on the more local, short-range learning objectives of the fugue unit, which I would describe this way:

- Learners will understand the harmonic and rhythmic features that characterize a viable subject, as well as why some call for real versus tonal answers. Learners will further be able to model a fugue subject and answer it at the dominant.
- Learners will be able to develop a subject with stylistically appropriate contrapuntal techniques.

The standard approach to these local objectives features short examples of fugue openings, perhaps in a workbook format as homework, with questions that guide students to examine counterpoint, identify real and tonal answers, and observe relations between subject and countersubject. Again, this format takes as a given that seeing is understanding, especially if students choose not to listen to the recordings, which happens too often, unfortunately!

In order to focus on local features of fugue construction in an alternative way, we improvise in class simple, five- or six-note motives or subjects and choose one on which to build an exposition. This activity necessitates exploring the characteristics of a good subject, how to establish a key,

and what features call for tonal or real answers. For example, we begin with a few notes from the tonic triad followed by a few notes from the dominant triad and finish on an ending note (either *do* or *mi*). We also discuss the rhythmic and metric features that foster the smooth entrance of another voice like placing the ending note on the same metrically strong or weak position as the entry. We practice transposing the subject to the dominant, and we take notice of the differences between subjects that begin with an obvious leap from *do* to *sol* (or vice versa) with those that do not, so we can decide if the subject calls for a real or tonal answer. As an intermediate step, I ask students to imagine an answer upon hearing a subject played in order to build audiation. Similarly, a student leader can improvise a subject and the class can sing the answer. With a simple enough subject, the whole exposition can be sung without resorting to notation, but of course moving to notation is a logical next step, and can prepare students for composing their own fugues, if that is an eventual goal.

Having agreed on a subject, learners then try their hands at developing it by singing and notating various permutations: a transposition, an augmentation or diminution, a fragment in sequence, an inversion, and so on. Generating local events of a fugue in this way will serve to facilitate the reverse process of analytical reduction later, and thus builds fluency with graduated levels of support for practice and performance, as UDL guidelines suggest.

To bridge the gap between local concerns and full pieces, we learn to sing a simple fugue as a class. Though conceived for keyboard, some of J.K. Fischer's fugues, such as the F Major for example, are brief, tuneful, abounding with repetition, and quite singable. Once learned, these fugues provide a basis of comparison for studying the more complex fugues based on them.

In conjunction with these improvisation and performance pursuits, activities that draw on physical motion can help make sense of this music. I find conducting along gives students an understanding about the length of subject and any alterations thereof. It can also help students keep track of the process of musical time while tracing left-to-right progress in an analytical diagram during listening. Using contour-mapping gestures while singing helps students with initial study of subject development like inversion and sequence.

The keyboard is also a common kinesthetic tool for aiding understanding. Most of our students in the second year of theory can play the subject and countersubject and answer of simple fugues, and we can get through a short, open-score fugue with four hands at the piano. UDL guidelines suggest providing multiple options for physical action, largely to accommodate students with mobility impairment, but in the spirit of universality, I find the physical activities benefit many if not all students. I even ask students to engage their motor imagery by imagining playing or singing a fugue subject on their own instrument or voice and then imagine the feel of playing or singing the answer to draw on their own preferred methods of engaging with music.

Multiple Means of Representation: Conceptualizing Fugal Process

Let's turn to a discussion of lesson plans with learning objectives that focus on piece-wide techniques and organization. I would describe these objectives this way:

- Learners will be able to conceptualize the organization, imitative layering, and tonal processes characteristic of a fugue as well as how the constituent parts are constructed and relate to each other.
- Learners will gain fluency in identifying important musical ideas in a complex texture, in order to listen actively for such features in performance situations, and to respond with sensitive interpretations.
- Learners will be able to apply concepts to new situations and will be able to evaluate and contrast the features of fugues.

The typical approach to achieving these objectives is to direct students to listen and follow along in a score and then create a diagram or table of the musical structure indicating number of measures and functions of parts (subject, answer type, countersubject, etc.). This approach has its strengths. A table or diagram can map onto musical notation with left-to-right representation of musical time and vertical representation of high-to-low voices. It provides a snapshot of what happens over the course of the excerpt in a concise overview. Visual learners often do well with this approach. This method also has its weaknesses, though. Some students have trouble matching elements of a diagram or columns of information to what they hear. Students with low vision and aural learners could struggle with this method. In order to complement this approach with multiple means of representation, I have found the following classroom activities to be helpful to a variety of students. They also resonate with the UDL guidelines that suggest offering ways of customizing the display of information and providing alternatives for both auditory and visual information.

In my experience, some students struggle with deciphering complex polyphony in a keyboard score, especially with regard to the middle voices, which can migrate from hand to hand and staff to staff. I provide students with the score of the exposition of a keyboard fugue, and then customize the display by transcribing it on the classroom computer in open score. This format separates the fugal voices and clears up confusion between tenor and alto. Watching the cursor during playback can further help students in their initial tracking of voices by foregrounding the passage of time. To aurally highlight the separate lines, I assign different instrumental timbres to each voice. Woodwinds are a good option, but this activity also offers a chance for some fun by orchestrating for, say, pitched percussion, or any of the (sometimes goofy) combinations of instruments suggested by students. Listening to this version while following the keyboard score can be ear-opening.

Students can then quickly practice mapping voice parts from keyboard to open score on their own or with partners by first highlighting the voices on the keyboard score with colored pencils and then transferring each line to a separate staff. Supplying students with fugues based on short subjects ensures that this doesn't need to be overly labor-intensive. While these scores still present information in a visual way, the act of creating an annotated score can be illuminating for students and can satisfy the learner with a preference for tactile/kinesthetic activities. (Pulling out the colored pencils usually gets a cheer, too!)

Adding in examples of fugues with lyrics can reach those students who are much more used to vocal music and who might be more secure with linguistic processing. Glenn Gould's "So You Want to Write a Fugue" is where I like to start. There is a version of it on YouTube with an animated score, and another with an animated text stream that is color-coded by voice. Please see the Supplemental Materials for links. It begins as a rather straight-forward example of a fugue, but with the added benefit of a linguistic "hook" that can help students mark their places in real time with voices that enter in the most salient order, from bottom to top. In addition, unlike, say, a fugue from Bach or Verdi, it is in English, which is the first language of most, if not all of my students. (Bach and Verdi can be added in at a later stage.) Gould's fugue-about-fugues is complete with string quartet accompaniment featuring interludes that quote other music that students might know and be able to identify. It makes light-hearted fun of the rules and "the theory that you've read" and tosses about many venerated terms (inversion, augmentation, stretto, etc.). This focus on terminology provides a chance to digress into unpacking these terms and their etymologies. Ultimately, Gould's spoof devolves into a nonsensical ending.

Scrolling scores and analyses of the sort available on YouTube, like those of Stephen Malinowsky, can provide multimodal, time-sensitive scaffolding that can improve upon static notation and tables. They go a long way to clarify relations in pitch and time. These alternate displays align with UDL guidelines that suggest illustration of concepts through multiple media (text, symbols, diagrams, and videos). Please see the Supplemental Materials for links to some examples.

Music analyses also often assume the shape of linguistic arguments, which can take the form of reflections or essays and which by their nature can be typed, dictated, or handwritten, and translated into other languages or even Braille as needed for various learners. When it comes to complex music, understanding does not need to rely solely on seeing, but it often benefits from literacy. In addition, observations about the ways in which fugues resemble language and conversation can help students gain access to their structure. Learners can appreciate the rhythmic give and take of subject and countersubject, the interruptive nature of strettos, and the rhetorical nature of the form.

Once the local and global features of paradigmatic fugue models are addressed, learners extend their explorations to new situations, such as a fugue with more voices or a double exposition. I do this by asking them to assess other fugues, even some that are not such good examples including the one I wrote when I was an undergrad that, while not awful, features a very square subject and overly long sequences. Eventually, I add examples that aren't fugues, say, those that begin with points of imitation but do not continue the fugal process. These activities align with UDL guidelines that suggest highlighting patterns and critical features, big ideas, and relationships.

Multiple Means of Action and Expression: Demonstrating Learning

Assessments in the fugue unit can be adapted from low- to high-stakes and can feature in-class and out-of-class work. I have mentioned a number of low-stakes in-class responses in connection with the learning objectives earlier. For larger assessments, I have experimented with engaging learners' intrinsic motivation by letting them choose from a variety of options like those in the following list. Depending on time constraints, students with different learning preferences and abilities can even work collaboratively to combine the types of projects listed below.

- Realize a keyboard fugue in digital music notation in open score showing separate musical lines, using a different instrumental color for playback of each line, representing various features with different colors.
- Create an animation with icons and/or color mappings of constituent parts. This task can be done fairly easily in PowerPoint and students may have ideas for other software options.
- Overdub a recording of a fugue with a play-by-play analysis. This assessment allows students who are most comfortable with linguistic analysis to demonstrate their knowledge.
- Write an essay that describes and analyzes the fugal structure. A narrative can be the most familiar means of demonstrating knowledge for some students.
- Write a text fugue on the model of Gould's "So You Want to Write a Fugue." In this way, students relate the function of linguistic phrases to musical structure.
- Compose a fugue on the scale of one of J.K. Fischer's short fugues, either in notation or a digital audio workstation like GarageBand. This activity allows a student who enjoys composition to exercise their technique in a prescribed way while demonstrating their understanding of fugues.
- Perform a mini lecture recital. Learners perform a fugue on their own instrument (perhaps in combination with other musicians) and discuss the analysis before playing. This assessment combines linguistic elements with the ability to demonstrate interpretations informed by analytical information.

Offering a variety of options for responses appeals to an assortment of learners and can heighten learning via affective engagement and intrinsic motivation. Moreover, a variety of projects presented in class cross-pollinates understanding.

In conclusion, rereading the process of analysis through the lens of learner variability enriches learning by contextualizing the biases of print notation and diagrams, focusing on listening, and grounding activities in physical and intuitive music-making. In addition to an expanded sensorium of understanding beyond the visual, music analytical tasks benefit from being more collaborative and can be more linguistically based, involving narratives in addition to the traditional tables or diagrams. In fact, I would propose that music analysis, an activity that is often geared toward prescriptive norms, is an ideal place where norms can be questioned. Finally, the more we expand the sensorium of understanding, the richer become our conceptualizations of how music works. The ideas here can be adapted easily to other topics covered in music theory classes.

ACCOMMODATING DYSLLEXIA IN AURAL SKILLS

A Case Study

Charlene Romano

Topic: Accommodating dyslexia in the ear-training classroom.

Goal: Instructors will be able to utilize ideas and resources from this chapter to better accommodate students with dyslexia and other visual and sensory processing disorders in their own classroom.

Background: No prior experience working with dyslexic individuals, or any special knowledge of dyslexia or other sensory processing disorders, is required.

Background Information

In the fall of 2017, I returned to academia after a six-year hiatus. I am a performing flutist with an active private studio. While I had taught most of the written theory courses in the curriculum at my institution, I had never taught ear training, with the exception of a few sight-singing courses and some dictation in our Introduction to Written Theory course.

I was immediately presented with the challenge of accommodating a dyslexic student in my Ear Training I classroom. This course parallels our Diatonic Harmony course, and these two courses are designed to be taken in the student's second undergraduate semester, unless the student needs a remediation course prior to beginning our theory sequence.

Students must earn a C in this course in order to enroll in the next ear-training course in the sequence. They are granted a maximum of three attempts at the course. This student had withdrawn from the course in her first attempt with another instructor. In her second attempt, with me, she earned a D. After we stumbled upon a very useful accommodation in this attempt, she earned a C- in her third attempt at the course. While that was not enough to earn her the needed prerequisite for Ear Training 2, it was enough to gain the attention of her program coordinator and our administrators, and she was granted an additional attempt at the course, in a one-on-one environment. In this fourth attempt, the student earned a B, enough to allow her to continue her ear-training and other studies at my institution. What follows is a case study of what worked and did not work for this student, hereafter referred to as "DP". DP generously agreed to allow me to publish this case study.

Initially, DP and I faced a chasm of a communication gap. I was still getting my feet wet teaching ear training, and DP was still learning how to advocate for herself. Throughout her childhood, her mother had been the primary advocate for her accommodations, but DP had learned from her

mother's tutelage, and felt ready to advocate for herself as an adult college student. The problem was that DP was so baffled by ear training, and so confused and upset, she had no idea what accommodations to ask for, and I had no idea what to do to help her.

We initially used the same accommodations she had used in her first attempt. She had downloaded the sight-singing text so that she could digitally enlarge it on her tablet. This worked reasonably well until the examples became more complex and lengthy. Her sight-singing assessment grades dropped steadily as the semester continued. For one informal assessment, I removed the solfège requirement and asked the student to sing on a neutral syllable of her choosing. The student performed more poorly on a neutral syllable than with solfège.

DP took her first dictation test from recorded examples in our testing center. This was not a successful accommodation. She became so anxious that she rushed through the test, finishing well before her classmates who were taking the test with me in the classroom. I had DP take the next test with the class. She failed this one too. Finally, I offered to meet with her and give her the third test one-on-one. I played examples, or portions of examples, *à la carte*, with or without repetition, as she preferred. This accommodation also failed.

Getting to Know the Student

Throughout DP's second attempt at the course (her first with me), I took the time to get to know her. This is, of course, important with all students, but it is particularly important with students with disabilities. Dyslexia, like many disabilities and illnesses, is invisible, and therefore easy to ignore or misunderstand. Dyslexia presents itself differently in every individual. In order to accommodate my student, I had to get to know her as an individual, and familiarize myself with how her disability affects her, and what special skills she has developed in order to function in other classrooms, in her applied lessons, and in her daily life routine.

Through a series of conversations and emails, I learned the following about DP:

- She is liked and respected by her peers, and is a good listener in social situations. One of our composition students wrote a set of songs for her.
- She has a clear, beautiful voice. She nailed every pitch on her Junior recital, which I attended.
- She learns her vocal repertoire by reading enlarged images and by listening.
- She has developed an extraordinary ability to memorize.
- She has extraordinarily sensitive hearing. "I can be in one end of our very long house, and can easily hear my parents speaking softly at the other end of the house."
- In her early childhood development, she nearly skipped the crawling phase. She performed what her mother called an "Army crawl," using her elbows and not her hands, before quickly learning to walk.
- She initially enrolled as a Music Education major, but has changed her major to Music Therapy.
- Her goal is to teach classroom teachers to accommodate "people like me."
- Her dyslexia presents itself as part of a sensory processing disorder. Rather than scanning ahead one measure at a time, as most of the rest of us do, her brain attempts to take in the entire page at once. Specifically, her symptoms manifest as:
 - A blurry page, much like a digital image loading on a slow connection.
 - Fuzzy notes that occasionally shift horizontally or vertically depending on the font and her level of eye fatigue.
 - Difficulty writing rhythmic patterns in standard notation, though she hears them correctly.

- An association of colors with various elements of a dictation example. (She notates solfège in red, rhythmic shorthand in green, and standard notation in blue. I asked her why and she replied, “It just seems right.”)
- It is possible that she hears absolute pitches more easily than relationships between pitches or functions of pitches. This is not yet fully determined. I have noted when working with her one-on-one that she struggles more if I transpose a melody written in C clef than if I perform it in the original key.

In addition, taking the time to get to know DP resulted in a bond of mutual respect and trust. If this bond had not existed, I believe she would not have felt comfortable making the request she made in the final sight-singing test of our first course attempt together, and we would never have discovered the best way to accommodate her dyslexia.

Moment of Discovery

By the time the final sight-singing test of our first attempt at the course (her second) occurred, DP and I both knew that she would not meet the C minimum to enroll in Ear Training 2. Perhaps it was the knowledge that there were no stakes riding on this test that allowed us both to relax and experiment.

When DP arrived in the small classroom, she sat in a desk about 8 to 10 feet away from the whiteboard, and began to look over the arpeggiation series I had written there. I stopped her and told her she could sit or stand anywhere in the room to perform the example. She shyly asked if she could stand right in front of the board. Standing at the board, the student tapped each pitch with her left hand as she sang it, and blocked the rest of the exercise from her view with her right hand. In this way, each measure was about the size of a page (the usual amount she takes in at one glance), and her brain was unable to process any information beyond her right (blocking) hand. DP sang the arpeggiation correctly.

We were both stunned, and we decided to try the rest of the test this way.

I notated the melodic sight-reading example (usually given to her on an enlarged handout) on the board. DP sang the example using the same method she used for the arpeggiation. By tapping each note, DP is able to focus on one pitch at time, and I, as the observer, am able to tell whether she is simply missing a pitch, or accidentally skipping a note as she gradually moves her right (blocking) hand horizontally along the staff, revealing new pitches. DP has told me that tapping the notes also makes the experience of sight-reading tactile, which also helps her focus. In addition, touching each notehead seems to have the effect of “planting” the notes in place for her. When she sight-reads this way, the notes are far less prone to visually shift. DP says, “It’s like my hand is an anchor pulling the notes back in place.”

We of course had to try this with rhythmic sight-reading. The spur of the moment solution was to have DP tap each rhythmic value in time, using the tip of a dry erase marker. This way DP is able to reproduce the rhythm while still making contact with each notehead. Her right hand is still free to serve as her “blocking hand.”

DP’s score on this sight-singing test was 15 points higher than the highest prior sight-singing test grade, and was a letter grade of B. This was DP’s first passing grade on a sight-singing test in our curriculum.

DP and I both lobbied for her to have a one-on-one for her third attempt, but our administration did not grant that request, instead tasking the student and me with determining how to incorporate this useful accommodation into the classroom environment.

Initially, DP was given use of a small white staff board and an easel for transcription assignments and in-class dictation exercises. This proved to be cumbersome for DP to carry to and from

class, and not large enough as our transcription assignments and exercises became more complex and lengthy. Often, DP would use a whiteboard in a classroom to complete her online transcription assignments, but classrooms were not always available for her use, and this often presented the inconvenience of making an extra trip to the music building at night.

We ultimately settled on a set of portable lap boards with music staves printed on them. These can be placed side-to-side for melodic and rhythmic dictations, or stacked vertically for longer exercises or multi-voice examples. DP placed the boards across music stands to use for practice dictations in class, and after completing transcription assignments on them at home, she would place them on the floor and take a photograph of her completed assignment, which she would then email me. I would then grade the assignment from the photograph and give comments via email. I also made clear to DP, as I do to all my students, that I am available outside class to discuss questions on homework that are not addressed in class.

Both DP's singing and listening skills improved somewhat in this third attempt. She continued to struggle with rhythmic reading and dictation. On her final dictation test in this course attempt, I discovered that DP's rhythmic shorthand, which she describes as a hybrid between what she was taught in her music education classes and her own preferences, is absolutely correct, even for complex rhythmic examples. The issue was not that she was hearing rhythms incorrectly, but that she was not translating these rhythms to correct standard notation, and was unable to read them properly. (This later proved to be easily corrected.) The student earned a C- in this course attempt, much closer than ever before to the needed C minimum to continue in the course sequence.

Our administration then granted DP a fourth attempt, in a one-on-one environment with me as the instructor. I was given a bit of room to alter the curriculum, so in addition to creating charts and exercises to help the student bridge her rhythmic notation gap, I added prepared singing examples to her curriculum. The Ear Training 1 assessments at my institution are entirely sight-singing based. If I were tasked with assessing a completely non-sighted individual, I would need to completely alter this assessment method. Therefore, I decided that a slight alteration, adding one prepared melody per test, and alternating weekly quizzes between prepared and sight-read examples, was a reasonable accommodation for a dyslexic individual. Further, this experience has confirmed my belief in the strength of an ear-training curriculum in which students are assessed on prepared examples as well as sight-reading. Not only does this approach accommodate visually impaired students, but the accommodation offers a learning experience for all students that is unique from the sight-reading one.

As a teacher, this experience has inspired me in other ways as well. I will hereafter spend even more time building relationships with all students, and give special attention to building relationships with students who need accommodation. These students must feel that they are trusted and considered trustworthy, that they are safe and valued, and that their instructors will take the time to truly understand their disabilities and accommodate them, *even if their disabilities are invisible*.

To that end, I will advocate sooner and more assertively for one-on-one accommodations if classroom accommodations are failing, and use this experience, with my student's permission, as an example.

Accommodating the Dyslexic Student in a One-on-One Environment

The one-on-one environment was a dream-come-true accommodation scenario for DP. We were able to freely explore what worked and did not work for her, and our rate of progress was much faster. In Week 3 of the semester, DP told me, "For the first time ever, I feel confident in this course." Each session brought a new revelation, and DP quickly grew more confident and fluent in singing, hearing, and transcription.

Early in the semester, I approached the topic of rhythmic dictation and reading with DP. I informed her that I had observed in her final dictation assessment of the previous semester that her rhythmic shorthand was correct, but her standard notation was not. DP asked if she could add her shorthand to a set of rhythmic reading examples, as a means of bridging the gap between her notation and her hearing and performing. After adding her shorthand, she performed each example correctly, with a fluency and confidence I had not yet seen from her. Rhythmic reading and transcription had previously been her biggest hurdle. We applied this method to all rhythmic reading examples, and DP shifted gradually from using shorthand to reading standard rhythmic notation more fluently. DP also weaned herself from using the shorthand in her rhythmic transcription examples.

In melodic transcription practice, DP and I discovered that she has what she and I called “Interval Dyslexia.” In the middle of a melodic dictation, DP sometimes transcribes an interval in the wrong direction. For example, if the melody moves from C5 to G5, an ascent of a Perfect fifth, DP would sometimes transcribe this interval as a DESCENDING P5, incorrectly transcribing the note as an F4. In effect, this created a “modulation,” and DP would often continue in her new, incorrect key for quite some time, until another “Interval Dyslexia Moment” would shift her tonal center yet again.

I learned to watch for these moments when working with DP. I stopped her when I saw them, and asked her to listen to that segment of the transcription exercise again. If she made this mistake on an online transcription assignment, we would rewrite it together. I also spent a great deal of time having her sing melodies using solfège against a drone of tonic and dominant on the keyboard. Like many students, she was relying too heavily on hearing intervals between pitches in an exercise, instead of hearing these pitches in relation to the tonal center. Her melodic transcription skills improved.

When we completed melodic dictation exercises together, I often played very short examples, sometimes only one measure in length, for DP to sing back to me before she wrote. This also helped us to notice, and quell, her “interval dyslexia” before she cemented it mentally by transcribing it on the board.

DP excelled at harmonic dictation. The melodic lines in our harmonic dictation exercises were simpler, and the construct of a harmonic dictation left much less room for her “interval dyslexia” to throw her off course. In SATB transcriptions, I would carefully watch as she transcribed first the bass and then the soprano line, alerting her immediately to any instances of “interval dyslexia.” She became much stronger at hearing chord progressions and qualities, and was able to fill in inner voices using these clues and her part-writing skills. DP is quite competent at part-writing now.

We continued to sing using moveable-*do* solfège in our one-on-one sessions. Often, I would ask DP to transcribe an example from her tablet to the board. I would then correct any incorrectly transcribed notes, and DP would sing using her “tap and shield” method we developed in class.

It is interesting to note that during the semester, DP continued to tap notes as she read melodies and rhythms, but eventually stopped using her other hand as a shield. She had trained herself to focus only one measure ahead.

I also learned that DP performs better earlier in the day. Her eyes tire easily, and the notes in front of her then become much blurrier and more difficult to read. We scheduled our time together for mornings as much as possible. When we needed to meet in the afternoon, I learned to spend that time on simple ear-training exercises like interval, chord quality, and progression recognition, or listening to an example of real music and discussing what was happening. DP began exploring the Beatles’ catalogue that semester, and Beatles tunes provided fodder for some good discussions about chord progressions, form, and composers’ intent.

Outcome

DP earned a B for the semester. She is now enrolled in Ear Training 2, in a one-on-one course, with a trusted colleague as her instructor. While I could have continued to work with DP in a one-on-one environment, and would have enjoyed the experience immensely, I felt strongly that it was important to prove that these accommodations are simple enough that any good instructor could use them. As of Week 2, her current instructor happily reports the following:

(DP) is now using rhythmic solmization AND conducting in simple and compound meter. She doesn't even need to tap anymore. She's nailing rhythm. And at sight too. You should've seen her light up today. I have never seen a student learn that quickly... I can see her confidence growing...

DP now has the necessary tools to grow as a musician, and is clearly catching up quickly.

Recommended Questions to Ask a Dyslexic Student Seeking Assistance and Accommodation

Over the past year, in learning more about DP and her disability, I have asked myself on countless occasions, "Why didn't I ask her that in the beginning?" Information is the key to discovering the specific accommodations which will help the student in front of you. DP and I have found that, once it was clear I was open to dialogue, she was often able to develop her *own accommodations*. With that in mind, and with DP's assistance, I have compiled the following list of questions to ask a dyslexic student in order to determine appropriate accommodations:

- When were you diagnosed?
- How were you diagnosed?
- Do you have any other diagnoses you would like to share?
- Do you have any special abilities, like extraordinary hearing or absolute pitch?
- Does it bother you to hear transposed performances of written examples you are viewing?
- Are you sensitive to light, sounds, or touch?
- What does your dyslexia look like? Are the notes blurry? Do they "move"? Do they shift vertically, horizontally, or both?
- If you touch a note on the page, is it less likely to "move"?
- Do any of these symptoms increase with your fatigue? (If your eyes are tired, are the notes blurrier? Are you more likely to skip notes?)
- Do you prefer to read on a particular color paper? On a digital device? Does the color of the print or marker matter?
- Does font size matter?
- Do you think that reading off the whiteboard would be easier or more difficult for you?
- What is your anxiety level about this class right now?
- Is transcription easier if you can sing along with the pitches as you transcribe?
- Are you able to transcribe without audiating the pitches?
- Is there anything else I should know?
- Do you have suggestions as to what I can do to help?

Recommended Resources

Much of my experimentation with this dyslexic student was based on my experience as the mother of a son with a mild Asperger's diagnosis. Asperger's is a type of sensory processing disorder, and

I believe my experiences living with and raising a son with Asperger's positively informed my work with this student.

Because not all students with dyslexia manifest their disability in the same way, it would be impossible to offer a one-size-fits-all solution to the challenge of accommodating dyslexia in the classroom. Instead, I offer below a short list of resources, sometimes with commentary, for the instructor who is interested in expanding their understanding of dyslexia and sensory processing disorders.

Bibliography

- Hudson, Roxanne F., Leslie High, and Stephanie Al Otaiba. 2019. "Dyslexia and the Brain: What Does Current Research Tell Us?." LD Online. ldonline.org/article/14907
- Parsons, Laurel. 2015. "Dyslexia and Post-Secondary Aural Skills Instruction." *Music Theory Online*, no. 4 (December). doi: 10.30535/mto.21.4.2
- Robison, John Elder. 2009. *Look Me in the Eye: My Life with Asperger's*. Ebury.
- [This book has been my primary resource in understanding my Aspergian son. It is a raw and frank memoir, and is easy to read. Robison provides a unique look inside an Aspergian brain, and provides insight into understanding any sensory processing disorder from the inside out.]
- Saslaw, Janna. 2009. "Teaching Blind: Methods for Teaching Music Theory to Visually Impaired Students." *Music Theory Online*, no. 3 (August) mtosmt.org/issues/mto.09.15.3/mto.09.15.3.saslaw.html

61

WRITING EXAMS COOPERATIVELY WITH STUDENTS

Jan Miyake

Topic: Engaging students in their learning by having them write the exam.

Goals: Lead a reflective review of topics learned, prepare students to study well, and draft an exam.

Background: Regular attendance in class.

I believe students learn better when their learning environments are predictable. Whether the predictability concerns the organization of an assignment, the presence of a small quiz every Friday, the warm ups at the beginning of class, or an email received every Monday, setting up routines helps keep students on track with their learning. It follows, then, that I believe timed in-class exams are a poor moment to spring surprises on students. Many of them are already experiencing enough nerves to negatively impact their performance and/or study with an unhelpful franticness. Giving students the opportunity to impact the exam structure and content both lowers anxiety and helps them focus their studying.

This activity is spread over two class periods. The first class period replaces a standard review class and all 50 minutes are devoted to it. The second class period needs about ten minutes. I have executed this plan in four different music theory or aural skills courses aimed at first- and second-year students. The class sizes ranged between 14 and 18 students.

I start the first class with a meta-question: why give exams? Students often perceive exams as things-that-must-happen-to-get-a-grade-on-a-report-card and have rarely thought about it from a pedagogical point of view. Starting with the premise that exams provide an opportunity to assess different kinds of knowledge, we move into a discussion about the difference between skills and content. I forward the roughly formed idea that skills are what I want them to remember in ten years whereas content is the stuff we use to practice those skills. For example, hearing the approach of an important dominant harmony is a skill; chromatic predominants such as augmented sixth chords and applied dominants to V are the content we learn to practice that skill. This is my way of telling them that remembering the difference between German, French, and Italian augmented sixth chords may feel like the point of the unit, but it is really about understanding the harmonic rhetoric that allows one to *feel* the approach of an important moment.

We then look back at our assignments for the unit being tested and make a two-column list of skills and content. The content column fills up fast because I organize my class by content (e.g. two weeks on V⁷ and its inversions, one week on ii⁷ and its inversions). But students tend to get tripped up on identifying the skills. This realization provides a perfect segue to the next part of the lesson plan.

When faced with a foundational question like “What skills are we learning?” I reflect and organize my thoughts using a 2001 revision of Bloom’s Taxonomy subtitled “A Taxonomy for Teaching, Learning, and Assessment” (Figure 61.1). I find students respond to this organization of verbs with curiosity and fascination. They will need time to process and brainstorm, and this work often succeeds in small groups. After giving them about five minutes to come up with a few skills they think we have been working on, we reconvene and I populate the column of skills with their ideas. Not all of their ideas resonate with me as skills that should be tested on the exam, but as we discuss what to test from the list, the set of skills that do appeal to me as exam topics usually rise to the top.

Equipped with our list of content and skills, we organize the exam into small parts defined by the skill being tested and write directions for each of those parts. Returning to Bloom’s taxonomy sparks creativity because each type of cognitive process comes with a set of verbs. Students come up with a variety of ideas for assessing what they should know how to do and also how to measure their ownership of that knowledge. Often their ideas break the mold of traditional exam questions in efficient ways. For example, to assess whether or not the test-taker understands harmonic syntax (defined in our class as idiomatic ways for Baroque and Classical era composers to order their chords), students once proposed a “scramble.” For a scramble, I take a long progression of Roman numerals from a piece we studied and mix up the chords. The test question then asks the student to reassemble the chords in a way that makes sense for our collective standards of harmonic syntax.

As we draft directions for each skill we test, we also discuss grading. There are two boundaries that structure this conversation. First, what kinds of answers are good enough to earn passing credit. Evaluating what differentiates a response from being not quite good enough and just barely good enough allows students to reflect on the essential aspect of a skill. For example, in the harmonic syntax scramble exercise described earlier, students might realize that a good-enough answer might omit some chords but still consistently demonstrate understanding that harmonies tend to follow a tonic–predominant–dominant pattern of harmonic function. Likewise, answers that place predominants after dominants demonstrate a failure to understand the type of harmonic syntax we studied in class. The second boundary that provides good space for reflection is the distinction between having an answer that is good enough and having an answer that is

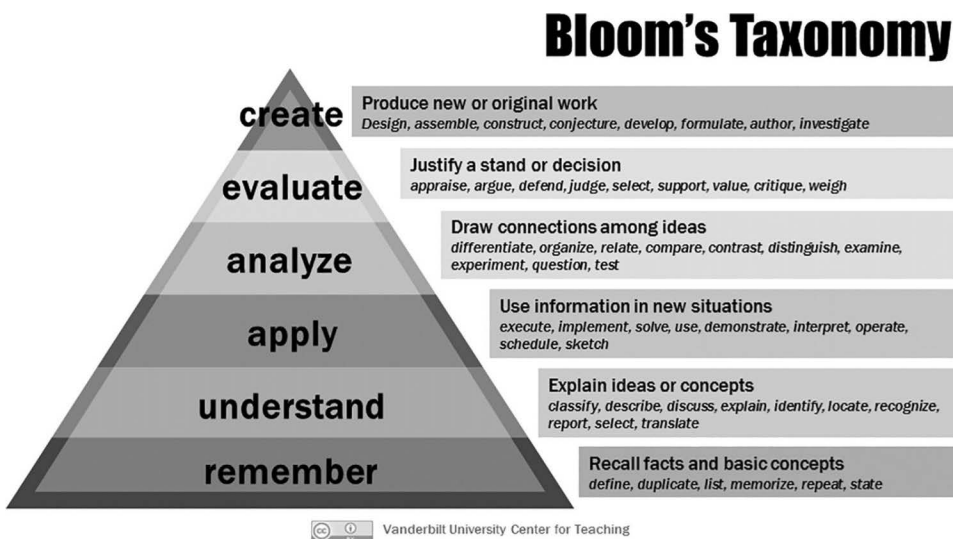


Figure 61.1 “Bloom’s Taxonomy” by Vanderbilt University Center for Teaching is licensed under CC Attribution. Desaturated from original.

wonderful. This important distinction reveals for students the difference between surface-level understanding and ownership of a skill. Given these two boundaries, I typically grade exam sections with a rubric of plus (+), pass (P), or no pass (nP). All passes on each section are scaled to an overall exam grade of B-, all plusses to an A, and the lowest combination of P/nP that I can bear assigning a passing grade to earn a D. I space out the other options between those benchmarks. Anything lower than the threshold for a D earns an F, again spaced out evenly from 0 to the highest F percentage possible.

Our final step for this class period involves assessing whether or not there is enough time to complete the exam they drafted and how much each part of the exam should be worth. This latter conversation has been the most revealing to me. Returning to the idea of “what do you think you need to remember in ten years?” students use their answers to decide which parts of the exam should be worth the most. This moment is also an important time to remind them that the goal is *not* to write an exam they can easily get a great grade on. Rather, it is about writing an exam that reflects the values and learning we do together. The weighting they suggest for each part of the exam prioritizes their value of the skill rather than the difficulty of the skill. This nuance challenged how I tended to value exam questions, which was to more highly value harder things. While one might argue that this entire activity is propelled by student-centered learning, I would claim that it also values the creation of knowledge over doing hard things. Both are good in my pedagogical philosophy, and having both – instead of just one – is my favorite thing about the exercise.

After class, I draft the exam, including practice content for each section. I post the draft on the course management site and bring copies to the next class. I also complete the draft exam, timing myself working at a careful, steady pace. My practice is to assume students will take three times as long as me to complete the exam. Since my classes are 50 minutes, my litmus test for the appropriate length of an exam is being able to complete it myself in 15 minutes.

During the second class meeting, I bring a digital copy of the draft exam and we spend 5–10 minutes tweaking directions, possibly re-proportioning the points, and making changes to the length. Sometimes I need to bring a significant change to the class for discussion with a rationale for why I think that change is important. This situation happens most commonly when the exam was an inappropriate length and I see a strategic way to shorten it. Hypothetically, I might need to suggest how to lengthen it, but that has yet to be an issue. By the end of our discussion, we commit to each part’s wording of the directions, the number of questions, and overall weight of the exam.

Before the exam, if I make any changes to directions, number of questions, or overall weight, I email students about the changes. I remind them that active studying is significantly more effective than passive studying; they should work the practice exam multiple times and change the content if they want more practice. At this point, I also – by agreement with the students – change the specific content of each section without changing the directions or general type of content. For example, I might ask for a French augmented sixth chord instead of a German augmented sixth, or I might change the key signatures and/or outer voice counterpoint. In other words, the framework of the exam remains fixed while the small details change.

When students show up to the exam, they know exactly what to expect. They are able to sit down and get to work without needing to ask a lot of questions. This process alleviates a lot of test anxiety, encourages students to reflect on the learning done in the course, and provides a space to talk about the difference between content and skills.

Further Thoughts

Part of writing an exam involves choosing what kinds of cognitive processes and which dimensions of knowledge to assess. Since this revised Bloom’s taxonomy was released in 2001, my values

Knowledge Dimensions	Cognitive Dimensions					
	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge	List	Summarize	Classify	Order	Check	Generate
Conceptual Knowledge	Describe	Interpret	Model	Explain	Assess	Assemble
Procedural Knowledge	Reproduce	Clarify	Execute	Integrate	Critique	Design
Meta-Cognitive Knowledge	Identify	Predict	Use	Deconstruct	Reflect	Compose

Figure 61.2 Bloom’s revised taxonomy model.

have been impacted by students’ access to the internet and their facility in finding answers (“ask Google”). While a level of fluency in recalling information without the use of an electronic device is definitely a worthy goal, asking students to demonstrate that skill on an exam usually results in creating short-term knowledge – stuff they will forget as soon as they stop using it because they crammed for the exam. More important, the ease with which students can use technology to recall basic information allows me to shift the pedagogical weight away from basic cognitive processes (remember) to deeper ones such as ranking what is important (evaluate), constructing common patterns (apply), and investigating how different styles of music treat chords and voice-leading, if at all (create).

All that being said, an in-class timed closed book exam isn’t the right time to dwell on Bloom’s highest levels of knowledge (the far right and bottom areas of the chart shown in Figure 61.2); that is a great space for projects. Rather, it is a time to assess the fluency students have with skills our curriculum has deemed important: navigating diatonic and chromatic spaces through correct chord spelling, Bach-style voice-leading and harmonic syntax, common forms, and cadential identification. Given the time limit, focusing on Bloom’s three most basic levels of cognitive processes – remembering, understanding, and applying – to generate verbs that allow us to assess knowledge helps to break the mold of traditional exam questions.

Other Considerations

Multiple sections of the same course: We create one exam for all. Typically, students in different sections end up valuing the same skills in similar ways. In the time between the first and second class periods, I choose which set of directions and priorities to go with for each variance the different sections have. I explain the rationale behind my choice and entertain pushback.

Aural Skills exams: For these exams, my litmus test for length is moot. Since each part of this exam has content delivered by me (or me playing a recording), the amount of time it takes me to finish the exam is not important. Rather, it’s the amount of time it takes me to deliver the exam.

Accommodations (extra time): Many, but definitely not all, students who receive extra time on exams find they don’t need it. If their need for extra time is affected by differences in how they process directions, this exercise alleviates that difference because everyone has access to the directions ahead of time.

Larger Classes: If your larger class is accustomed to volunteering answers and being active participants, I think this format will still work. Other options could include providing the list of content and skills to the students, asking students to form small groups, and then assigning a skill to each group. Each group then brainstorms a test question that can be shared with the class. After collecting all the ideas, draft an exam to re-share with the class during the next meeting.

Impact on grades: Much to my surprise, after I implemented this process, I learned that the average grade on my exams did not change despite expecting the grades to be better. Rather than be disappointed, I saw this outcome as positive because it signaled to me that my worst fear was unfounded: I was not spoon-feeding my students the path to a good grade.

WHAT SHOULD AN UNDERGRADUATE MUSIC THEORY CURRICULUM TEACH? (AND, ALAS, WHAT MOST OF THE TIME WE DON'T)

Justin London

A Symptom of the Problem

In most conservatories and schools of music, one or more courses of graduate theory review (aka “GTR”) is a staple of the music theory department’s course offerings. In a survey of 16 music programs, I found that on average over 1/3 of entering masters and doctoral students require one or more review courses in basic harmony, analysis, and/or aural skills (see Table 62.1). GTR is such an important part of the theory curriculum that there is a viable market for a specialized textbook dedicated to these courses (Laitz & Bartlette’s *Graduate Review of Tonal Harmony*, Oxford University Press 2009 – note its emphasis).

The students pursuing graduate study in composition, music education, and performance are (or were) our very best music students as undergraduates. In order to continue their studies they had to meet rigorous standards as musicians, and they are highly invested in a professional music career. If anyone should have mastered and integrated the content covered in the foundational courses in music theory, it should be these students.

The 36% theory failure rate for incoming graduate students is a damning indictment of the traditional undergraduate theory curriculum. The very presence of GTR belies the claims regarding the relevance and efficacy of the standard undergraduate music theory curriculum: on the whole it is neither relevant nor helpful to most of the students who take it (the exception being those students who decide to become music theorists). If the undergraduate theory curriculum were as useful as music theorists often claim, then its lessons would be firmly integrated into the students’ other academic and (especially) musical activities. But what goes on in the undergraduate music theory classroom is far removed from those activities, as the typical curriculum:

- Ignores the student’s musical instrument (unless they are a pianist or singer), as everything is either sung or done at the keyboard;
- Ignores the student’s musical background, whether she performs non-Western music, jazz and popular music, and even specialized Western art music repertoire (e.g. organ music, Renaissance vocal music);

Table 62.1 Graduate Theory Review Enrollments

<i>Institution</i>	<i>% Taking GTR</i>	<i>Cohort size</i>
Eastman School of Music	37.8	124
Ohio State University	37.5	40
University of Michigan	15	ND
Indiana University	18	212
New England Conservatory	27.5	ND
Cleveland Institute of Music	50	ND
Northwestern University	23.5	95
Florida State University	22.5	ND
University of Houston	78.3	70
Peabody Conservatory	65	120
University of North Carolina at Greensboro	12	40
Cincinnati Conservatory of Music	35	ND
University of Massachusetts at Amherst	53.1	28
Average	36.6	

Data were collected from an e-mail survey kindly provided by relevant GTR course instructors, division heads, and/or graduate study chairs, conducted on September 18–22, 2018. Many current GTR course requirements have been reduced in recent years, with more graduate students able to do coursework and testing online, as well as with shifts in requirements. “ND” = no data.

- Ignores the student’s academic background, and thus does not leverage many useful resources students bring to the theory class (e.g. knowledge of mathematics or philosophy, experience in music production, work in other artistic media).
- Ignores the student’s educational goals: we usually require the same theory sequence for all undergraduate music students, regardless of their specialization or career plans.

To be clear, I am not advocating that we need to revise the undergraduate theory curriculum so students are better prepared to take our current graduate music theory entrance examinations. Rather, here I want to advocate for a more fundamental change in the orientation and content of the music theory curriculum, which, in turn, would require fundamental change in how we assess our students’ knowledge of music theory. But first, I will start with a brief overview of what we currently teach, or “what ‘music theory’ means to most music students past and present.

What We Teach: Harmony, Harmony, Harmony

The bedrock of almost all written music theory curricula is a graduated series of part-writing exercises starting with I and V, then systematically adding diatonic and then chromatic harmonies into longer and more complex sequences. This is clear from Murphy & McConville’s 2017 survey of topics covered in undergraduate theory curricula (see Table 62.2). Likewise, an examination of some of the major undergraduate theory textbooks shows the amount of time spent on diatonic and chromatic harmony exercises ranges from 45% (Turek) to 84% (Burstein & Straus), with an average of 62.6% (see Table 62.3; see also Kulma & Naxer 2014, for a similar assessment).¹

What is the goal of such a curriculum? A “better understanding of musical structure”? Hardly. Such curricula do not address topics such as melodic coherence, rhythmic complexity, timbral blending, the effects of tempo... the list could go on. At best, the theory sequence introduces the student to a set of techniques, terms, and templates that fit a small subset of Western art music practice. They have limited generalization to other musics, even those within the Western classical musical tradition, and many of the concepts we teach are based on dubious theoretical foundations (e.g. explaining consonance and dissonance simply in terms of interval ratios).

Table 62.2 Survey of Topics Covered in Undergraduate Theory Curricula

<i>Topic</i>	<i>Count</i>	<i>% of total</i>
Analysis	253	97.68
Seventh chords	251	96.91
Part-writing	248	95.75
Triads	246	94.98
Modulations	244	94.21
Intervals	243	93.82
Secondary/applied functions	243	93.82
Scales	239	92.28
Key signatures	239	92.28
Chromatic harmony	238	91.89
Analysis of small forms	225	86.87
Modes	216	83.40
Analysis of large forms	205	79.15
Twelve-tone and serial analysis	188	72.59
Counterpoint	182	70.27
Composition	180	69.50
Set theory	170	65.64
Contrapuntal analysis	134	51.74
Analytical papers/writing	122	47.10
Pop music analysis	118	45.56
Improvisation	68	26.25
Jazz theory	57	22.01
Schenkerian analysis	35	13.51
Neo-Riemannian theory	27	10.42
Other/Miscellaneous Topics	24	9.27
Intertextuality or narrativity	16	6.18
Nashville Number System	10	3.86
Transformational theory	10	3.86

A survey of 259 undergraduate theory programs indicates that a given topic is covered in their required core theory sequence (from Murphy & McConville 2017, Table IV-1).

Table 62.3 Undergraduate Theory Textbook Contents

<i>Author</i>	<i>Title</i>	<i>Pub. Date</i>	<i>Harmony</i>	<i>Form</i>	<i>Post Tonal</i>
Turek & McCarthy	<i>Theory for Today's Musician</i>	2018	45.5	22.7	23.9
Laitz	<i>The Complete Musician</i> *	2015	61.3	12.9	9.7
Clendinning & Marvin	<i>The Musicians Guide</i> *	2016	45.9	16.2	18.9
Kostka & Payne	<i>Tonal Harmony</i>	2017	63.0	4.8	16.4
Burstein & Straus	<i>Concise Introduction to Tonal Harmony</i> *	2016	83.8	8.1	0.0
Roig-Francoli	<i>Harmony in Context</i>	2010	76.1	6.4	4.3
Average			62.6	11.9	12.2

Data are percentages of total content calculated by page numbers or chapters (if calculated by chapters, this is noted with an asterisk at the book's title). Most titles have accompanying workbooks; these figures are drawn from the table of contents of the main text. N.B. "Harmony" here includes Roman numeral analysis, part-writing, and figured bass. Not included (on average about 15% of a book) are chapters on basic aspects of pitch and rhythm notation, interval classification, and phrase and cadence taxonomies.

To be sure, music theorists have been wrestling with the methods and goals of the music theory curriculum for some time, and not just in response to the College Music Society's 2014 manifesto on the undergraduate music curriculum (Sarath et al. 2014). Good efforts have been and are being made in terms of expanding the range of music covered in the undergraduate theory curriculum, including jazz and popular music, and works in the classical tradition that have previously

been under-represented such as those by women composers (for the former, see Capuzzo 2009, Biamonte 2010, Julien 2012, and Chenette 2018; for the latter, see Straus 1993, Parsons & Ravenscroft 2016). Murphy and McConville note that there have been significant increases in the number of theory programs that now include popular music and jazz in the curriculum relative to a previous survey conducted in 2000, as well as more time spent on improvisation and composition (Murphy & McConville 2017, p. 221).

Likewise, the e-journal *Engaging Students: Essays in Music Pedagogy* is dedicated not only to new topics, but also to new techniques, technologies, and approaches to the theory classroom (e.g. de Clercq 2013, Schubert 2014; see also Duker, Gawboy, Hughes & Shaffer 2015). Similar initiatives are on offer in recent issues of the *Journal of Music Theory Pedagogy*. Last but not least, there have been calls to include under-represented topics in the theory curriculum (e.g. Cohn 2015).

Nonetheless, even with these expanded musical horizons, and with new classroom techniques (flipped classrooms, break out sessions, peer learning, Just-in-Time teaching, using improvisation, and so forth), the emphasis on traditional harmonic theory and practice remains. Or in other words, at root it's still Harmony, Harmony, Harmony.

What We Ought to Teach

Music theory curricula are mostly developed in and for schools of music. And that, I would argue, is the main source of the problem. With all of the creative energies and ideas recently applied to the music theory classroom, the primary goal has been and remains instrumental/utilitarian: music theory is valuable because it (putatively) enhances one's ability as a practicing musician. Betsy Marvin puts the matter clearly: "A mission statement for the undergraduate theory core might go something like this: we aim to teach our students to think in music, to read, write, and perform music with understanding, and so to contribute to artistry." (Marvin 2012, p. 255). Marvin also asserts that the broad goals of the theory curriculum will be the same from institution to institution, though they may differ from school to school "in scope and emphasis" (ibid.).

Marvin's suggested mission statement makes sense in her institutional context, as she works at a highly selective school of music (Eastman). Her desiderata for the theory curriculum fit with the professional goals of her students – they are there, after all, to become better musicians. One might then ask how well a curriculum more or less exclusively focused on harmony achieves these goals. More broadly, however, this wholly utilitarian role for theory diminishes it; music theory is not valued in and of itself, nor is it valued in terms of its relation to other intellectual and/or creative endeavors. This puts music theory in a servile position relative to the "primary aims" of the music department or conservatory (but see the closing section below).

Rather than mastery of a bundle of dubiously relevant skills and terminology, the goal of the undergraduate classroom music curriculum should be twofold. First and foremost, it should respect and engage the student's intellect – it should encourage our students' *curiosity* about the music they hear and play. Second, it should enable them to be *articulate* about music, whether they are speaking to their students (as many will become teachers), their audiences, to public policy makers, to various grant agencies, or as advocates for their art. Thus, to modify Marvin's desiderata, it isn't just to "think *in* music" (as doubtless her students are able to do that the day they arrive at Eastman), but to "think *about* music," as well as other, related things. Thinking about (as opposed to thinking in) requires concepts, theories, frameworks, and other tools, tools that are developed, first and foremost, through writing.

Such an approach to the written music theory curriculum is liberating. It means that it is no longer a curriculum solely intended for the music major. Imagine the music theory classroom filled not only with budding musicians but also with computer scientists, philosophers, psychologists, painters, historians (to be sure, they would have to have minimal music reading skills – but only minimal ones). What kinds of projects could these students attempt, pooling their diverse

knowledge and skill sets? This would also give musician students plenty of opportunities to talk about their art with non-musicians. Last but not least, by opening the music theory classroom to a broader student market we have a means to increase the intellectual and cultural diversity of students who go to more advanced study in music theory, as the entrance requirements for most schools of music, with their emphasis on the mastery of canonical repertoire from the Western art music tradition, function as de facto exclusionary barriers to students who may be interested in music more resonant with other socio-cultural backgrounds, and whose interest in theory is not primarily driven by its association with applied study.

How can one do this? For starters, we can and should strive, as much as possible, to eliminate the use of technical terms and jargon, and instead model how to use plain English for descriptions of musical structure. This means less part-writing and far more writing. This will help our music majors become more articulate – practice makes perfect – as they are called upon in later life to speak to their own students, to their audiences, to schools and government, and to other arts institutions. Next, we could encourage our students to take other classes (perhaps even in lieu of another theory class) that allow them to leverage their musical understanding in other areas such as psychology, statistics, aesthetics, anthropology, and literature.

Most of all, one needs the courage and willingness to jettison anything and everything that doesn't help our students achieve the broader goals of encouraging musical curiosity and articulateness. How much part-writing do our students really need to learn? For the general music student, how much time, if any, should be spent on twelve-tone or set theory (n.b., see Buchler 2017 and Chapter 32 of this volume). Does “sonata theory” really help our students understand what is going on in Schubert's *Quartettsatz*, especially if they are not steeped in the norms of late eighteenth-century expanded binary forms? In other words, can we get by with a lot less harmony and traditional tonal analysis?

How to Teach What We Ought To Teach

If the goal is to stoke our students' curiosity about music, and develop their writing skills, then our teaching should involve lessons and strategies that encourage a playful engagement with musical materials and musical-theoretic questions, as well as ways for students to use their own words and narrative strategies to describe that engagement. Here are two examples of how one might do so.

For Good Writing About Music, Find a Good Writer (i.e. Not a Music Theorist)

Writing is central to the alternative music theory curriculum proposed here, and while the value of writing has often been noted (e.g. Baker & Chenette 2014), it is mostly as an alternative means to the same old end (i.e. how to write about a perfect authentic cadence). To find good writing about music, first find a good writer. There are, of course, excellent writers who have worked in more or less traditional music theory and analysis, from Donald Francis Tovey to Scott Burnham. But great writing about music abounds in literature, from George Bernard Shaw and E.M. Forster on classical music to Zadie Smith and Jennifer Eagan on Rock and Pop; perhaps we could encourage our music librarians to establish a collection of such books for the inspiration and edification of our students.

One writer who is especially noteworthy for his writing on music is Haruki Murakami. Indeed, on his website there is an entire section devoted to his musical references.² In a passage from his 2002 novel *Kafka on the Shore*, Murakami gives a vivid description of John Coltrane's rendition of “My Favorite Things” (357–358). There he notes the complexity and rapidity of Coltrane's soprano sax solo, how it wails and then peters out, how the pianist McCoy Tyner takes over with thick block chords, and then how Coltrane's repetition fragments and re-arranges Richard Rodgers' tune.³

One can find this very spot in the recording, and hear how Murakami's description fits – and one can also imagine how one would add a few more descriptive details (e.g. noting how McCoy Tyner's piano keeps incessantly bumping up against a B, but seemingly can go no further), as well as knowing when there are too many details (e.g. showing the difference between a vivid characterization of a passage versus a blow-by-blow account of passage, and where and when each is an appropriate mode of discourse). Murakami also describes the near-impossibility of trying to whistle along with Coltrane's solo, as the protagonist in the book tries to do. But one can try, and in so doing discover the essential contours of Coltrane's improvisation.

We can learn from what a master writer like Murakami does when describing music, and this can inspire both us and our students when we attempt to convey some essential aspects of a musical passage in prose. Most of all, Murakami's language beckons one to a heightened engagement with Coltrane's music – not a prescription as to what ought to hear in it, but as a more open-ended invitation as to the ways one might imaginatively navigate through Coltrane's sound world.

Effing the Ineffable: Using Real Data to Talk About Performance Nuance

Much has been said regarding what cannot be said about music:

- “Music expresses that which cannot be said and on which it is impossible to be silent.” – Victor Hugo
- “Music... can name the unnameable and communicate the unknowable.” – Leonard Bernstein
- “The thoughts which are expressed to me by music that I love are not too *indefinite* to be put into words, but on the contrary, too *definite*.” – Felix Mendelssohn

These attitudes and sentiments about musical meaning spill over into discussions and accounts of musical composition and performance, such that they too are considered to be ineffable. To be sure, these sentiments regarding the nuances of performance point out the limitations of musical notation – there is more going on with tempo, articulation, phrasing, and dynamics than is indicated in the score. But now there are ways to examine what is going on, and what is of structural significance, beyond what the score tells us. Digital (MIDI) instruments, audio recordings, and even motion capture technology are bottles that can capture the lightning of live music performance, and more recent advances in data collection and audio signal analysis allow us to study that lightning.

Starting with the foundational work of Alf Gabrielsson (Gabrielsson 1999 is a good summary), researchers have been able to obtain precise measurements of note durations and dynamic intensities. Performers' use of rubato, also referred to “expressive variation” or “structural microtiming,” has received a good deal of attention (see, e.g., Repp 1992/1998, Palmer 1997, Cook 2009, Cook 2013). In particular, these studies have shown how rubato can be quantified, compared, and even generated algorithmically. The key datum is to know the inter-onset interval (IOI) between each successive note in a melodic line. Armed with this information, one can track patterns of microtiming, and relate those patterns to other musical features such as melodic motion, harmonic change, textural density, and so forth.

Given the accessibility of digital pianos whose output can be recorded in MIDI, and/or digital audio editing software (like *Audacity* or *Amadeus*, as well as more elaborate digital audio workstation (DAW) software), it is relatively easy for our students to collect quantitative performance timing data. The musical source material can range from simple scales to advanced recital pieces. It is especially good if this is data from the students' own performances, though of course the study of recorded performances is also informative. An interesting exercise is for students to try and play without any rubato whatsoever; they will discover that they cannot. Once gathered, data can be analyzed in terms of descriptive statistics, including the extent of deviation from notated values,

its degree of variability, and so forth. When comparing different performances inferential statistics can be used, introducing the students to key concepts of statistical significance and hypothesis testing. Patterns of expressive timing can be related to metrical position and melodic contour, showing how performance nuance helps convey musical structure. Rubato is not an ineffable aspect of musical performance, but something that can be described and analyzed with precision, provided you have the right tools for the job.

The larger lesson here is that many aspects of musical structure and performance that lie beyond the score can be studied just as carefully the scores themselves, but to do so requires inter-disciplinary resources, here from acoustics, computer science, and statistics. Thinking about music requires knowing about more than just music.

A Broader Purpose for the Music Theory Curriculum

Most educational institutions, from conservatories to Tier I research universities, have mission statements that try to say more than just “we promote the research and creative activities of our faculty and try to educate our students,” though that is the gist of most of them. While these statements can often be full of admin-speak, they do try and articulate the broader goals of the institution as whole – in other words, what all that research, creativity, and teaching is for. Most notably, many articulate the aim of preparing students not just for a given profession, but to be civically engaged, embrace diversity, and equipped to navigate a rapidly changing world. Do we ever consider these institutional goals when thinking about the content of our theory curricula?

Here are a few examples, in some cases excerpted from longer statements:

To create a musical community that is rich with cultural, social, and intellectual diversity, to give the student an intensive professional education in his or her musical discipline, to prepare each student with a solid foundation in music and an expansive education in the liberal arts, and to develop an informed and inquiring mind that enables each graduate to engage the fundamental issues of his or her art and to become an effective cultural leader in society.

(Eastman)

Creating and discovering knowledge to improve the well-being of our state, regional, national and global communities; Educating students through a comprehensive array of distinguished academic programs; Preparing a diverse student body to be leaders and engaged citizens; Fostering a culture of engagement and service.

(Ohio State)

The university is dedicated to excellence in teaching, research, creative endeavors, and service. The university strives to instill the strength, skill, and character essential for lifelong learning, personal responsibility, and sustained achievement within a community that fosters free inquiry and embraces diversity.

(Florida State)

The Peabody Conservatory strives to provide aspiring artists with the skills to pursue professional careers in music as well as the education to become leaders in the cultural life of their communities.

Peabody Conservatory

The College’s aspiration is to prepare students to lead lives of learning that are broadly rewarding, professionally satisfying, and of service to humanity. Our academic goals focus on developing the

critical and creative talents of our students through broad and rigorous studies in the liberal arts disciplines, in order to develop the qualities of mind and character that prepare its graduates to become citizens and leaders, capable of finding inventive solutions to local, national, and global challenges.

(Carleton College)

The broader goals articulated in these mission statements are found in all types of institutions, from liberal arts colleges to specialized schools of music. Even Eastman, one of the finest music schools in the world, articulates that their goal is more than just producing great musicians. Their students, too, should be informed, inquisitive, and citizen stewards of the arts and cultures, wherever they may live.

The question, then, is how does the music theory curriculum contribute to these broader educational goals? A traditional music theory curriculum, with its emphasis on eighteenth-century European tonal harmony as described by nineteenth-century European music theorists, does little to fulfill these missions. Indeed, it may do just the opposite, given its cultural insularity and limited scope.

My hope in this chapter has been to suggest there are many ways our music theory curricula can fulfill these broader educational purposes, as we can confront our students with unfamiliar musics (and musical cultures), engage them in a wide range of problem solving activities, help them develop a healthy skepticism for received authority, show them how to weigh competing arguments, nurture their ability to articulate difficult and diffuse ideas in precise prose, and set their musical and intellectual curiosity alight. Indeed, among the many courses and activities our undergraduates will encounter in the course of pursuing a degree in music, few afford better opportunities to pursue these broader educational goals than music theory.

To move in this direction will require a broad consensus amongst members of the music theory community, given our entrenched commitment to the pedagogical status quo (i.e. harmony, harmony, harmony). It will entail significant changes to standard undergraduate course syllabi, and in the skill sets of those who would teach such classes. Instead of transposing Bach chorales at sight at the keyboard, or knowing the intricacies of third species counterpoint (valuable as those things are in certain contexts), theory instructors from TAs to professors may need to be able to design and conduct a corpus study, use a DAW to analyze musical timbre, or demonstrate the tuning systems used in Carnatic music. Most of all, we will need to become teachers of writing, showing our students how to use scores, databases, technology, and most of all, their ears in support of well-written accounts of musical structure.

To return to my opening gambit, what if graduate theory review were replaced by a graduate level “writing about music” course – one which would prepare them to produce materials for their teaching studios, grant applications, program notes and similar materials, and the like(?). This would be a very different course (with a very different barrier exam), but one that would engage and leverage our students’ activities as performers and prior academic activities to a far greater degree than at present. A curriculum constructed along the lines I have suggested, at both the undergraduate and graduate levels, will not only teach our students about melody, timbre, rhythm, form, and (yes) harmony. It will also develop the “critically informed musical minds” that the “future leaders of the cultural life of our communities” will need.

If not us, then who? And if not now, when?

Notes

- 1 We also of course spend a considerable amount of time on aural skills – solfège and dictation – and also keyboard harmony. Often these classes are entirely separate from written music theory. A separate discussion and assessment of the “musicianship skills” portion of the theory curriculum is beyond the scope

of this chapter, though insofar as they directly address aspects of music making practice (the ability to navigate multiple clefs, perform complex rhythms, aurally recognize patterns of repetition), they do not raise the same issues/concerns as the written theory curriculum, at least in terms of their practical value to the music performance major.

2 See www.harukimurakami.com/resource_category/playlist.

3 To avoid copyright entanglements, I have not provided a direct quote from Murakami's text.

Bibliography

- Bakker, Sara, & Timothy Chenette. (2014). Writing across the Music Theory Curriculum. *Engaging Students: Essays in Music Pedagogy* 2. <http://flipcamp.org/engagingstudents2/essays/bakkerchenette.html>
- Biamonte, Nicole, ed. (2010). *Pop Culture Pedagogy in the Music Classroom*. Scarecrow Press.
- Buchler, Michael. (2017). A Case against Teaching Set Classes to Undergraduates. *Engaging Students* 5. <http://flipcamp.org/engagingstudents5/essays/buchler.html>
- Capuzzo, Guy. (2009). A Pedagogical Approach to Minor Pentatonic Riffs in Rock Music. *Journal of Music Theory Pedagogy* 23: 39–55.
- Chenette, Timothy K. (2018). Incorporation Popular Music in Teaching: Ideas for the Non-Expert. *Journal of Music Theory Pedagogy* 31: 3–17.
- Cohn, Richard. (2015). Why We Don't Teach Meter, and Why We Should. *Journal of Music Theory Pedagogy Online* 29: 1–24.
- Cook, N. (2009). Methods for Analysing Recordings. In *The Cambridge Companion to Recorded Music*, eds. N. Cook, E. Clarke, D. Leech-Wilkinson, & J. Rink, Cambridge University Press, pp. 221–245.
- Cook, Nicholas. (2013). *Beyond the Score: Music as Performance*. Oxford University Press.
- de Clercq, Trevor. (2013). Towards a Flipped Aural Skills Classroom: Harnessing Recording Technology for Performance-Based Homework. *Engaging Students* 1. <http://flipcamp.org/engagingstudents/deClercq.html>.
- Duker, Philip, Gawboy, Anna; Hughes, Bryn; and Shaffer, Kris. (2015). Hacking the Theory Classroom: Standards-Based Grading, Just-in-Time Teaching, and the Inverted Class. *Music Theory Online* 21.1. www.mtosmt.org/issues/mto.15.21.1
- Gabrielsson, Alf. (1999). The Performance of Music. In *The Psychology of Music*, 2nd Edition, ed. D. Deutsch. Academic Press, pp. 501–602.
- Julien, Patricia. (2012). How to Write a Jazz Composition's Chord Progression. *Journal of Music Theory Pedagogy* 26: 29–59.
- Kulma, David, & Naxer, Meghan. (2014). Beyond Part Writing: Modernizing the Curriculum. *Engaging Students: Essays in Music Pedagogy*, 2. <http://flipcamp.org/engagingstudents2/essays/kulmaNaxer.html>
- Marvin, Elizabeth West. (2012). The Core Curriculum in Music Theory: Developments and Pedagogical Trends. *Journal of Music Theory Pedagogy* 26: 255–263.
- Murphy, Barbara, & McConville, Brendon. (2017). Music Theory Core Curriculum Survey: A 2017 Update. *Journal of Music Theory Pedagogy* 31: 177–229.
- Palmer, Caroline. (1997). Music Performance. *Annual Review of Psychology* 48: 115–138.
- Parsons, Laurel, & Ravenscroft, Brenda. (2016). *Analytical Essays on Music by Women Composers: Concert Music from 1960–2000*. Oxford University Press.
- Repp, Bruno. (1992/1998). Diversity and Commonality in Music Performance: An Analysis of Timing Microstructure in Schumann's "Träumerei" *The Journal of the Acoustical Society of America* 92, 2546 doi: 10.1121/1.404425
- Sarath, Ed., et al. (2014). Transforming Music Study from Its Foundations: A Manifesto for Progressive Change in the Undergraduate Preparation of Music Majors. *College Music Society*. www.music.org/pdfs/pubs/tfumm/TFUMM.pdf.
- Schubert, Peter. (2014). Teaching Music Analysis through Improvisation. *Engaging Students* 2. <http://flipcamp.org/engagingstudents2/essays/schubert.html>
- Straus, Joseph. (1993). *Music by Women for Study and Analysis*. Prentice Hall.

STRATEGIES FOR REVISING MUSIC CURRICULA FOR THE TWENTY-FIRST CENTURY

A Case Study

Deborah Rifkin

A Music Curriculum for the New Century

In recent years there has been a growing awareness of a need to update music curricula to better prepare musicians for the careers and needs of the twenty-first century (Klocko 1989; Blount 1990; Marcel 2007; Chattah et al. 2016; Myers 2016; Peters 2016; Snodgrass 2016). Specifically, there are growing demands for today's musicians to be entrepreneurially savvy, technologically adept, and cross-culturally responsive and inclusive. In addition, there is mounting interest to cultivate general creativity and integrative learning. While the new century requires new skills, there is a concomitant expectation that today's musicians be equally or even more adept at traditional areas of expertise, including technical skills required for artistic expression in performance, and general musicianship and analysis. With ever-expanding expectations, music degrees are notoriously credit heavy and time intensive. A critical question for music schools today is how to update a traditional music program such that it retains the excellence of time-honored musical development, while also providing skills to succeed in today's music world.

This chapter examines some challenges to curricular review, specifically for music programs, and describes a way forward based upon best practices of organizational change and collaborative communication. Using Ithaca College's School of Music's recent curricular review process as a case study, I describe our initial design of a curricular review process; ways that design failed to meet expected results; lessons learned from that first attempt; and successful revisions of the process that led not only to an adoption of an updated curriculum but also fostered a stronger sense of community and engagement between areas and departments. Although on paper the first process looked like a paragon of shared governance and followed ideals of organizational change, in practice it faltered because it misjudged institutional culture. As chair of faculty of the Ithaca College's School of Music (2014–2017) and lead facilitator of our curriculum review, there was a tremendous administrative learning curve to the process. In sharing my experiences, I hope not only to contribute to the national conversation about curriculum reform in music schools but also to help other faculty leaders build holistic, successful processes for change that consider the pragmatic structural issues, as well as the less formalized relational and cultural ones.

Challenges to Curriculum Revision

Although the necessity for reform is generally recognized, the means toward achieving it can be elusive. There are many challenges to revising curricula, not the least of which is a plethora of stakeholders with seemingly conflicting priorities and variable degrees of trust. Performance faculty, academic faculty, ensemble directors, and program directors all work toward common values and goals, but each constituent is most familiar with and expert at only their own slice of a music degree's experience. In addition, faculty don't generally develop new capacities at the rate that new skills are required for today's musicians. Many faculty have dedicated their careers to cultivating incredible expertise in the Western canon. When administrators, colleagues, and students promote skill sets and repertoires outside this canon, two polarized camps tend to emerge, both equally entrenched in their ideologies – traditionalists and reformers. Traditionalists prioritize the status quo and have less tolerance for taking a risk with current achievements and excellence in their music programs (e.g. "Don't throw the baby out with the bath water"). Reformers are more concerned with emerging needs and relevance to the new musical contexts students will find themselves in after graduation. Furthermore, while student turnover in an undergraduate institution cycles every four to six years, faculty in continuing positions (i.e. those with the most power and in the best position to update curriculum) tend to remain much longer. Consequently, the two populations can have very different cycles of change.

In addition to different comfort levels with change and specialized – sometimes incomplete – understanding of their own music programs, faculty face another challenge when revising curriculum: a lack of consensus on what critical terms actually mean. Terms like diversity, inclusion, improvisation, or creativity mean many things to many different people. For example, even if faculty are in broad, general agreement to increase diversity in their curriculum, they might have such different conceptions of what diversity means to make such a broad agreement moot. There can be no basis for communication without a common understanding of values. Accredited programs might look to the National Association of Schools of Music (NASM) for assistance defining values like diversity, which is what my school did. Section VIII.B.4 of NASM's 2017–2018 handbook describes a standard that relates to diversity:

Students must acquire basic knowledge of music histories and repertoires through the present time, including study and experience of musical language and achievement in addition to that of the primary culture encompassing the area of specialization.

(National Association of Schools of Music 2017)

NASM standards apply to a gloriously rich multiplicity of music programs, and consequently their standards must be inclusive and open to many different interpretations. In this case, my faculty had widely disparate understandings of many parts of this standard. For one, what is the *primary culture* encompassing the area of specialization? Is it the common-practice period of the Western canon, which seems like the presumed primary culture of our current curriculum? Some argued that European music from the eighteenth and nineteenth centuries is definitely *not* our students' primary culture. Ironically, study and experience of music by Bach, Beethoven, and Brahms could then be considered diverse because it was not the music our students were most conversant in when entering our programs. Our faculty also had many different understandings of how the words "study," "experience," and "achievement" could be interpreted in this standard. Consequently, a preliminary step of revising curriculum is to determine shared values and to work toward a common understanding of what they actually mean.

Revising curriculum is a slow, multi-year process; my dean tells me that he's never seen it done well in fewer than three years, and that five to six years is not an unusual time frame. If we worked in ideal communities that were not only scrupulously skilled in conflict resolution, but also had universally known and established policies and procedures as well as committees and schedules that functioned like well-oiled machines, then perhaps curriculum review would be a more nimble process. However, we rarely find ourselves in such an ideal community. One of the ancillary benefits of revising curriculum is that the community develops group skills; it is a process that demands holistic cooperation and compromise. Another factor affecting the timeline of curricular revision is the reality that faculty squeeze this challenging work into schedules that were already at capacity with their ordinary responsibilities in teaching, scholarship, and service. Having a realistic time line at the outset can help calibrate expectations and keep the workload manageable.

Stages to Institutional Change

As the lead facilitator of the curriculum review, I wanted to design a process that:

- Gave all constituents (faculty, students, and alumni) an opportunity for input.
- Enabled all who contributed ideas and opinions to feel that their voice had been heard and seriously considered.
- Ensured a transparent and fair mechanism for making decisions.
- Used time and labor efficiently.
- Resulted in an inspired curriculum that prepared our students well for their needs as musicians in the twenty-first century.
- Did not require more faculty lines. (The current positions could be re-imagined, but the budget for faculty salary could not increase significantly.)

At the outset, I was mindful not only of the need for the best end product – an innovative, adaptable curriculum – but also a process that would bring our community together. I was not part of this faculty the last time they had undertaken significant revision of all music degree programs and their core curricula. Nonetheless, I was keenly aware of scars and resentments that continued to fester from past curricular reviews, dating more than a decade ago, sometimes even two decades! I don't think my institution is unusual in this regard. When 70+ passionate experts work toward a collective goal, there will inevitably be differences of opinion, strong differences. Even if the best possible compromises are made and resources meted out fairly, it may not *feel* that way to everyone. Of course, one can't please everyone, but compromise can be accepted more readily if the community engages in the process and agrees with its premise and practice.

Like many faculty, my education and graduate training prepared me well for my responsibilities as a teacher and scholar but did not necessarily guide me to become a good administrator. Many faculty are elected or appointed to administrative service as a seemingly natural progression of one's mid-career path, despite the fact that our daily work doesn't as a matter of course build administrative or managerial skills or expertise. I was very fortunate to receive on-the-job mentoring from my administrators. As part of this mentoring I learned about the work of John Kotter, one of the most cited experts on institutional change and leadership. In his book, *Leading Change*, Kotter outlines eight steps for leading change (Kotter 2012). In designing our curricular revision process, I encouraged our Curriculum Team (the faculty leaders in our school) to consider Kotter's eight steps (Figure 63.1).

	Kotter's 8 Steps Towards Change
1	Establish a sense of urgency
2	Create a guiding coalition
3	Develop a change vision
4	Communicate the vision for buy-in
5	Empower broad-based action
6	Generate short-term wins
7	Never let up
8	Incorporate changes into culture

Figure 63.1 Kotter's eight steps toward leading change.

Establishing a Sense of Urgency

Establishing a sense of urgency was easy. Working at an expensive private college, one cannot remain unaware of national conversations and policies questioning the value and relevance of an undergraduate degree, particularly one in the arts. Especially as a teaching institution, our curriculum would always be central to our mission and values. Every conversation we have about admissions and the future of our school can be intimately connected to the excellence and relevance of our curriculum. As a precursor to any formal curricular review process, the dean and I facilitated several all-faculty conversations about how to engage and address the growing national skepticism about higher education generally, and music degrees specifically. Are our students gaining the skills and experiences they need for the careers and paths they enter after graduation? How do you respond to parents, prospective students, alumni, and potential donors who ask questions about the relevance of our programs? For some, the external motivation of an upcoming NASM review helped create a sense of urgency. This was an ideal time to consider whether our curriculum was meeting our current needs.

In addition to large-group discussions involving all faculty at once, we instituted small-group discussions. Our 75 full-time faculty were divided into groups of three to eight to discuss central questions about shared values and curriculum. The purpose of these small groups was to generate collective excitement and investment in the process, as well as ideas and options that would be stored in an online repository. Some faculty – particular untenured, contingent, people of color, and women – may not have felt comfortable contributing in a large public forum, and these smaller groups (with an option to write directly and anonymously into the online repository) enabled another means for capturing their essential input. Indeed, some of the less privileged in our rank delivered essential aspects of our curriculum (a topic for another article) and we needed their participation in our review process. Every few weeks, the small groups were sent questions and asked to respond. Although eventually we would need to think about limitations and resource constraints, in this beginning stage groups were encouraged to think expansively about positive additions or changes. This helped set a tone of optimism and potential. Some sample questions for the small groups were:

- Study our mission and vision statements. Are they complete? Are we doing what we say we are going to do?
- What do you value about our curriculum?
- What makes us good, special, desirable?
- Where might we need to stretch or be even better to prepare our students for the twenty-first century?
- What is your wish list for curricular changes?

Create a Guiding Coalition

Institutional change requires strong leadership and visible support from key people within the organization. This coalition needs to be emotionally invested, motivated, properly supported, and have the respect and confidence of its community. We established what we called our Curriculum Team, a representative leadership task force. This team's charge was to gather and reconcile the ideas that had been generated in the large- and small-group discussions and to propose an initial draft of a new curriculum. Our Curriculum Team was comprised of ten elected leaders within our school, mostly department chairs and members of our faculty council. All departments were represented – and just as importantly – a range of proclivities toward curricular change was also represented from traditionalists, middle-of-the-roaders, and reformers. The Curriculum Team needed to meet for large blocks of time, allowing for substantive debate and airing of opinions and ideas. We needed to sift through large amounts of information and distill from it a framework of our shared values. This type of work cannot be done in a group of 75 people. It requires a facile, committed group that trusts and respects one another such that important disagreements can be openly discussed and resolved. As faculty leaders with already busy schedules, none of us felt we had the time to do this work well during the school year. With the financial support of our dean, we met throughout the summer in all-day and half-day retreats.

In the original schedule, the Curriculum Team would propose a first draft of a new curriculum at the beginning of the school year to faculty, alumni, and students, who would then have the entire academic year to study it and provide feedback. The Curriculum Team would reconvene the following summer to incorporate and reconcile this feedback into a final draft of the curriculum. Generally, it's easier for large groups to edit and comment on a working proposal than to construct a new one. A ten-person coalition seemed best suited to being fully educated on the entire system and to make decisions and compromises that maximized benefit to all.¹

Develop a Change Vision and Communicate It for Buy-In

As scheduled, the Curriculum Team presented their first draft of a new curriculum at the opening of the next academic year. We started by reviewing what the process had been to that date and conveying what our collective feedback had revealed to be our shared values. As we moved into a description of how those values shaped our draft of a new curricular plan, I could feel a palpable sense of unrest from certain quadrants of the room. There was a vocal, powerful contingent of faculty who thought our plan was terrible. This reaction surprised the Curriculum Team because we had carefully reviewed all the feedback we had received and had hewed closely to its contents. How could such a disconnect and misunderstanding have resulted from a process that had been specifically designed to be inclusive and responsive?

We knew this was just a first draft and we had a full year for feedback and review. We reassured the vocal naysayers that we welcomed their input and that the process would continue. We encouraged everyone to engage in the next rounds of the conversation, and we would steadfastly revise the plan accordingly.

As part of the plan to engage all constituents, we sent out a survey to alumni and collaborated with current students. Both alumni and students were highly engaged. The response rate to our alumni survey was higher than any previous survey we had conducted. We hired graduate students to analyze and interpret the alumni responses, using software designed for analysis of text-based questions. I suspect one reason alumni and students were especially engaged in this process is because this was a year of intense turmoil on our campus. Like many colleges, we grappled with growing awareness of inequities based on racism and sexism. There were many demonstrations, public debates, and tense communications between students, faculty, and administrators. In this

climate, conversations about revising curriculum were viewed as an avenue for challenging the status quo. In other words, students and alumni embraced the prospect of change. Discerning a shared vision among 75 faculty was challenging, but that challenge was magnified proportionally by the sheer numbers of alumni and students. A self-nominated group of students of color formed to provide their perspective of curricular needs. They hosted several open meetings with faculty to discuss their concerns and wish lists for the new curriculum. The faculty Curriculum Team worked with student leaders, an elected committee that usually served as an advisory group to the dean, to compile student input. The Curriculum Team presented their first draft of a proposal to these student leaders, who then designed their own survey and analyzed the results. Unlike the faculty, students were generally enthused yet thought we hadn't gone far enough.

The difference between students' and faculty reception of the proposal was striking. Looking back, this is the point at which our faithful adherence to Kotter's stages began to fall apart. We had developed a vision for change, yet could not get buy-in from our faculty. There was a contingent of our faculty who did not trust the Curriculum Team. To them, it felt like an exclusive, powerful clique had worked through the summer on their own to create a curriculum that served special interests, or at least not *their* interests. Despite sincere assurances from the Curriculum Team, this disenfranchised group of faculty did not believe that their critiques of the draft would be taken seriously, or that any changes would be implemented as a result of their feedback. They divorced themselves from the process and spoke strongly and negatively about the draft at every opportunity. They preferred the curriculum as it was.

This schism wreaked havoc on the morale of our faculty. For a full semester, political strife blossomed and rancor grew, even in arenas that had nothing to do with curriculum. Faculty meetings devolved into screaming matches and name calling. It felt like the disagreements about curriculum had cracked open a pressurized container of previous discontents that had been seething beneath the surface. As chair of faculty, I was responsible for this community and needed to figure out how to get us back to acting like the collaborative and supportive group we were capable of being. To do this, I had to understand how we had gotten to this point. Why were faculty distrustful of the Curriculum Team (and me)? Why did they not see their voices in our plan? Where did our process fail to meet its goals of being inclusive? Why were we perceived as administrative Others, when our intentions had been to generate curriculum from the ground up?

Rewind – Institutional Culture

The best way to get answers to these questions was to talk directly to those who felt most disenfranchised. Despite their lack of trust in my motivations, I had one-on-one conversations with as many who would meet with me. Here's what I learned:

- Their voices were not in the repository of ideas and responses that the Curriculum Team had based their plan on.
- They felt excluded and that important decisions had been made without them.
- They assumed that our expressed desire for feedback was disingenuous, and that nothing of substance would be changed no matter what feedback they provided.

How did this happen?

Easily. Those who were interested in changing the curriculum had participated with gusto in our all-faculty meetings and small-group discussions in the previous year. They were excited by the prospect and wanted to do the work. Those not interested in changing the curriculum did not engage much with that year-long process. Having withstood many generations of deans, provosts, and presidents in their time (most of the naysayers were full professors in the final third of their

careers), they didn't put much stock in visioning exercises or focus groups. In their experience, these drills were futile and never resulted in substantive changes that affected their studio. Every couple of years, some administrator came around with some big initiative, and much faculty time and energy was spent on it, only to be forgotten and shelved when that administrator left or the funding ran dry. Their apathy was a learned response from the culture of our institution. It was a better use of their time and energy to ignore meetings and initiatives and to focus instead on the very real, effective, inspiring work they could do with their students in the studio and classroom. It had seemed inconsequential to them to miss a few meetings. I suspect this is a problem in many institutions of higher education.

As I continued these conversations, I noticed that nearly all of the disenfranchised faculty were studio teachers, not classroom teachers. Being a classroom teacher put me at a disadvantage for understanding an important studio culture at my institution. I worked in a department with a ten-course sequence, where students from different teachers and sections needed to feed into each other. We needed to agree on textbooks, syllabi, grading policies, and departmental exams. In short, our whole department needed to meet weekly to accomplish its business. Our studio teachers work in an entirely different environment that seldom requires the department to meet as a whole. Of course, studio teachers fulfill plenty of service for our school (auditions, scheduling, recruitment trips, etc.), but much of it is accomplished in small subsets of faculty, rather than as a collective department. Consequently, the small-group curricular meetings that we thought would help us reach all faculty, were perceived instead as substantial additions to their service load. It was much easier for other departments to fold the small-group discussions into their usual schedules.

As the designer of a process that these faculty had pretty much ignored, I could have easily (and sometimes did) slip into resentment about their seemingly willful disengagement followed by righteous proclamations of disenfranchisement. However, the more I listened to their objections, the clearer it seemed to me that their response was (mostly) a reasonable reaction to their lived experience in this institution. Whereas I thought the curriculum process began the year prior, in their minds it really began decades ago, when their significant time and energy in group initiatives had been ignored or wasted – over and over again. Wouldn't it be folly for them to assume that this current project would be any different?

Moving Forward

The one-on-one conversations were a beginning, but much more would need to be done to build trust and get the curricular review process back on track. Those who had been eager about changing the curriculum from the beginning were impatient and felt that a small number of vocal (yet powerful) naysayers were being obstructionist. Others, however, would only believe in the process when they saw their reservations about change being taken seriously. From my mediation training, I knew a first step toward de-escalating contentious conversations was for all sides to get confirmation that their point of view had, in fact, been heard. Consequently, in subsequent all-faculty meetings (with personal invitations to those who didn't usually attend) I set aside considerable time for the traditionalists to air their concerns, and then summarized the points as they were spoken. ("What I hear you say is..."; "So, your concern is that...".) To wit, none of the points raised at these meetings were new to the Curriculum Team, but it was critically important for the concerns to be publicly aired and acknowledged.

At this point, we were a year and a half into the process, and signs of fatigue were evident. Those who had spent the previous year engaged in the review process felt stymied and that their efforts had been wasted, ironically continuing the cultural trend in my institution. Those who were just joining the party came with a big chip on their shoulders. There is only so much time and energy faculty have for this type of service, and the Curriculum Team was mindful that

faculty were at their limit. Without visible progress toward our goal, faculty were no longer willing to sink more time into curricular review. To make the feedback loop easier, we welcomed less structured input into the online repository, encouraging individuals rather than groups to comment on any aspect of the proposal. Both individuals and groups could work at their own pace and time. We asked department chairs to help structure more time for areas to consider the new curriculum, within reasonable limits and respect for other department business. However, I believe the most important step we took was to reinvigorate buy-in for the process. We created a one-question survey gauging faculty interest in curricular change. Using a five-point Likert scale, we asked faculty to rate their interest in continuing to work on revising our curriculum. With a 90% response rate (an unusually high response rate that I attribute to the strong emotional investment faculty had on all sides of the issue), the mean response was a 4 out of 5 in favor of continuing to work on curricular change.

The results from the survey jump-started momentum and built excitement for a new curriculum. Those who had invested themselves in the process from the beginning felt vindicated and ready for next steps; those not in favor of the new direction understood that theirs was a minority opinion that had been heard and considered, but rejected. I remain amazed at how this simple tool enabled the community to contextualize their differences and move forward. Building upon this success, the Curriculum Team sent out a two-question survey near the end of the spring semester to give us better direction for our summer retreat. The questions were:

1. Listed below is a summary of shared values evident from our online repository. Please rank them in the order of importance to you.
2. Listed below is a summary of common themes of curricular change evident from your feedback. Please rank them in order of importance to you.

Not only did this second survey provide the Curriculum Team with the information it needed for its summer retreats, but also the survey summarized the feedback we had received to date and communicated it back to faculty. If one's idea didn't show up on the list, s/he knew that it hadn't been widely supported; and, vice versa, if one's idea was on the list, s/he knew that the Curriculum Team would be considering it.

For our institution, the curricular changes with the most support were:

- Design more room in degrees for elective choices, and more flexibility fulfilling degree requirements.
- Build schedules that allow for deeper engagement and exploration.
- Increase offerings and engagement with diverse cultures and music.
- Include more intentional focus on building life-long learning skills.
- Include more chamber music.
- Increase diversity of ensemble experiences.
- Strengthen entrepreneurial skills, courses, and requirements.
- Design a more structured program for improvisation skills across curriculum.
- Include more community engagement and service learning.
- Include recording experience for all majors.

Outcomes

The reader will notice that all the supported changes involve *adding* experiences, flexibility, and/or depth. In their second round of summer retreats, the Curriculum Team negotiated the challenging questions of what to cut, change, and/or economize in order to allow for these growth

opportunities. Compromises were difficult and hard won. Throughout our meetings, all representatives and leaders were aware that there were trade-offs to every decision we made. It also became increasingly obvious that the whole curriculum was interdependent; it wouldn't be possible to choose some of the compromises and not others. By the end of the summer, we had a significantly revised new proposal, which we called the FlexCore, featuring fewer required courses and much more student choice and flexibility.

As the Curriculum Team discussed this flexible strategy, objections were raised that students might make poor choices. There were concerns that students might focus their education too narrowly, avoiding unfamiliar and new experiences. Would students end up with holes in their education? Some of these concerns were mitigated by our small, efficient, required core curriculum. Yet, the discussion about holes in education led to a critical understanding that became an underpinning to our strategy: there always have been, and there always will be holes or gaps in our education. In our current curriculum, those gaps are institutionally chosen ones, resulting in a perpetuation of a canon of music and skills; in the FlexCore, there would also be gaps; yet they would not be the same for each student. At best, students would explore and engage deeply because of their internal motivation and curiosity about the experiences they chose. At a minimum, they would gain the skills necessary for life-long learning, which has always been necessary to fill in gaps of an undergraduate degree.

When presenting this proposal to the faculty at the beginning of the subsequent fall semester, there was a strong sense of excitement and support, which was much different than the skepticism and rancor of the previous year. Because the many moving parts of the curriculum were interdependent, we required that the broad outline of the proposal be approved as a whole. Faculty had to vote on the proposal without significant amendments or revisions. Usually, I wouldn't be comfortable enforcing such a restrictive principle. In this case, however, it was the best path forward. The Curriculum Team – with its representative composition, workable numbers, and group communication skills that had been honed over a two-year period of intense debates – was the appropriate body to design a curriculum. Faculty agreed to this procedural premise, understanding that piece-meal changes had the potential to bring us back to square one.

Our proposal for a new curriculum passed with very strong, although not universal, support. Within the proposal, much latitude was given to areas to tailor courses and experiences to the needs of their majors, which was a popular aspect of the proposal. For those who had been reticent to change, a traditional curricular path remained one of the options; students could choose a path similar to our current curriculum, if they wanted. For those most concerned with emerging needs of a twenty-first-century musician, there was also ample opportunity for growth and new courses and experiences. From an administrative standpoint, the Flexcore might also make the *next* curricular review easier. With flexible and diverse ways of achieving degree requirements, incremental change could happen at the course and program level, without wholesale re-design of degree requirements and schematics.

Conclusion

As pleased as I am to share that we successfully approved our new curriculum, it is the lessons learned about how to effectively enact change in a recalcitrant institution that can have a much broader impact. Following best practices of change leadership, such as Kotter's eight-step process, is a good place to start. However, meaningful change rarely follows a neat path forward, and how one responds to bumps, tangents, hiccups, and outright defiance can be equally important. I found it most helpful to consider this initiative as having a two-pronged goal: (1) an updated music curriculum for the twenty-first century; and, (2) a community of faculty with improved group skills who could work together to implement it. After all, our successful vote is only a beginning.

There is much hard work ahead of us, including actually designing and creating our new proposed courses, initiatives, and programs. Our new curricular plan provides a road map and vision for moving ahead. Yet, the skills we achieved as a group to listen, respect, and overcome conflict and differences are what will enable us to enact it. All too often, an Us-versus-Them dynamic defines relationships between faculty and administrators (including faculty who have administrative responsibilities). To move beyond such territorial and protective defenses, one has to assume good will, search for the underlying cause of disagreements, and genuinely address those causes. In my case, understanding the institutional culture that drove – nay, taught – faculty to disengage helped me reframe what I thought to be an obstructionist faction of faculty into a vital voice for our new curriculum.

Another important lesson I learned is that changing curriculum is not necessarily a zero-sum game; adding new items does not necessarily mean subtracting others. Time and money constraints are real, and simply adding new initiatives without regard to old ones is not a sustainable model, either financially or credit-wise. Often, the path of least resistance is to develop curriculum by a process of slow accretion, as if it were a coral reef. The result of such incremental accumulation is an unwieldy and credit intensive program, both for students and faculty. Holistically reviewing all aspects of a curriculum (old and new) against a program's values helps allocate resources according to priorities, instead of by chronological squatting rights. This process can be contentious and divisive, but it can also be exhilarating and transformative. At a time when the value of higher education and the arts is being questioned, making our programs not just relevant, but also vital agents of change can be an empowering remedy.

Note

- 1 This website provides a good summary of how size affects group dynamics: <https://faculty.londondeanery.ac.uk/e-learning/small-group-teaching/group-dynamics-how-group-size-affects-function>

Bibliography

- Blount, Gilbert. 1990. "A Music Curriculum for the Twenty-First Century." *Computers in Music Research* 2: 121–44.
- Chattah, Juan, Melissa E Hoag, Steven G Laitz, Elizabeth Sayrs, and Jennifer Sterling Snodgrass. 2016. "Reflections on the Manifesto." *College Music Symposium* 56 (August). Missoula: College Music Society. https://symposium.music.org/index.php?option=com_k2&view=item&id=11141:reflections-on-the-manifesto&Itemid=126.
- Klocko, David G. 1989. "Multicultural Music in the College Curriculum." *Music Educators Journal* 75 (5): 38–41.
- Kotter, John P. 2012. *Leading Change, with a New Preface by the Author*. Boston, MA: Harvard Business School Press.
- Marcel, Linda A. 2007. "Balancing Innovation with Tradition: Maintaining a Relevant College Music Curriculum." *Forum on Public Policy Online* 2007 (3). Forum on Public Policy Online. <https://files.eric.ed.gov/fulltext/EJ1099092.pdf>.
- Myers, David E. 2016. "Creativity, Diversity, and Integration: Radical Change in the Bachelor of Music Curriculum." *Arts and Humanities in Higher Education: An International Journal of Theory, Research and Practice* 15 (3–4): 293–307.
- National Association of Schools of Music. 2017. "National Association of Schools of Music Handbook 2017–18." <https://nasm.arts-accredit.org/wp-content/uploads/sites/2/2017/12/M-Handbook-2017-2018.pdf>.
- Peters, Gretchen. 2016. "Do Students See Themselves in the Music Curriculum? A Project to Encourage Inclusion." *Music Educators Journal* 102 (4): 22–29.
- Snodgrass, Jennifer. 2016. "Integration, Diversity, and Creativity: Reflections on the 'Manifesto' from the College Music Society." *Music Theory Online* 22 (1). www.mtosmt.org/issues/mto.16.22.1/mto.16.22.1.snodgrass.html.

64

PUTTING IT TOGETHER

Rethinking the Theory Curriculum

Matthew Heap

With the confluence of a diversifying student body and new pedagogical tools, this is an excellent time to consider whether the music theory curriculum as it stands is meeting the needs of the students. We now frequently encounter undergraduates who might not have had a traditional education in the fundamentals of music, but we also have many new opportunities to engage our students, particularly through technology. In this chapter, I will lay out my thought process as I revised and iterated on the curriculum at West Virginia University's (WVU) School of Music using a flipped-classroom approach.

The process of rethinking a curriculum that serves as many music majors and minors as WVU's was a long and involved one. When I arrived on campus, having been hired in part to revamp the curriculum, everything was taught through figured bass (even jazz harmony), and students seemed disconnected from the reasons we learn theory. One of the big challenges in sequencing is that there never seemed to be enough time to both learn all the concepts and actually talk about music, helping students to understand why theory is an integral part of their musical life. To make this more complicated, there are as many as five sections of each level of theory that have the same material, exams, etc., but different teachers, including graduate teaching assistants.

The Old Curriculum

Before discussing the revisions, it would be helpful to briefly survey the curriculum in its former state. Theory 1 started with four weeks of fundamentals (in place of a required fundamentals course), five weeks of species counterpoint, then four-voice writing starting with all chords in root position, followed by first inversion, second inversion, and non-harmonic tones. Absent from this semester were any composition or harmonization exercises, seventh chords, or opportunities to approach music outside a scaffolded figured-bass standpoint. Theory 2 included seventh chords and harmonization for four weeks after an initial week of review, followed by two weeks of simple modulation, three weeks of secondary dominants, and four weeks of simple form.

Theory 3 was an odd mix of leftover topics. At the beginning of the semester, the remaining chromatic chords were introduced, then presented as pivots at the end of the section. This was followed by three weeks of pop chords and lead-sheet realization. Finally, there were two weeks of poetry study as the students learned how to set a text correctly, then work on their final project: a ternary form song. Theory 4 had more topics than the class could gracefully handle, so it always felt like we were moving from one thing to another without really understanding. It was split into four units representing works from the Baroque, Classical, Romantic, and Modern periods.

Topics included binary and ternary form pieces, fugue, passacaglia, sonata, short piano works, *Tristan und Isolde* (and the double tonic complex), Symbolism, Serialism, Neoclassicism, Messiaen, and Minimalism. It was a lot for students to take in.

When I started formulating my changes to the way we teach theory, there were two priorities: include much more analysis and composition at each stage, and get the students to contemplate the “why.” For instance, why did Schubert use an augmented sixth chord at this moment in the piece? Is it reflected in other places? In the text? These are the types of questions that give students the tools to make concrete choices in their practice that are informed by the underlying structure of the music. The answers to these questions, and the practice of answering them, give students the answer to the biggest question of all: why do we take theory? My hypothesis was that we would have enough time to consider these topics (and present unity and parity across all sections) if we moved to a flipped-classroom system.

Flipping the Classroom

The flipped classroom is one in which students have mastered the basics of that week’s material before coming to class. In our system, there are videos that students watch each weekend. It pairs well with Just-in-Time Teaching, where students take a quiz before coming to class. If nearly everyone does well on this evaluation, the instructor skips the lecture and moves right to making music. If there are issues, then the instructor knows what to focus on rather than re-lecturing on everything.¹ Since I was starting from scratch, I decided to create around nine hours of video across the four semesters.² Each topic has a video of around ten minutes or less that is a screen capture of me narrating while using music notation software. The videos are overlaid with text boxes that contain clarifications or funny/irreverent commentary, which help to keep the students engaged. Each of these topics has a “Cheat Sheet” which lays out the basics ideas for the purposes of review. The students watch the assigned videos for the week and then take an automatically graded quiz on our Learning Management System. Instructors can then quickly see statistics across the class for each question and decide what, if anything, they need to clarify. By using this system, we can spend more time writing and listening to music while reinforcing the basics and subtleties of the topic.

The Revised Curriculum

For the revised curriculum, I wanted to make sure that students were harmonizing as soon as possible, and the addition of that practice led to hard choices. The first time through the new curriculum, I cut species counterpoint down to one week that focused on first and second species. In the second iteration, I jettisoned species counterpoint entirely.³ In its place I added a week of “melodic and horizontal thinking” when we studied what made a good melody and learned to write countermelodies to both popular songs and nursery rhymes. The latter topic was taught with simplified first and second species rules, so the students still gained experience in two-voice writing, but in a way that resonated with them.

With the extra time, early incorporation of harmonization was possible. In the end, there are five weeks of fundamentals (one more than in the old curriculum), one week of melodic/horizontal thinking, and eight weeks of four-voice part-writing. Within those eight weeks, the first four include only I and V because when I have approached four-voice writing in terms of chords rather than function, students have tended to tackle harmonization in an all-you-can-eat kind of way, full of minor iii and odd 6/4 chords. We start with root position and first inversion (which I add early on to help students write more melodic bass lines), add harmonization, vii^o chords, and cadences in the second week, 6/4 chords in the third, and dominant/diminished/half-diminished sevenths in the fourth. While the harmonic vocabulary in these weeks is very limited, it allows

students to focus on their part-writing, and there are enough new skills for them to use each week that the work does not become tedious. The challenge here is to find repertoire that uses only I and V for a significant amount of time. While there are some notable examples (such as the opening of the “Birdcatcher’s Song” from *The Magic Flute* or “Blurred Lines” by Robin Thicke), in a way it matters less in this portion of the class than later because the act of part-writing is so new.

Following this, we add pre-dominants (ii and IV in major, and ii^o and iv in minor, to keep it simple) and non-dominant seventh chords, followed by two weeks of non-harmonic tones, starting with the most common unaccented (such as passing tones) and working up to the accented. With this sequence, students will think carefully before adding non-harmonic tones, making sure that they are used in the service of the music rather than as a reflex (or, worse, to hide mistakes that the student does not know how to fix). Finally, we examine the uses of iii and vi in both major and minor modes. Placing these chords last helps the students understand that they work only in specific places. With the overhaul, this semester covers function in a way that was not possible previously, while giving the students experience with real music and opportunities for creative output (see Figure 64.1).

After moving several weeks of the old Theory 2 content into the new Theory 1, the revised second term starts with small-scale formal structures, providing more material for discussion when we look at excerpts of works. We then spend three weeks on secondary function chords, as that is one of the two places that students tend to get irreparably lost (the other being fundamentals). If students do not receive the help and reinforcement they need at those two points, they often do not recover. In the earlier curriculum, modulation was taught before secondary dominants. This was a source of confusion, so I put secondary dominants first to remedy that situation. To further distinguish secondary dominants from modulation, I inserted a week of basic pop chords (no extensions other than sevenths) and 12-bar blues form.⁴ Following modulation (two weeks),

Week	Old Written Theory 1	New Written Theory 1
1	Fundamentals	Fundamentals
2	Fundamentals	Fundamentals
3	Fundamentals	Fundamentals
4	Fundamentals	Fundamentals
5	Species Counterpoint (1 st Species)	Fundamentals
6	Species Counterpoint (2 nd Species)	Melody and Horizontal Thinking
7	Species Counterpoint (3 rd Species)	Four-Part Writing – I, V root and 1 st inv.
8	Species Counterpoint (4 th Species)	Add Harmonization, vii ^o , cadences
9	Species Counterpoint (4 th Species)	Add 6/4 Chords.
10	Review Week	Add 7 th Chords
11	Four-Part Writing – all chords, root position	Add Pre-dominants (including 7ths)
12	Four-Part Writing – add 1 st and 2 nd inversion	Non-Harmonic Tones (unaccented)
13	Review	Non-Harmonic Tones (accented)
14	Non-Harmonic Tones; Basic Phrase Structure	Add vi and iii in Major; VI, III, and VII in Minor

Figure 64.1 Comparison between the old and new versions of Written Theory 1.

the class spends the remaining weeks of the semester on basic forms: binary, ternary, rondo, and theme and variations (see Figure 64.2).

The revised Theory 3 still starts with a survey of the remaining chromatic chords but differs by simultaneously introducing their use as pivots. Previously, students were overwhelmed by the number of choices during the final weeks of this section and never fully grasped the concept of chromatic and enharmonic modulation. I replaced the text-setting project (which disrupted the flow of the class by veering into poetry analysis) with basic linear analysis, which gives students tools to grapple with complex music that does not make sense with a chord-by-chord approach. Finally, we examine jazz harmony for three weeks, which is feasible after the introduction of basic chord symbols during the revised Theory 2 (see Figure 64.3).

The biggest challenge in the previous version of Theory 4 was that students had trouble transitioning from a chord-by-chord view of music to a larger structural view that requires critical thinking. The extra emphasis on form in Theory 2 combined with the practice of looking at repertoire each week has helped to soften that transition in the new curriculum. It is still difficult for students, however, so I made some changes to sequencing to help them be successful while still challenging them. I reduced the number of topics to one per musical style period. For instance, we now study fugue in a more in-depth manner (including looking at how fugues have been used outside the Baroque period). We devote a week to expositions and what makes a subject work, then another week to the techniques a composer can use in the episodes and middle entries, and finally one more week to put it all together and to look at a big fugue that has abundant *stretto*, augmentation, and inversion. We do similar focused studies of sonata form and Romantic *lieder*. Finally, for the twentieth century, we devote two weeks to Debussy and Ravel and another two weeks to Serialism (see Figure 64.4). This redesign has given students the opportunity to develop a deeper understanding of each topic rather than skimming the surface.

Week	Old Written Theory 2	New Written Theory 2
1	Review	Review
2	Dominant Seventh Chords	Introduction to Phrases
3	Diminished 7 th Chords	Periods/Sentences/Hybrids
4	Non Dominant 7 th Chords	Secondary Dominants 1
5	Harmonization of Chorale Melodies	Add Secondary Leading-tone
6	Modulation Techniques	Secondary Dominants 3
7	Harmonization of Modulating Melodies	Interlude: Basic Pop Chords
8	Secondary Dominants/Leading Tone Chords	Modulation 1
9	Secondary Function Chords Cont'd	Modulation 2
10	Harmonization with Secondary Function	Binary Form
11	Phrases and Periods	Binary and Ternary Form
12	Binary and Ternary Form	Ternary Form and Rondo
13	Binary and Ternary Cont'd	Rondo and Theme and Variations
14	Simple Forms cont'd	Project Work

Figure 64.2 Comparison between the old and new versions of Written Theory 2.

Week	Old Written Theory 3	New Written Theory 3
1	Review	Review
2	Modal Mixture/Neapolitan Sixth	Mode Mixture
3	Modal Mixture Cont'd (with Harmonization)	Mode Mixture as Pivot
4	Review	Neapolitan 6 th /N6 as Pivot
5	Augmented Sixth Chords	Augmented 6 th Chords
6	Enharmonic Respelling of vii°7	Augmented 6 th Chords as Pivots
7	Enharmonic Respelling of +6 chords	vii°7 Chord as Pivot/Common Tone Diminished Chord
8	Extended Chords (9 th /11 th /13 th)	Common Tone Modulation/Review
9	Pop Chords	Linear Analysis 1
10	Lead-Sheet Realization/English Prosody	Linear Analysis 2
11	Vocal Problems/Techniques of text setting	Jazz Harmony (extensions)
12	Song Composition/Melodic setting of poem	Jazz Harmony Cont'd/32 Bar Song Form
13	Private Appointments	Lead-Sheet Realization
14	More Advanced Chromatic Techniques	Project Work

Figure 64.3 Comparison between the old and new versions of Written Theory 3.

Week	Old Written Theory 4	New Written Theory 4
1	Review of Binary and Ternary	Fugue 1 (Exposition)
2	Fugue 1	Fugue 2 (Middle Entries)
3	Fugue 2	Fugue 3 (Putting it Together)
4	Continuous Variation	Fugue 4 – Post-Baroque Fugue
5	Phrases and Periods	Sonata 1 (Exposition)
6	Sonata 1	Sonata 2 (Development)
7	Sonata 2	Sonata 3 (Recapitulation)
8	Linear Harmony	Romantic Lieder 1 (Schumann/Brahms)
9	Unclear Tonics	Romantic Lieder 2 (Schubert)
10	Reading a Piece	Romantic Lieder 3 (Fauré) + <i>Tristan und Isolde</i>
11	Impressionism/Symbolism	Debussy and Ravel 1
12	Serialism	Debussy and Ravel 2
13	Music and Time (Bartók/Messiaen)	Serialism 1
14	Minimalism	Serialism 2

Figure 64.4 Comparison between the old and new versions of Written Theory 4.

Engagement in the New Curriculum

My goal in each of these semesters is to build student engagement through all our activities. For instance, on Fridays I often give a “Friday Challenge.” This is almost always group work and could consist of a composition with given restrictions or an analysis of a piece that is a little tougher than our recent classwork. If I assign a composition, each group writes their creation up on the board and we sing through them all and discuss what works and what doesn’t and, most importantly, why it works. If there is time remaining, the class can then pick the one they think works best and we will add tongue-in-cheek lyrics to it and record it as part of our “class album,” a selection of compositions that the students consider the most successful. This album gives them something concrete to help them remember what we did and allows them to hear their progress throughout each semester. I have found this to be a good tool for student engagement, as recording these projects gives them the feeling that they have agency in our output. It also helps prepare them for the larger final projects.

I added final projects to all levels of Written Theory to build on the engagement from the class album and allow students to showcase what they have learned. In Theory 1, students write their own eight-measure chorales. We sing through these during the last week of the semester and the students vote to decide which should be added to a book of chorales. This peer approval gives students motivation to do the best that they can and leads to a better artistic product that they carry over into their other work.

Theory 2 adds an analysis component as students pick a piece for their instrument from a list generated with the help of the applied faculty.⁵ Each faculty member was asked to provide one piece that had basic chromatic harmony and/or modulations that students were likely to play in their Freshman or Sophomore years. One of the most important parts of this analysis is their consideration of how the work they did on the piece would inform the way they played it. They also write a short binary form piece for their instrument and piano which they perform for the class.

The new final project for Theory 3 is also in two parts, this time putting more emphasis on composition. Students perform an analysis in groups of one of four difficult chromatic pieces (“Pavane” (Brahms Op. 7, no. 2), Prelude in G Minor (Chopin Op. 28, no. 22), Mignon I (Schubert D.726), and “Am leuchtenden Sommermorgen” (Schumann Op. 48, no. 12)) and write a piece for their instrument and piano. The piece could either be a late-Romantic-style ternary form composition or a 32-bar song form jazz composition. Both have requirements that students use a certain number of chromatic chords and modulations.

The final project in Theory 4 asks students to use analysis to fuel creativity. They choose a piece from a list that includes a fugue, a sonata, a *lied*, and a serial work, perform a complete analysis, and then take an aspect that they found interesting from that analysis and use it as the basis for a composition for their instrument and piano. Linking the analytical and creative processes here helps students further integrate the importance of finding the “why” in their everyday musical lives. All these projects can be challenging to grade and present even in class sizes of 18–25, but the impact on the students makes them worthwhile. If the classes were larger, I would assign them in groups (including the composition portions) to make it more manageable. Students would still consider the ties between theory and practice in addition to practicing collaboration with their peers.

Conclusions

Overall, I am proud of this redesign. The videos and the flipped-classroom approach have given students reason to become more invested in theory, and those who are engaged perform better in the class. The projects and performances give students something to show off to their peers, and the in-class activities such as the Friday Challenge allow them to exercise their critical thinking

skills. Finally, the emphasis on “why” helps students consider how analysis could help them in their performances.

The process of changing the way we teach theory was not without complications, and I have taken an iterative approach where I am still refining the assignments and general flow of the classes. One of the biggest issues I have encountered is persuading colleagues who teach some of the other sections to fully embrace these innovations. It is no surprise that after honing an approach to the sequence over many years, it might be challenging to undergo a massive shift in one’s pedagogy. Instructors who lectured rather than engaging with the flipped-classroom method reported that the semester felt rushed. As a result, I rethought areas that were deemed most problematic. As my colleagues saw my readiness to respond to their issues and the success that students were having with the videos they became much more receptive, and everyone has embraced the flipped-classroom methodology.

There are yet more ways to make our curriculum better. I am presently exploring the gamification of theory, particularly around those concepts where students struggle. I have created a chromatic pivot game, and I am planning more interactive, fun experiences for fundamentals and secondary dominants in the next year.⁶ I also plan to transition to standards-based grading in the next year so that students can understand where they need extra work rather than simply being given a score.⁷ Written Theory can be a challenge for students, but with effective and engaging course design and materials, I believe that anyone can be successful.

Notes

- 1 For a complete description of these topics and how they relate to music theory, see Duker, Gawboy, Hughes, and Schaffer in Music Theory Online No. 21 (2015), www.mtosmt.org/issues/mto.15.21.1/mto.15.21.1.duker_gawboy_hughes_schaffer.html
- 2 Available in my “theory vault” at <http://community.wvu.edu/~mh0001/>
- 3 Before embarking on this project, I surveyed all the sophomores to find out what was working and what wasn’t from their perspectives. Species Counterpoint was the answer that came up most often to the prompt “I don’t understand why we learned this topic.” In addition, most music majors take counterpoint classes later in their studies, so it isn’t totally lost.
- 4 We start discussing chord symbols earlier in the semester to help students deal with unknown chromatic chords.
- 5 In the first iteration, they picked a piece from their repertoire. That proved problematic as one person chose a Beethoven sonata while others chose much simpler works.
- 6 Accessible at <http://community.wvu.edu/~mh0001/cp.html>
- 7 See Duker, Gawboy, Hughes, and Schaffer (2015) for more information.

ADAPTING THE AURAL SKILLS CURRICULUM

A Move Away From “The” Right Answer

Susan M. Piagentini

College admission standards paired with standardized “high stakes” testing have led to a new type of music student. The overabundance of testing in our public schools brings us learners who expect an effective classroom model to provide “The” right answer and clearly define not only what will be on the test but also how the test page will look and what types of questions and prompts they must navigate. These master test takers strive for perfection and struggle with ideas of interpretation with several possible “right” answers. As we consider welcoming what researchers term Generation Z to our campuses, it’s important to consider their view of the world and that their life experiences have never been without technology (Seemiller and Grace, 2016). The test preparation frenzy, paired with daily interaction with online media which provides instant response with clickable sound/answers, leads to changes in their expectations of what a learning space should look like and how they best experience the process. While this is not to suggest that we become a web-based curriculum, such expectations have led to considering curricular adaptations in hopes of reconnecting with these learners.

The challenge is to rethink our approach in the aural skills classroom to transcend beyond mere identification in the isolated exercises and finite testable moments. Our charge is to reignite the joy of exploration and value of skill development as an ongoing process, while emphasizing a healthy approach to deeper learning and engagement. It may be possible through the regular inclusion of activities that aren’t about the grade, where students participate in, create, and contribute personally relevant examples, by encouraging implementation of skills in their daily listening lives beyond the classroom, and by building in an expectation for multiple paths to the “right” answer or strategy in skills development.

This chapter outlines seven areas of ongoing curricular adaptation that aim to develop skill fluency with a renewed focus on internalization through an emphasis on audiation, graphic tracking, and imagery that requires students to rethink how they arrive at the answer. The role of the student in this model is actively engaged not only in the learning process but also as a contributor of resources and content in a community of learners that shares experiences and strategies in a workshop environment. It aspires to reprogram their expectations for perfection and a single right answer, while challenging the instructor to embrace student contributions to content and exercises that emphasize the creative process. The content of each adaptation section will include a description of a variety of methods and sample class activities. These seven areas are:

Classroom as Workshop
Mindful Inclusion of Developing Audiation and Visualization
Reconstructing Familiar Skills
Reconsider Technology as Contextual Creative Practice and Promoting Presence
Building Relevance through Crowd Sourcing
Improvisation
Contextual Connection

Adapted Aural Skills Curriculum Overview

Classroom as Workshop

Restructuring the curriculum with these ideas in mind means moving away from some long-standing traditional approaches. In reviewing lesson plans from 20 years ago, the focus was on the grading of prepared melodies, identifying isolated elements (intervals, chord quality, scale degree, etc.), and melodic, rhythmic, and harmonic dictation. These were often contrived examples available in a textbook, or in some cases drawn from the literature. The instructor led the class, spent the first 15–20 minutes grading individuals, ran a practice dictation, and closed with a duet or small ensemble sight-reading experience. While these are all valid endeavors, it was a “safe” approach. Everything was confined to testable elements, in part due to the limited time available after grading was complete. While students completed the tasks, it lacked interaction and students struggled to find relevance and application of the skills. This approach was what Michael Rogers (2004) warned colleagues to consider as we review the structure of our programs:

The natural inclination to weight those aspects of musical experience that are the most “teachable” and “testable” should be carefully examined....Channeling of the thought process into black-and-white categories is important at a beginning stage so that basic concepts can be established, but eventually a theory program must move ahead to create tolerance and enthusiasm for discovery, exploration, and comparison of a wide range of differing musical ideas and must promote the ability to back up decisions and judgments with logic, consistency, and imagination.

While Rogers directs his comment to the content and approach in the theory classroom, it should resonate with us when considering activities and outcomes in aural skills. As the curriculum adapts to address new learning styles of this generation, individual coaching, as well as self and peer evaluation, replaces the time spent grading in the classroom. Assessment is now completed in online videos and individual appointments such as performance checks/coaching outside of class time. With time to cultivate a culture of an ongoing dialogue, the instructor and students combine performance moments with discussion of methods, and students share personal strategies for improvement. The key difference is that students contribute to the process and actively form personal approaches that build on the instructor’s first steps to any task. Though the black-and-white categories Rogers addresses are still imperative, they are approached with a renewed focus on creativity and risk-taking, where students engage beyond memorization of the “right” answers.

Mindful Inclusion of Developing Audiation and Visualization

Our school calendar is based on the quarter system and so we divide each term into three units. Our first unit begins with an emphasis on activities that encourage attention to audiation and representation of sound. The unit is notably void of traditional notation, and instead invites students

to “read” solfège. Through singing the syllables from the typed page, the students are relating to the letters as a meaningful tie to the sound of each scale degree. Some worksheets appear as strings of syllables (*do-mi-sol-fa-mi-re-mi-fa-mi-re-do-ti-re-do*), while others are laid out in graphic blocks to show spatial relationships. The goal is to begin to associate sound with each syllable.

In the past when the course began with solfège tied to notation, students often struggled to make the connection. The first unit melodies were easy, and they complained that the syllables were in their way – they could sing it on neutral syllable, so why bother? The solfège felt like pasted on text. The flipped attention to sound first has quelled some of the naysayers in the first term. Without the visual musical notation they would dismiss as elementary melodies, the written text requires them to accept the system and master its application in performance. These same learners report making meaningful connections to function first through sound.

A vertical solfège menu (see Figure 65.1) is written on the board each class and is an ongoing fixture throughout the year. As terms progress, chromatic solfège is added to the left and right of the menu. The menu first serves as an introduction to solfège in which the instructor directs student singing. The instructor points to the menu items as students follow and sing in time. Instructors may also ask students to inner hear as they point to the syllables, and then sing back the solfège pattern that was tapped in tempo. The menu exercises are a focused exercise to develop inner hearing – the inner voice that sings in one’s head without vocalizing. We can recommend that students do this, but in the early parts of the curriculum we must provide directed opportunities for them to attend to practicing this skill.

The menu is also a format for improvised composition. Students come to the menu and compose a melody while the class follows along singing. At first, this is an open, improvisatory activity to build confidence in front of their peers. Eventually, the instructor supplies prompts to the student; for example, four measures of compound meter, including some skips in the tonic triad, concluding with a melodic cadence. They may also lead “dictation” from the menu, tapping as the students inner hear, followed by singing back the melody the student presented.

The menu may also be used to improvise duets. We start with first species counterpoint exercises, where student composers stand on either side of the menu, beginning an octave apart. The “bass” leads, while the “upper voice” reacts to each bass pitch choice (hopefully all consonances). The class either sings along with each part, or transcribes as the exercise unfolds.

The visual of the menu on the board throughout class encourages contour mapping in a variety of activities. While listening to an excerpt, students may visually track up and down the menu as they inner hear. Much like building kinesthetic ties through fingering an instrument, or using Curwen hand signs, the menu provides a visual avenue to forming a method for representation and tracking.

DO	DO
TI	TI
	TE
LA	LA
	LE
SOL	SOL
FA	FA
MI	MI
	ME
RE	RE
DO	DO
TI	TI
LA	LA
SOL	SOL

Figure 65.1 Vertical solfège menu.

Another tool, pitch pattern sing-backs, is used to build melodic memory for short pitch patterns, and further the goal of the connection of sound to syllable. In the classroom, the instructor plays a four- to six-note pattern, followed by the class repeating the pattern on solfège in tempo. As the year progresses, it is important that the pitch patterns represent meaningful gestures in music, for example, modeling closing melodic figures and bass line cliché patterns. This same activity is also used as a pre-dictation exercise, where students write down the solfège. It encourages listening for meaningful patterns in chunks and visualizing the notation as a strategy for longer transcription exercises.

A favorite transcription project from Fall quarter invites students to select a familiar tune (from their playlist or the media) and transcribe only the solfège for the opening section without reference to a musical score. This task frees them from concerns of rhythm complexity, and places the focus on determining tonic by listening for the half step placement of *fa-mi* and *ti-do* in the tune. They are to rehearse their tune and prepare to “dictate” it to the class from memory at the solfège menu. The class activity and ensuing discussion often include the importance of rhythm and tempo in communicating the melodic line, helping to make it recognizable to the class. Student error in the starting solfège, for example, starting “Happy Birthday” on *do* versus *sol*, demonstrates that although the tetrachords (*do-fa*) and (*sol-do*) have equivalent interval structure, the melodic outcomes of those starting points are quite different.

Rhythm is approached in a similar manner in the first unit. Once again, the focus reinforces the relationship of sound to syllables. The instructor performs a one- to two-measure pattern and the class either responds by intoning the associated rhythm syllables in time, or writing down the syllables. The pre-dictation activity focuses on recognition of rhythm ratios and demonstrating understanding of the organization of the sound first. Students check their answers by reciting the syllables back as the instructor repeats the example. In keeping with the sound-to-syllable approach, the first performances of rhythm examples from notation are then read as rhythm syllables in time without tapping. As an added activity, two-part examples may be performed by tapping one voice while intoning the second voice.

The second unit of the Fall quarter builds a bridge toward notation, but now turns to graphic representation of rhythm and solfège mapping. While solfège tracking is still the first step in melodic dictation, students now must develop a graphic tracking method for rhythm that works for them, and it must be “readable” and consistent. Others should be able to perform from it as a meaningful language that translates to sound. We begin the unit by asking the class to adopt a graphic tracking method (see Figure 65.2) that is based on the division and subdivision of beat through a series of slashes (/ \ and combinations of these). The simple strokes can be tracked in real time with sound, and are then easily translated to various equivalent meters in traditional notation.



Figure 65.2 Graphic tracking method for rhythm.

This unit requires students to represent patterns only through the series of strokes, without transferring to notation. The class activities and written homework at the start of this unit require all students to use this tracking model. From these experiences, students may then experiment with developing a system that works for them. Some are spatially based, and others map out beats and use dots and dashes, others come out of symbols much like stem and beam patterns. Students demonstrate and share their systems in real time in front of the class. The systems naturally evolve, especially when we move to compound meters and borrowed divisions. Figure 65.3 shows an example of a compound meter graphic tracking method.

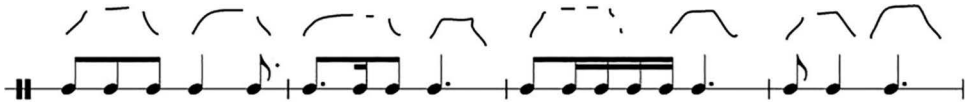


Figure 65.3 Graphic tracking method for rhythm, compound meter.

Although students begin to transfer their solfège and graphic tracking into traditional notation in the third unit, we continue to require these as the first steps in the transcription process. A working session might begin with tracking the rhythm, and continue with adding the solfège above that sketch. The final hearing is then spent transferring their sketch to notation and checking their work. Figure 65.4 shows the layering of rhythm and solfège tracking.



Figure 65.4 Layered rhythm and solfège tracking.

An activity that opens a dialogue and encourages shared strategies to dictation is called “dictation out loud.” In this classroom exercise, two pairs of students (or two individuals) work through a dictation activity at the board. The rest of the class work at their desks, but have the opportunity to watch their peers’ process unfold in real time. The instructor may coach between hearings and can easily see their strategy. Where some pairs will work on one layer at a time, often they split to work on their strength. Student A may track the rhythm as Student B considers the solfège and then they merge their work. Other times, we see students catching beginnings and endings while their peer fills in some of the middle measures. Another approach to studying the workflow is to use colored markers, changing colors with each hearing. In this way, the final answer unveils the path through color. If a mistake occurs, we can literally see the choice in color and it may lead to coaching moments that help us focus on what led to the error.

Reconstructing Familiar Skills

Deconstructing the transcription path encourages students to rethink their connection to melodic and rhythmic events, and in a sense, invites them to rebuild previous ways of representing sound and ultimately building stronger inner representations of concepts in context. One example of an exercise that refocuses attention to a previously owned concept is called Scale Builder. Just as students no longer struggle to sound out syllables in familiar words when they speak, most will freely respond when asked to sing a major scale starting on tonic. The Scale Builder exercise pivots on a single pitch, each time assigning a new solfège syllable and singing down to a new tonic. The focus on descending intervals from each scale degree brings new awareness of the structure of the scale.

1. Sing a major scale, and end by holding the tonic note. This note will serve as the pivot tone for the exercise. (Note: It should be a relatively high pitch, as the class will continue to move down in their range throughout the exercise.)

2. Change the solfège on that note to *re*. Ask students to repeat that note on *re* and then sing down to the new *do*. Follow by singing the new scale, and then return to *re*.
3. Change the solfège on that note to *mi*. Sing down slowly to the new tonic.
4. Continue the pattern until you come full circle back to *do*.
5. Singing down from *sol*, *la*, and *ti* is difficult for students. Be prepared to provide feedback as they work through these steps. Emphasize the task is to sing down from each new solfège syllable. For example, don't allow them to sing up to *do* and then descend.

This activity can be sung by the whole class with the instructor coaching the descending patterns, or the pivot tone can be passed to individual students, asking them to sing down to the new tonic, followed by the class repeating the descending line, and then the new scale.

The Scale Builder has a clear impact on students' intonation in their awareness of the structure of the scale, and in their sense of pitch placement in all aspects of the class. While it can be difficult for those who struggle with sound production, the end result is worth the work. After the class works through the exercise a few times, the next step is to randomize the solfège pivots so that it does not become a learned pattern in the same sequence each time.

Reconsider Technology as Contextual Creative Practice and Promoting Presence

Researchers who focus on the best learning behaviors of Generation Z encourage us not to limit the use of cell phones and technology in our classrooms since their attachment history is deeply ingrained from a very young age. These students are used to learning from others on YouTube, posting videos of themselves performing, and searching for answers to questions, often receiving immediate responses.

Being brought up in the midst of a web evolution, the static nature of taking in new information in words alone does not appeal to Generation Z. Watching YouTube videos is the preferred form of social media for learning new information. The multimedia nature of videos allows students to go beyond just reading about a concept, and instead witness and even virtually experience it.

(Seemiller and Grace, 2016)

While many have embraced online videos as a semi-flipped approach to their classrooms, a good middle ground is to replace isolated drill applications with an online practice space that provides opportunities for continued practice of methods introduced in the classroom. The course website on our learning management system features solfège pattern sing-back practice audio files, rhythm tap/intone back tracks, improvisation loops and drum tracks, and select excerpts for practicing targeted listening and solfège transcription. Transcription projects are always focused on real-life examples and pose level-specific guided analysis questions.

Weekly performance assignments require students to prepare and upload a video directly into the Studio application (for information, visit arcmedia.com) embedded into the Canvas learning management system. They must introduce themselves in a professional manner and complete a performance task. Instructors provide feedback in the form of time-stamped comments within a video uploaded to the tool. The comments appear as pop-up bubbles when the student reviews the video in real time. In addition, peer critiques can be randomly or manually assigned, with multiple reviewers of the same video. This web-based media application turns into an experience with rich implications that go beyond the performance itself. Assigned self and peer assessment in both written and verbal format train students to coach others. Peer assessments also provide real-life

practice in error detection. (This type of video assessment can be replicated through video upload to various learning management systems. Most feature peer assessment options within the assignment creation process, and comments from the instructor can be supplied in the form of a comment window.) While uploaded videos are rarely true sight-reading events, the outcome is increased practice time since they want to post only their best self on the video.

The choice to use online video assessment is part of a broader goal set to help students develop confidence in self-promotion as practicing professionals. The reality of the profession in this digital age requires us as performers, composers, and educators to be entrepreneurs who advocate for their art, reaching out to audiences in a variety of formats.

Building Relevance through Crowd Sourcing

The very first performance video upload of fall quarter is due before the initial class session. Students record and upload a video through the course management system. In that video, students introduce themselves in a professional manner and share their name, area of performance, and their hometown. They also talk about the top piece/song on their playlist, sharing what draws them to the work. This is followed by singing a major scale in a comfortable range. At face value, this appears to be an icebreaker assignment. However, the true long-range goals of the assignment include developing a professional presence as a performer, learning to upload a video to the web, and ironing out tech glitches they may experience using the course management system. In addition, it generates the first list of student-contributed works that instructors will draw from throughout the quarter. Each day instructors share one of these pieces by playing a recording at the beginning of class. The instructor is encouraged to find elements in the work that tie directly to the current class activities. Many times, a guided listening activity develops out of tracking specific rhythm patterns, identifying tonic, transcribing portions of the melody or bass line, or tracking the harmonic progression.

Student compositions are another form of crowd sourcing. Throughout the year, student compositions are compiled to create a unique set of shared practice materials. For example, students write two-part rhythm exercises based on specific parameters and vocabulary of the current unit. In the classroom, the composer introduces and performs their composition for the class as it is projected on the document camera. This is followed by a class discussion of notation style, alignment, and the effectiveness of the composition in meeting the project prompts. The handwritten compositions from each section are then scanned and compiled into a single PDF that is posted on the combined course website.

Another example from later in the year is the sequence unit composition. Classes work in small groups to compose a duet based on a sequential progression. They present it first to their peers in the classroom, and workshop it as a class, helping to refine their voice-leading and the overall effect of the composition. A final copy is contributed to the website and these 15 or so compositions serve as a resource for sight-reading, dictation, and play-and-sings for all six sections of the course. This crowd sourcing approach not only augments the materials available for practice in the textbook but also serves to inspire students to take ownership of the course.

Improvisation

That same connection and ownership can be developed through class composition and improvisation activities that build on how these students already engage with music outside our classroom, through digital media and the internet (Tobias, 2013). Henry Jenkins coins the term “participatory culture” as “a public desire to participate within, rather than simply consume, media” (Jenkins, 2006).

As we introduce solfège in the first unit as a means of relating sound to syllable, we also focus on building facility with this new language. One powerful approach to building solfège fluency is

through improvisation. At first, the improvisation is limited to stepwise movement over a drum track or GarageBand loop that includes a tonic triad drone or repeated pattern. The goal is to have students singing freely, without too many rules to get past the fear of improvisation. As weeks pass, students focus on creating lines that use strong melodic pairs (*ti-do; re-do; fa-mi; la-sol*, etc.) to establish tonic in major key melodies, adding rhythmic motives to unify their work. After several weeks of practice, students are more confident with this new language. This confidence transfers readily when they move from reading syllables to notation. In later quarters, improvisation takes on increasing relevance in the context of partimenti bass lines in the Rule of the Octave and subsequent harmonic paradigm units.

Contextual Connections

Gary Karpinski's *Music Theory Online* article from August 2000, "Lessons from the Past: Music Theory Pedagogy and the Future," advocates the use of literature-based examples instead of those composed to address specific musical concepts. Karpinski states,

While there will always be a place for scales, sequentials, arpeggiations, and a few other instructor-created exercises, we should acknowledge that – since our goal is to teach students to hear and perform real music – we should use as much real music as possible in our teaching.

While traditional sight-reading texts like Rogers and Ottman (2019), Karpinski (2017), and many others do include melodies from the literature, that is only the beginning of their value and application in the classroom. The value of these texts is that they provide the first step and an organized collection of pieces to draw from in richer contexts.

Consider how sight-reading a literature example from the textbook takes on deeper meaning when the instructor plays a recording of the tune they just sang, now in its original context. Guided listening exercises can focus on instrumentation, singing inner voices, and clapping the rhythm of inner parts. Students conduct with the recording and consider metric emphasis of the tonic triad, points of repose – where do they feel relative arrival moments? Throughout the experience we track their responses, helping them build an inner representation of what the score may hold. Ultimately, unveiling the original full score confirms their responses and in some cases refocuses their assumptions.

This contextual mode of instruction gives students credit for life experiences they've gained as listeners and performers of music long before they reached our classes. It is the beginning of building an informed interpretation vocabulary from their instincts and past experience. It provides the framework from which to build forward, and yet is more engaging than merely singing melodies and taking dictation. The question types and depth of the activity depend on the timing in the curriculum. These same pieces can serve as core pieces that we return to in later quarters with deeper analytic questions. It encourages us to serve as mentors, shaping their ability to communicate about music in meaningful ways. Their responses must be valued and guided, and general descriptors gradually replaced with specific terminology.

In later terms we add creative composition activities before the introduction of the original score. After sight-reading the melody, divide into groups and ask them to create a simple bass line that considers the harmonic implications of the melodic line. Sing the two parts and discuss the harmonic intervals formed between the voices as a means to adding an inner countermelody. Invite students to improvise a supporting alto voice to the event. The final step could be to unveil the original score, comparing and contrasting the harmonization and inner voices. Like creating a cover of an original song, this workshopping task invites creativity with pre-existing materials. There is safety in a given framework and yet room for creative choice and conversations grappling with the effect in context.

Summary

As we shape the goals and objectives for our courses, it is critical that we consider the learner and what skills set will prepare them for their futures in the field. The end goals of any curricular adaptation must provide opportunities for students to think in creative ways about the music in front of them and the sounds around them, while encouraging deep engagement in listening, performance, and composition. Our role is then to help our students rediscover a passion for the learning process as extending beyond our classroom and to see it as a life-long endeavor. Only then will our classrooms model what it is to have a stake in being creators and contributors of music, actively engaged in the role of artist, educator, and mentor.

Bibliography

- Jenkins, Henry. 2006. *Fans, Bloggers, and Gamers: Exploring Participatory Culture*. New York: New York University Press.
- Karpinski, Gary S. 2000. "Lessons from the Past: Music Theory Pedagogy and the Future." *Music Theory Online* 6(3). doi:10.30535/mto.00.6.3.
- Karpinski, Gary S. 2017. *Manual for Ear Training and Sight Singing*. New York, NY: W.W. Norton & Company, Inc.
- Nelson, Howard. 2013. "Testing More, Teaching less: What America's Obsession with Student Testing Costs in Money and Lost Instructional Time." *American Federation of Teachers*.
- Rogers, Michael. 2004. *Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies*. Carbondale, IL: Southern Illinois University Press.
- Rogers, Nancy, and Robert W. Ottman. 2019. *Music for Sight Singing*. Upper Saddle River, NJ: Pearson.
- Seemiller, Corey, and Meghan Grace. 2016. *Generation Z Goes to College*. San Francisco, CA: Jossey-Bass.
- Tobias, Evan S. 2013. "Toward Convergence: Adapting Music Education to Contemporary Society and Participatory Culture." *Music Educators Journal* 99(4): 29–36. doi: 10.1177/0027432113483318.

CULTIVATING CURIOSITY

Questions, Relevance, and Focus in the Theory Classroom

Philip Duker

Introduction

What are the most important lessons that students should learn as they progress through the music theory curriculum? While there are many good answers to this question and they will likely differ markedly between institutions, this chapter will argue that one of the overall curricular goals should be to encourage our students to be more curious. Students should learn how to ask meaningful and probing questions about pieces that are relevant to them. They should query the music they are hearing and performing, even if they do not yet have the tools to answer the questions they develop. Arguably, this impulse to be curious about their music will continue to serve them long after they have forgotten some of the finer details of our courses. While others have discussed the importance of asking questions (cf. Rogers 2004, 4–5), I hope to provide a productive framework to think about how we can nurture curiosity in our students.

Curiosity might initially seem like a strange thing to propose as a learning goal.¹ Many will wonder if curiosity is an inherent quality that our students will either have or lack when they enter our classes.² Others may question how to measure or assess whether a student is adequately curious. Still others might ask whether it is even fair to give a student a grade based on this. While these are valid concerns, when considering the overall trajectory of our students, curiosity is perhaps a more important learning goal than many of the more easily measurable outcomes that frequently populate our syllabi. It is important because it frames students' ideas about the scope and relevance of music theory and analysis. Cultivating students' curiosity and the associated habits of asking questions about the repertoire they are performing can allow musicians to see how the ways of thinking we develop in a theory classroom can be useful and helpful to them far beyond the end of a semester.

Getting first- and second-year students to think more deeply about the music they are listening to and performing can seem a daunting challenge. While there are many complications beyond the scope of this chapter, focusing on curiosity and relevance can allow students to successfully apply the concepts and tools developed in a theory class to pieces they care about. Even first-year students with limited notational fluency can explore sophisticated questions (i.e. more challenging activities on Bloom's taxonomy) that show them the necessity of learning notation while also challenging them to think about their music in new ways. There is evidence that an environment of curiosity promotes better retention and learning in general (Gruber, Gelman, and Ranganath 2014; Kidd and Hayden 2015). At the same time, Willingham (2009, 9) writes that "People are naturally curious, but curiosity is fragile." Understanding the factors that encourage and inhibit

curiosity is an important step in cultivating this trait. While there are a number of theoretical models that capture aspects of curiosity, one recent and persuasive formulation understands curiosity as based on five characteristics.

The Five Dimensions of Curiosity

Kashdan et al. (2018) found that there are five personality traits (or dimensions) that help determine how a person expresses curiosity: Joyous Exploration, Deprivation Sensitivity, Stress Tolerance, Social Curiosity, and Thrill Seeking. Below is a brief overview of each of these traits.

People with high scores on the Joyous Exploration scale are interested and open to new experiences, value self-improvement, and show grit when faced with challenges (I-type curiosity from Litman and Jimerson 2004). This characteristic would seem to capture the classic prototype of curiosity, a person fascinated by the world and eager to explore. Those with high Deprivation Sensitivity, on the other hand, are motivated more to fix a perceived lack of knowledge (D-type curiosity from Litman and Jimerson 2004); they experience discomfort in not knowing something and want to alleviate that feeling. Kashdan writes: “Joyous exploration is an appetitive, approach motivation whereas Deprivation Sensitivity is an aversive, avoidance motivation.” (2018, 144; see also Litman 2005).

The next characteristic that Kashdan finds significant is Stress Tolerance or the ability to persevere in new and unfamiliar situations. Those with high levels of Stress Tolerance are able to cope with the anxiety and pressure of novel events or stimuli, and endure these negative feelings while pursuing an activity. Social Curiosity is the next trait that influences a person’s inclination to learn and explore, and those who score high on measurements of Social Curiosity are attuned and interested in social relations. This characteristic can manifest itself in a range of ways, from an interest in hearing gossip to an awareness of social norms.

The last characteristic, Thrill Seeking, measures an individual’s desire to find “varied, novel, complex, and intense experiences” even when this involves risk or danger (Kashdan et al. 2018, 145). This characteristic can manifest itself as addictive and unsafe behaviors (e.g. gambling, substance abuse), but also correlates with effective leadership in high-stress environments.³ Kashdan et al. then find correlations between these characteristics and proposes personality types that describe common combinations of attributes. While some of these characteristics, such as Joyous Exploration or Thrill Seeking, might seem to be beyond the control of a teacher, the way that an instructor sets up the learning environment can surely impact how these characteristics manifest.

Creating a Curious Class Environment

Joyous Exploration

If all of our students came to our courses with high levels of Joyous Exploration, we would find them naturally curious about everything we could discuss; the percussionists and vocalists would be just as interested in the opening bars of Mozart’s K. 331 as the pianists who perform the work. Although this trait may seem difficult to influence, one thing instructors can do is model an attitude of inquisitiveness. A teacher’s enthusiasm plays an important role in whether students see a topic as important. Beyond that, instructors can share some of their research projects, even if it is only tangentially relevant. While performance colleagues have very visible creative activities (e.g. students can attend the recital featuring their professor), many students have no idea what research in an academic discipline involves. Showing them how the material they are learning relates to larger questions of inquiry can plant seeds that grow well beyond the semester.

Another way to foster curiosity in our students is to encourage them when they have questions about a piece (even when they are not the main topic). Also, we can provide opportunities for students to develop questions that will lead them to explore the repertoire they encounter regularly. Listening to a piece as a class, identifying some special moments during that listening, and then developing a series of questions surrounding that moment can serve as a model that students can use on their own. It is also important to show students how questions and subsequent observations about a passage can change the way they listen to and perform a piece.

Deprivation Sensitivity

Students who have high levels of Deprivation Sensitivity would perhaps be best engaged through problems and questions that point to things they do not yet know or understand. Inquiry-based learning and problem-based learning approaches are natural ways to encourage this trait because they begin with questions (see Hughes and Shaffer 2013; Duker, Shaffer, and Stevens 2014). These techniques can also create a more interactive and engaged classroom environment where students display intrinsic motivation to pursue a particular topic. A crucial factor in using these techniques is to make sure that the questions fit into contexts that are relevant and meaningful to the students. Deprivation Sensitivity is most activated when there is a specific piece of information lacking in an otherwise rich context. Without this context in place, students are as likely to check out of the activity or compartmentalize it in relation to your course.

It can also be helpful to offer different levels of engagement with problems. Willingham (2009, 13) writes that when encountering new problems, students make a quick evaluation about how much mental work it will take to solve them. If it is too much or too little, students often quit to avoid being bored or unsuccessful. Differentiated instruction (where students are working on different challenges at different levels) has some potential to mitigate this problem.

Stress Tolerance

Stress Tolerance is an important factor in any learning environment since high levels of stress negatively impact curiosity. While some students remain curious in high stress environments, lowering the stress level will allow many more students to express their curiosity. Frequently, the most stress-inducing activities in a class involve assessment and are negatively correlated with performance (Smith and Smith 2002). Using low-stakes assessments and offering make-up opportunities for poor performances can help alleviate some of the stress that students increasingly feel in our classes.⁴

Beyond assessments, instructors should be mindful of the classroom environment and how they interact with (and sometimes unintentionally intimidate) their students. After surveying a number of studies that looked at the issue, Eyler (2018, 39) summarizes it simply: “Don’t be scary.” Many students feel anxiety about speaking in class and would never reply to a teacher who asks: “Does anyone have any questions?” How we formulate this basic query can have an impact on how students respond. For example, consider these alternatives: “What questions do you have?” “Please ask me two questions about this topic,” or “Please turn to your neighbor and ask each other one to two questions about this.” These latter formulations decrease stress and anxiety since they assume that students have questions, and therefore students are less worried about appearing “dumb” for having questions. Encouraging peer conversations instead of questions in front of the class can further decrease the level of stress. And after monitoring and commenting on these peer interactions, an instructor can broaden the discussion to the whole class in order to clarify important points for all students.

Social Curiosity

While there will certainly be variability depending on the demographics of an institution, it is common to find a noticeable degree of Social Curiosity in most classes. Telling short stories about a composer or an audience's reaction to a work before beginning an analysis can help engage students who otherwise might not care about a piece (and can also make nice connections to Music History courses). By getting students curious about the composer and their social and historical context, your class can become more easily interested in the piece.

Another strategy that would play well to this dimension of curiosity is having students work in pairs or small groups. By engaging in groupwork, students who are more socially curious will likely have greater interest in any activity because it becomes a social one. There have been many studies that suggest that working in groups is beneficial for student learning (see, e.g., Johnson and Johnson 1987). Setting up a low-stakes group assignment where students make their results public can similarly engage socially curious students as it would involve peers and a broader audience (more people) instead of just a course instructor (such as explored in recent public music theory discourse, e.g. Jenkins 2017).

Thrill Seeking

The last dimension that Kashdan identified was Thrill Seeking. For many students, their ideas of a music theory class would seem to be the antithesis of a thrilling adventure. Admittedly, the activities in most classrooms are not likely to give the same rush of adrenaline as a roller coaster or a gambling spree, but performing music or giving a presentation in front of an audience often features some of these same qualities. Giving students the option to play in front of the class (or in small groups) could be a way to engage those students with an inclination toward Thrill Seeking. Having students perform different analytical interpretations of a passage not only allows students to feel the rush of performing, but also allows the students and instructor to make important connections between performance and analysis.

While the earlier strategies are all important considerations in creating an environment that encourages curiosity, those instructors who would like to make curiosity a more deliberate outcome in their courses will want to design activities and assessments that directly engage students toward that goal. The next section will give three examples of what this might look like.

Fostering Curiosity in the Music Theory Classroom: Three Examples

Scrapbooking for Relevance

How can we infuse curiosity from the very beginning of a theory curriculum? How can we cultivate that mindset when the first few weeks of an introductory music theory course are often focused on fundamental vocabulary and music notation skills: reading clefs, scales, key signatures, intervals, triads, seventh chords, and the foundations of rhythm and meter? Establishing a level of fluency with these fundamental ideas is an essential step in preparing students to be successful throughout the whole course sequence. But learning this material often involves memorization and timed drills to increase fluency, which seem antithetical activities to fostering curiosity and wonder.

One assignment or in-class activity that can enliven the study of these basic ideas is to ask students to use a particular lens to analyze a passage they are working on in their lessons or ensembles. When studying intervals, for example, students could catalogue all of the intervals in a passage (including measuring non-adjacent intervals such as the span of small gestures and longer melodies/phrases) and answer some probing questions about how those intervals shape the excerpt (see Figure 66.1; full handout available in the Supplemental Materials online). The written questions get students to

- 1) Please notate a favorite passage/gesture of music below (feel free to select a piece you are currently working on in lessons, ensembles, or just something you enjoy listening to).
<provide staff lines for notation>
- 2) Please identify and label all of the melodic intervals in the passage (e.g. M3, P4, d7, etc.).
- 3) Please identify any vertical intervals or chordal sonorities.
- 4) Discuss the intervallic content of this passage. Do any intervals create a special moment? Are any moments unexpected or surprising? Does the passage feature any chromaticism that changes an interval from what it might otherwise be?
- 5) Looking beyond adjacent melodic intervals, what is the intervallic distance from the first note to the last? Are there any other other gestural intervals that seem prominent in the passage?
- 6) On the staves below, re-write your melody, but change 3-7 notes (either by adding or removing accidentals). Then identify the different intervals compared with the original. Can you create a different affect by changing just a few notes?
<provide staff lines for notation>
- 7) Sing or play (1) and (6), then compare the two. Please comment on how your new melody sounds. Were you able to create a new mood for the passage? Do you like it better/worse? Which intervals changed the melody the most?
- 8) Intervallic changes are often featured in fugal themes. Note how the fugue Subject below is transposed and slightly altered when it is presented again starting on Eb (these 5th related presentations of the fugal theme are called Answers). Please identify and label all of the melodic intervals in the passage (e.g. m3, P5, M6, etc.), and circle any different intervals.
<Insert initial fugue example; e.g. Bach WTC book I, A^b major>
- 9) Some fugue subjects undergo more radical transformations. Please identify and label all of the melodic intervals in the three statements of the fugal opening and circle any intervals that differ from the first statement.
<Insert more complicated fugue example; e.g. Bach WTC book II, C[#] major>

Figure 66.1 Interval worksheet.

reflect on how intervals help shape the sound of this passage, and also challenge them to “re-write” the passage to have a different character. By stimulating them to ask questions about a piece of music they care about, instructors encourage the characteristics of Joyous Exploration and Deprivation Sensitivity. Further, students get to see how gathering these kinds of musical facts can lead them to ask meaningful questions that could affect how they perform their piece.

As a further option, each student could give a mini-presentation in small groups about their piece and group members can discuss and check each other’s work. By making their peers the audience (instead of the instructor), and putting students into a teaching role within a small group, the activity engages students who are socially curious and the presentation could even provide a degree of Thrill Seeking. Finally, students could collect these analyses in a scrapbook of examples that illustrate these fundamental ideas in their own repertoire. Instructors could also extend the activity into a larger project by having students collate examples by instrument or vocal type for future classes. Having this collection of various examples by specialization could help this basic material seem relevant to students. This process can also allow them to see the value of asking questions about the music they are performing and learning (Deprivation Sensitivity).

Discussing Examples in Class

An attitude of curiosity is often helpful to keep at the forefront when discussing musical examples with a class. Much of the content that is typically taught in a theory classroom answers questions that are often unasked and assumed by instructors. What harmonic progressions are typically in this style of music? How does the outer voice counterpoint support this surprising passage? What if the composer had used a diatonic chord here instead? These kinds of questions are often more interesting entry points for students than beginning with “the answers.” Acknowledging these questions at the outset can be a powerful way to entice students into caring about the answers discovered through analysis (Joyous Exploration).

Although music theory teachers often bring in examples to illustrate particular points, the inclination for students to be curious about an excerpt can so easily be lost if the instructor is not careful to allow space for questions. Sometimes even the layout of our assignments can discourage curious contemplation if, for example, it only treats excerpts as examples of a particular type of chord. By bringing in a set of carefully selected examples of applied chords, for instance, we subtly send the message that these real musical excerpts are token instances of this special harmony without a discussion of what motivated those musical choices. When students go through a worksheet with a set of examples like this, they often approach it as a treasure hunt. When they have found the special chord, they apply a label and their work is done with that excerpt; they can move on to the next example.

To be clear, when learning a new chord, students need to practice finding that chord in real contexts, and these scavenger hunts can be a great means of increasing student fluency with identifying a new chord. But if that is the only skill we practice and assess when learning a new type of chord (i.e. students can identify chord X in a passage of music), then our classes will likely not think beyond the level of recognition. As an alternative consider how a passage, such as Figure 66.2, can be used to discuss applied chords, but also how it affords a broader discussion of compositional choice, analysis, ambiguity, and performance interpretation.

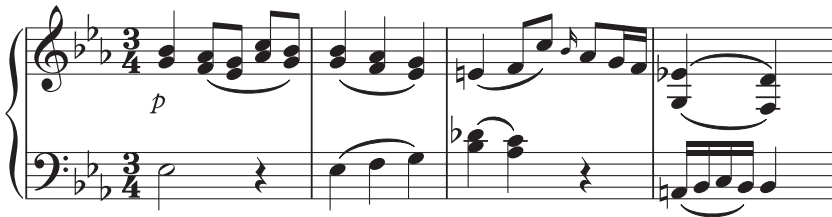


Figure 66.2 Mozart, K. 333, ii; mm. 1–4.

While students could be given the score as shown in Figure 66.2, another option would be to present students with a score that has hidden the downbeat of m. 3 and ask them to work in groups to find a plausible chord to fit that moment (Deprivation Sensitivity).⁵ After coming up with their own solutions, students may be surprised by Mozart's choice. This instance of mixture is highly marked and makes a poignant swerve away from the diatonic opening. Students appreciate the chord much more after they have wrestled with the compositional decision themselves.

Continuing on in the excerpt, the bass embellishments in m. 4 are a great example of what I call either/or in analysis. As Figure 66.3 shows, there are two plausible readings of this moment: either the penultimate chord is a cadential six-four, or it is an applied half-diminished seventh of the dominant. Since both readings are plausible, the example points beyond the simple binary of

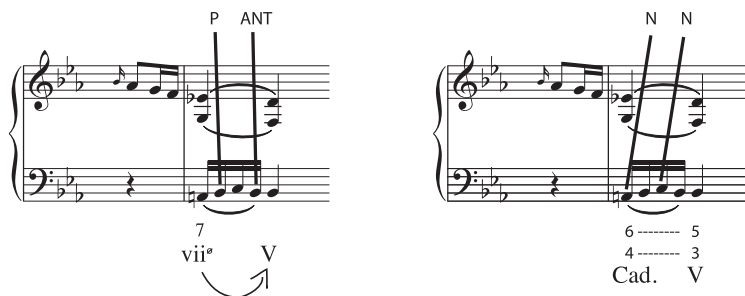


Figure 66.3 Mozart, K. 333, ii; either/or analysis of m. 4.

correct/incorrect, and pushes students to consider the much more interesting question of which reading is better (cf. Bribitzer-Stull 2003).

Although it takes time away from the focal point of a lesson, when students have a debate about competing analytical readings, it is often time well spent. When discussing this example, students often make connections between analysis and performance (and experiment with both interpretations). These discussions can point to the performer's role in projecting connections for listeners, and how a performance can make certain relationships more salient. This instance of ambiguity highlights for students how the process of applying a label can turn into a deeper excursion into analytical readings, performance and interpretation, and the rhetoric of a composition.

When students are given the chance to look further at this example and ask questions about it (Joyous Exploration), they frequently notice and are puzzled by m. 2, which features an “illegal” expansion of a tonic chord using the supertonic. Unlike other musical examples with ambiguous harmonic interpretations (such as m. 4), there is no leading tone available here to turn this into a vii^{o6} chord. I tell my students that this moment may shake their faith in tonal syntax, but we go on to discuss the various ways of understanding this measure (Deprivation Sensitivity).⁶ While we could have only spent a few minutes discussing the use of the applied chord in m. 3, the deeper connections and questions that students have about this short passage are very valuable.

Score Study Sheets

As undergraduates progress through the theory curriculum, expanding the range of analytical approaches they have to understand a piece, the need for them to ask questions that engage relevant repertoire is even more important. Gentner, Loewenstein, and Thompson (2003) found that information transfer, especially involving abstract ideas, does not happen unless students are explicitly taught how to make these kinds of connections. Score study sheets (Figure 66.4; a handout version is available in the Supplemental Materials online) are a nice vehicle for students to reflect

Closure: What musical factors create sectional divisions in this piece (e.g. harmonic, melodic, rhythmic/metric, motivic/phrasing, etc.)? Are there cadences? What other musical factors make some moments of closure stronger than others?

Form: Given the sectional divisions above, what are the different sections of this piece? What is the overall form? Do motives or ideas return? How has the composer arranged the musical material? Feel free to draw diagrams.

Special moments: Where are the special moments in this piece and how are they created? What musical features support them? What challenges do these moments create for performers?

Motives/ideas: What are some important motives in this piece? Where and how do ideas return? What is interesting about these themes? Do they get altered through the course of the piece?

Phrasing: How have you made phrasing decisions in the piece? Are there any challenging spots in terms of phrasing or grouping?

Tonality/harmony: Is the piece tonal? What keys does the music explore and how does it move through various keys? How does this relate to form? If the piece is not tonal, how could you describe the harmonies/chords/collections the composer uses? Are there any similar or repetitive structures?

Function/narrative and connections: Sometimes it can be helpful to personify various musical factors (or agents) such as: motives, themes, harmonies, timbres, gestures, etc. What roles do these different musical agents play in the piece? What connections are you trying to emphasize as a performer?

Figure 66.4 Score study questions.

on the music they are performing and can be designed to integrate various topics in the theory curriculum.⁷ The questions are intentionally vague since they are meant to be applicable to a wide range of repertoire, but they give enough direction that students should understand the kinds of information requested. There is also a deliberate focus on how they can relate the information they discuss to how they perform the piece. Notice that while there could certainly be poor or unsubstantiated answers, there are no simple correct/incorrect responses.

When doing this activity as a flipped homework assignment in class, students bring in a photocopy of a score they are working on (either from private lessons or ensembles) and submit their worksheet by the end of class for a homework grade. The submission deadline encourages students to work diligently during this time, and instructors can walk around to answer any questions or discuss analytical details about pieces. At the end of class, sometimes students would like to have more time to work on the sheet. To allow this, instructors could have students submit a copy of their sheet electronically (using their Learning Management System), and then let students turn in the completed worksheet later (perhaps averaged with the initial submission).

When I first started these assignments with my second-year students (who were preparing for a barrier performance exam), I was happy to find that many saw the activity as a valuable step in their preparation. After doing this project for a number of semesters, I have heard comments from students that they rarely have time to examine their scores outside of the practice room, where they tend to be focused on the technical/mechanical aspects of performing the piece. Going through the worksheet allows students to explore and consider the music they are performing, and at the same time it lets them to see the relevance of the toolkit they develop in their theory classes. From finding motivic connections to having a sense of the larger formal structure of the piece, many students find this process quite valuable (Joyous Exploration).

In terms of grading, instructors should consider treating this as a low-stakes assignment (Stress Tolerance) so students can focus on exploring their pieces, instead of thinking there is a correct answer that their teacher wants them to find. Especially when a class has never done this kind of activity before, one might consider being lenient in grading since it often takes students a bit of time to fully engage with this process. It is also important to give adequate feedback on the first exercise; be sure to comment on how students could improve their written responses and go deeper into a question.

Returning to this activity periodically throughout the curriculum can provide students with a set of opportunities to connect their music-theoretical studies with other parts of their musical lives, and even engage in spiral learning (see Bruner 1960). This notion of coming back to the same questions in subsequent semesters, now with more tools to successfully answer them, often creates epiphanies for students and allows both teachers and students to see how their learning has progressed.

When Students Are Done with the Curriculum

What are the most important lessons that students should learn as they progress through the music theory curriculum? A different way of asking this question is: what do you want your students to remember six months after they finish the theory core? After all of the hard work that we instructors and our students put into learning about the world of music theory, a crucial outcome would seem to be that students *use* some of the ideas and tools in their future music making. Instructors who share this goal should show students what it looks like to investigate the music they are performing, and encourage them to ask questions about their pieces and follow different threads of investigation to go deeper into their art. If we can plant these seeds of curiosity early in the core, then by the time our students finish, we will have set them up with strong habits to lead rich musical lives.

Notes

- 1 For an accessible overview of the topic of curiosity, see Livio (2017).
- 2 While she doesn't address curiosity directly, Dweck (2007) shows how fixed versus malleable mindsets can directly impact student improvement and progress.
- 3 Reio et al. (2006) subdivide thrill seeking into physical thrill seeking and social thrill seeking (part of their three-dimensional model of curiosity). Kashdan's formulation of Thrill Seeking aligns more with the former and captures the latter in the Social Curiosity dimension.
- 4 Many studies show that an increasing number of college students have high levels of anxiety and stress, see, for example, American Psychological Association (2018).
- 5 This fill-in-the-blank approach is a simpler form of the kinds of recomposition activities discussed by BaileyShea (2007), Hoag (2013), and Stevens (2015).
- 6 Typical strategies reduce the chord to a passing sonority within a voice exchange, or look to the corresponding moment in the recapitulation where Mozart does use a vii^{o6} chord and argue this is what is implied at this earlier moment. With some prodding, the class will often entertain a narrative of connecting the missing diminished chord in m. 2 with the other diminished chords in the piece such as understanding m. 3 as a radical attempt to compensate for the tonal *faux-pas* in m. 2. Further echoes supporting this narrative occur in mm. 15, 23, 27.
- 7 For an alternative take on this (more directed toward specific pieces), see Rogers (2017).

Bibliography

- American Psychological Association. 2018. *Stress in America: Generation Z*. Stress in America Survey.
- BaileyShea, Matthew L. 2007. "Filletted Mignon: A New Recipe for Analysis and Recomposition." *Music Theory Online* 13(4). Accessed July 15, 2018. www.mtosmt.org/issues/mto.07.13.4/mto.07.13.4.bailey-shea.html.
- Bribitzer-Stull, Matthew. 2003. "Contention in the Classroom: Encouraging Debate and Alternate Readings in the Undergraduate Theory Class." *Journal of Music Theory Pedagogy* 17: 21–45.
- Bruner, Jerome S. 1960. *The Process of Education*. Cambridge MA: Harvard University Press.
- Duker, Philip, Kris Shaffer, and Daniel Stevens. 2014. "Problem-Based Learning in Music: A Guide for Instructors." *Engaging Students: Essays in Music Pedagogy* 2. Accessed July 15, 2018. <http://flipcamp.org/engagingstudents2/essays/dukerShafferStevens.html>.
- Dweck, Carol S. 2016. *Mindset: The New Psychology of Success*. Updated edition. New York: Penguin Random House LLC.
- Eyler, Joshua R. 2018. *How Humans Learn: The Science and Stories behind Effective College Teaching*. Morgantown: West Virginia University Press.
- Forehand, Mary. 2010. "Bloom's Taxonomy." In *Emerging Perspectives on Learning, Teaching, and Technology*, edited by Michael Orey, 41–47. Self-published, Textbook Equity. https://textbookequity.org/Textbooks/Orey_Emergin_Perspectives_Learning.pdf. Accessed October 26, 2018.
- Gentner, D., Loewenstein, J., & Thompson, L. 2003. "Learning and Transfer: A General Role for Analogical Encoding." *Journal of Educational Psychology* 95(2): 393–408.
- Grossnickle, Emily M. 2016. "Disentangling Curiosity: Dimensionality, Definitions, and Distinctions from Interest in Educational Contexts." *Educational Psychology Review* 28: 23–60.
- Gruber, Matthias J., Bernard D. Gelman, and Charan Ranganath. 2014. "States of Curiosity Modulate Hippocampus-Dependent Learning via the Dopaminergic Circuit." *Neuron* 84 (2): 486–496.
- Guthrie, Chris. 2009. "Be Curious." *Negotiation Journal* 25 (3): 401–406.
- Hoag, Melissa. 2013. "Hearing 'What Might Have Been': Using Recomposition to Foster Music Appreciation in the Theory Classroom." *Journal of Music Theory Pedagogy* 27: 47–70.
- Hughes, Bryn and Kris Shaffer. 2013. "Flipping the Classroom: Three Methods." *Engaging Students: Essays in Music Pedagogy* 1. Accessed July 15, 2018. <http://flipcamp.org/engagingstudents/shafferintro.html>.
- Jenkins, J. Daniel. 2017. "Towards a Curriculum in Public Music Theory" *Engaging Students: Essays in Music Pedagogy* 5. Accessed July 15, 2018. <http://flipcamp.org/engagingstudents5/essays/jenkins.html>.
- Johnson, David W. and Roger T. Johnson. 1987. *Learning Together and Alone: Cooperative, Competitive, and Individualistic Learning*. Englewood Cliffs, NJ: Prentice-Hall.
- Kashdan, Todd B., Melissa C. Stikma, David J. Disabato, Patrick E. McKnight, John Bekier, Joel Kaji, and Rachel Lazarus. 2018. "The Five-Dimensional Curiosity Scale: Capturing the Bandwidth of Curiosity and Identifying Four Unique Subgroups of Curious People" *Journal of Research in Personality* 73: 130–149.

- Kidd, Celeste, and Benjamin Y. Hayden. 2015. "The Psychology and Neuroscience of Curiosity." *Neuron* 88 (3): 449–460.
- Litman, Jordan A. 2005. "Curiosity and the Pleasures of Learning: Wanting and Liking New Information." *Cognition and Emotion* 19 (6): 793–814.
- Litman, Jordan A., and Paul J. Silvia. 2006. "The Latent Structure of Trait Curiosity: Evidence for Interest and Deprivation Curiosity Dimensions." *Journal of Personality Assessment* 86(3): 318–328.
- Livio, Mario. 2017. *Why? What Makes Us Curious*. New York: Simon and Schuster.
- Loewenstein, George. 1994. "The Psychology of Curiosity: A Review and Reinterpretation." *Psychological Bulletin* 116 (1): 75–98.
- Marvin, Elizabeth West. 1994. "Intrinsic Motivation: The Relation of Analysis to Performance in Undergraduate Music Theory Instruction" *Journal of Music Theory Pedagogy* 8: 47–57.
- Reio, Thomas G., Jr, Joseph M. Petrosko, Albert K. Wiswell, and Juthamas Thongsukmag. 2006. "The Measurement and Conceptualization of Curiosity." *The Journal of Genetic Psychology* 167 (2): 117–135.
- Rogers, Lynne. 2017. "Asking Good Questions: A Way into Analysis and the Analytical Essay" *Journal of Music Theory Pedagogy* 31: 93–112.
- Rogers, Michael. 2004. *Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies*. Second Edition. Carbondale, IL: Southern Illinois University Press.
- Silvia, Paul J., and Todd B. Kashdan. 2009. "Interesting Things and Curious People: Exploration and Engagement as Transient States and Enduring Strengths." *Social Psychology and Personality Compass* 3 (5): 785–797.
- Smith, Lisa F., and Jeffrey K. Smith. 2002. "Relation of Test-Specific Motivation and Anxiety to Test Performance." *Psychological Reports* 91: 1011–21.
- Stevens, Daniel B. 2015. "Inverting Analysis." *Engaging Students: Essays in Music Pedagogy* 3. Accessed July 15, 2018. <http://flipcamp.org/engagingstudents3/essays/stevens2.html>.
- Stumm, Sophie von, Benedikt Hell, and Tomas Chamorro-Premuzic. 2011. "The Hungry Mind: Intellectual Curiosity Is the Third Pillar of Academic Performance." *Perspectives on Psychological Science* 6/6: 574–588.
- Willingham, Daniel T. 2009. *Why Don't Students Like School: A Cognitive Scientist Answers Questions about How the Mind Works and What It Means for the Classroom*. San Francisco: Jossey-Bass.

USING VIDEO TECHNOLOGY IN MUSIC THEORY ASSIGNMENTS

Marcelle Pierson

Topic: Using video technology in music theory assignments.

Goal: Instructors will be able to assign and quickly grade homework that includes composition and performance components.

Background: Instructors and their students need access to a course management site, as well as video-recording technology (most likely a laptop computer or smartphone).

In this chapter I propose incorporating a performed component, recorded using a smartphone or computer, into weekly music theory assignments. Connecting written work with its sounding result is a perennial problem in music theory pedagogy; this is especially true for those of us who lack either tight coordination between musicianship and theory or a designated musicianship class altogether. In homework assignments, simple errors such as unaltered leading tones provide ample evidence that students are not hearing what they are writing. I will show how the recent ubiquity of video-capture technology can empower instructors and their students to forge a closer connection between page and sound.

I will first present a sample assignment, outlining some logistics of the recording component and its advantages as I see them. Next, I will consider the potential drawbacks of this method, and suggest alterations for those who wish to avoid keyboard skills and/or incorporate four-part choral writing. I'll conclude with some thoughts about the relationship between this methodology and my philosophy of music theory curriculum building as a whole.

Presentation of Assignment

Figure 67.1 gives a week-by-week overview of my Theory I course and briefly explains how each topic is reinforced with a performance component. Of course, theory courses move at very different paces depending on their institution, instructor, and students; this table is meant to give a wide variety of examples and provide guidance for if and when you reach these topics in your own classroom.

Figure 67.2, found at the end of this chapter, is the second part of a mid-semester weekly assignment from Theory I. The topic of the week is non-chord tones, and we look at examples in class ranging from a Mozart piano sonata to a Fleetwood Mac lead sheet. The first part asks students to analyze non-chord tones in a Scott Joplin rag (not shown here). The second part has them moving from analysis to composition and performance by writing a progression with classical T-PD-D syntax (a review from previous weeks) that incorporates a melody with specified non-chord tones. Each student submits their analysis and composition in hard copy, and also submits a video-recorded performance of their chord progression on piano with the melody sung over it via our online course management system.

Week	Weekly goals	Type of performance
1	Review of key signatures, scales, triads	N/A
2	RN analysis	Introduction to keyboard
3	Chord progressions in pop	Performance of two canonical chord progressions (choosing from four), written out with parsimonious voice leading
4	Seventh chords; reading a lead sheet	A rendition of the chords of Autumn Leaves, part 1
5	Harmonizing a melody	Harmonizing a melody using T-PD-D and singing melody while playing chords
6	Midterm	N/A
7	Non-chord tones	Singing and playing an 8-bar melody with specified non-chord tones and T-PD-D harmonic structure
8	Sentences and periods	Performing an 8-bar sentence or period, melody and harmonization
9	Blues progression and scale	Performing an original blues-scale melody over a blues progression
10	Midterm	N/A
11	Second-inversion triads	Performing a specified chord progression using all four kinds of second-inversion triads
12	Secondary dominants	Performing an original melody and chord progression using secondary dominants
13	Modulation	Performing a series of pivot-chord modulations
14	Final review	N/A

Figure 67.1 Week-by-week overview of Theory I and summary of performance components.

The goal of each of these assignments is to get students writing something that *sounds good*. To that end, many compositional decisions are left outside of their control. The sample assignment given here, for instance, suggests making bars 5–8 similar to bars 1–4, hinting at a parallel period structure that has not yet been covered in class. Putting limitations like this on composition assignments is essential; otherwise, students may end up trying to perform something that doesn’t make sense musically with no idea how to fix it.

The logistics of the recording component of this method often cause a few bumps in the road in the first week or two, with issues arising around file compatibility, uploading from a phone to a course management site, and navigation of the course management site itself.¹ In the first week of class, I always take a moment to show them the assignment on the document projector and talk about where to find the pianos/practice rooms, where to place their phone to record (music stands are good for this), and where to submit their files on our course management system. This allows them to ask questions up front and eases their anxieties about this new kind of assignment. By week 3, things tend to run quite smoothly and students grow accustomed to the idea that there will be a connection between what they can write and what they can perform.

Advantages

I find that recorded video assignments yield three principal advantages. First and foremost, they provide an immediate connection between written composition, embodied performance, and heard result. Using composition assignments with this recorded element motivates students to transcribe the rhythms and melodies they hear internally, sharpening dictation skills even in the absence of an assignment section specifically devoted to them. It also encourages them to challenge

themselves both compositionally and performatively: on the one hand, to compose music that is easily singable and playable and to revise what is theoretically possible as written work into what is musically amenable when performed, and on the other hand, to bring their performance skills to the level of something they feel attached to creatively.

Second, the quality of performance tends to be higher than in on-the-spot musicianship tests, either in class or outside of it, leading to a more satisfying result for the student and mitigating the impact of performance nerves. I have found that asking students to perform live, either in class or in regular check-ins outside of class, yields a tense situation where the students, often visibly nervous, give performances riddled with errors. This is especially true in liberal arts institutions, where students are not necessarily experienced performers and have relatively little training to prepare them for a high-stakes performance situation. Recording to video allows them to try as many times as necessary to get it right, and they tend to be motivated to turn in a high-quality product, which means more quality prep time outside of class.

Finally, having the students submit videos that the instructor can view at their convenience is more time-efficient, easing the burden of assessment and allowing for a more productive use of hours both inside and outside the classroom; one needn't use class time for performances, or block out large swaths of office time for 5-minute appointments. I was able to use this method in a theory fundamentals class of 50 students and one teaching assistant without increasing our workload unduly – usually, the recordings are less than a minute long, and can be helpful in identifying major problems with the written work. They also allow each student a kind of creative license that would not be possible were it necessary to perform these assignments individually either inside or outside of class.

Assessment

I tend to make the performance component worth about 50% of the overall assignment grade in order to emphasize its centrality (assigning it less value will make students see it as less valuable and more expendable if they are short on time). Assessment of the performance tends to be quite individualized – obviously, students lacking piano background have a steeper learning curve to contend with in keyboard assignments, while students with less aptitude for singing will find that aspect of performance more difficult – but it is still possible to put together a general performance rubric to which all students may refer. Generally, this rubric might stress the following three components in equal measure:

1. Steady tempo.
2. Correspondence to written work.
3. Musicality.

If the instructor deducts points for incorrect written work, there's no reason to enact a double taxation by deducting from the performance component as well. Instead, I stress that the performed component should match the written component. Failure on this level will often result in a teaching moment where the instructor can point out what about the student's composition made performance difficult or counterintuitive. I tend to emphasize musicality more for my students that already display facility with the performance skills at hand – this gives them something further to strive for, and will ideally provide them with a more rewarding musical experience.

In terms of grading, I've found that it works best for me to pull up the student submissions on the course management site and move through each assignment individually, first grading the written component and then listening to the performance component for the factors listed earlier. I then assign a grade overall and write any comments about both written and performed work on the written assignment. That way, all of their feedback happens in one place, which makes it easier for both me and the student. Some instructors may be able to grade the written work while listening, which would save time, but I find it difficult to separate these two components in real time.

Drawbacks and Potential Alterations

The main drawbacks of this method as it is presented here revolve around its reliance on two pieces of equipment that may be inaccessible to students: video-capture technology and the piano.

Many institutions of higher learning require students to own a laptop or provide the laptop for them, ensuring that all students have access to the video-capture technology needed for these assignments even if they don't have a smartphone or that phone doesn't have adequate capacity for recording and sending files. Instructors at institutions like community colleges, however, may not reasonably expect all of their students to have smartphones or computers. This is especially regrettable because instructors in those situations are often the ones who could most benefit from this method's advantages for a large classroom with limited grading assistance. In a case where most of the students have access to video-capture technology, however, it is possible to offer students the option of completing the performance component of their assignment during office hours. I've done this in the past, and noted that the in-person option was especially appreciated by my adult learners.

Pianos are an even scarcer resource on some campuses, and instructors may choose not to emphasize keyboard skills at all in their curriculum. I myself have reservations about centering the curriculum on a specific instrument, especially one so tied to classical music. I've persisted in using it because one of the broader goals of my music theory curriculum is a synoptic perspective on the relationship between harmony and melody in both classical and popular contexts. Harmony is perhaps my main focus, and I want the students to be able to audiate it. I did briefly consider having my students buy ukuleles, but was dissuaded by the difficulties I would face in forging a clear connection between written music and instrumental layout. For better or for worse, the way I teach music theory relies heavily upon an understanding of pitch space best visualized as a piano keyboard. In this chapter, I can only hope to begin a conversation about music theory curricula that visualize music differently, and how they might use recorded components on assignments.

In any case, instructors wishing to deemphasize the piano either because of lack of access or a different focus on, say, counterpoint can still incorporate performance into their weekly assignments. For chorale-style writing, I would recommend using a free program like Audacity that allows students to layer multiple lines. I've had some success using this format in species counterpoint exercises (students track one line over the other), and even more could be done using the octave shift feature to make all vocal ranges available to every student. When I have my students submit overtracked sung recordings, I allow less adept singers to accompany themselves with a piano, phone keyboard, or other instrument of choice.

Broader Context and Concluding Thoughts

I am in the fortunate position of building a curriculum at an institution that gives me autonomy in terms of the goals I work toward and the skills with which my students emerge. This attempt to connect written work with sounding experience is part of a larger effort to move my curriculum away from a minutely rendered theoretical accounting of music that seems peripheral to most of my students' lives, and toward a set of practical skills that are broadly applicable across a number of musical styles and practices. These include an understanding of the relationship between melody and harmony, an ability to identify form in a multitude of styles both classical and popular, a sophisticated grasp of the relationship between rhythm and meter, and an overview of the styles and considerations central to art music being created today.

I believe that all music theory instructors should ask themselves whether their students are able to hear, perform, and reproduce the techniques covered in class. If the answer is no, we risk losing the musical aspects of our vocation and turning the enterprise into a Sudoku puzzle. Incorporating performance into assignments enables instructors to insist on a dynamic and embodied relationship to the music we teach.

Week 7 Assignment: Melody and Non-Chord Tones

Part II: Composition and Performance

Write and perform a harmonized 8-bar melody in the space provided below, using the following steps:

- Choose a clef for your melody (wherever you're comfortable singing).
- Choose a key, major or minor, that has at least one sharp or flat and write it in both staves.
- Choose a time signature and write it in each line after the key signature.
- Write a chord progression that has good classical syntax: T (PD) D T. Write at least one chord per bar.
 - Write either a half or deceptive cadence in bar 4 (bars 3–4 for deceptive).
 - Write an authentic cadence in bar 8.
 - Include at least one chord in inversion.
 - Include at least two different seventh chords.
 - You may repeat material from bars 1–4 in bars 5–8 if you wish.
- Write a melody over your chord progression.
 - All non-chord tones should be of a kind studied in class – circle and label them (N for neighbor, P for passing, S for suspension, R for retardation, A for anticipation).
 - Use at least 4 neighbor and/or passing tones.
 - Use at least two suspensions, retardations, and/or anticipations.
- Record yourself playing piano and singing the melody on whichever syllables work best for you. Submit this recording to our course management portal under the appropriate assignment heading and bring this page to class as a hard copy on its due date.



Figure 67.2 Theory I mid-semester assignment excerpt.

Note

- 1 By and large, the default options on phones and course management systems will work. Occasionally students will run into problems with phone capacity or not having a smartphone at all; see “potential alterations” below for suggestions for these situations.

68

INCORPORATING IMPROVISATION IN A THEORY CLASS ON CONTEMPORARY MUSIC

Cynthia Folio

Topic: Improvisational activities in the post-tonal theory classroom.

Goal: Students will develop their improvisational skills and work with contemporary materials through a structured and fun exercise.

Background: An understanding of various twentieth-century compositional materials and techniques.

Lesson Plans for Improvisational Activities

While it is possible to incorporate improvisation into all levels of theory classes, a contemporary music theory course is a natural setting for improvisation because it allows students to explore new materials. I incorporate improvisation into my Theory IV class (and my graduate seminar on Post-Tonal Theory) at Temple. In Theory IV, all Fridays begin with a ten-minute jam session, based on materials studied during that week. Students therefore know to bring their instruments (and vocalists sometimes bring alternative instruments).

Figure 68.1 outlines a plan of weekly improvisational activities that is spread throughout the semester. The purpose of each jam is to have students understand the materials for the week by working through them in a live setting. Improvisation allows them to get the materials “under their fingers” or “in their ears,” while developing their ensemble skills and their creativity. Besides, the sessions are fun and engaging, and they sometimes result in amazing performances! These sessions do take some coaching on my part. I have to remind them to listen to the overall effect, and to stop playing on occasion to thin out the texture. Depending on the size of the class, it can be effective to break the class into smaller groups and cue each group. I have to encourage some students to play out more or to lay back. I “conduct” the shifts to new scales and if I sense that a rhythmic groove is beginning to happen, I try to encourage others to join in. I try to coach the class to create an effective ending, which might be sudden and loud or might be quiet and come to a “cadence” on a particular note.

In this lesson plan, I provide detailed information about the Indeterminate Jam, focusing on the role aleatory plays in composition, as well as information about three other improvisational activities from Figure 68.1 that can be easily incorporated into the post-tonal theory classroom.

Wk	Topic	Activity
1	Modes C Lydian- Mixolydian	Begin on a unison C and perform slowly-rising scales in free time; slowly break away from the rising scales into short motives from the scale; end with falling scales and on C. Preparation: listen to the overture to <i>Nixon in China</i> , by John Adams.
2	WT	Begin softly with WTo (with C as center) creating a “floating” quality; reach a climax and switch to WT1; end softly on C# as center for an overall arch shape. Preparation: analyze “Voiles” by Debussy.
3	Octatonic	Shift from one OCT to another on cue – use an atonal jazz style, with a free walking bass line; encourage performers to swing. Preparation: students transcribe Steve Coleman’s tune, “Eight Base Probing” and it is analyzed in class.
4	Diatonic pentatonic	Begin with C-D-E-G-A and move to the black-note pentatonic on cue to experience the total lack of pitch-class invariance.
5	Hirajoshi pentatonic	Begin with the mellow mood of “Sakura” and see what happens. Preparation: listen to arrangements of Sakura.
6	Hexatonic	Use 2 complementary hexatonic scales; and emphasize SC (014) as a motive. Switch between transpositions on cue, to experience the total invariance.
7-8		Midterms
9	Freygish scale	Choose a tune (I use “Quando El Rey Nimrod”) that is based on the Freygish scale, called “Phrygian Dominant.” Play/sing the tune as a class and encourage them to improvise, beginning slowly with ornaments and working toward full improvisation on the scale. Preparation: study the structure of the scale and listen to a few versions of the chosen tune.
10	12-tone	This exercise is a modification of an exercise from Meyer Kupferman’s <i>Atonal Jazz</i> . Divide a 12-tone row into its discrete trichords (T) to create “chord changes” (one T per bar); the next three phrases use the other three permutations (I, R, RI) to create a 16-bar blues structure. The pianist plays the trichords in various voicings; melodic players improvise on notes from the trichord “changes” (see Supplemental Materials); low instrument (or pianist) provides a free walking bass line.
11	Minimalism	Perform the first few lines of Terry Riley’s <i>In C</i> ; if possible, borrow percussion instruments from Music Ed or percussion studio.
12	Polyrhythm	Set up a two-part polyrhythm consisting of (a) 4 steady beats of $\frac{12}{8}$ time (3+3+3+3 eighth notes) plus (b) the West African bell pattern (2+2+1+2+2+2+1). Repeat this as an ostinato; once a “groove” is achieved, students can improvise rhythms or vocals over the ostinato. Preparation: have students read David Locke’s article in <i>Music Theory Online</i> 10.16.4 and/or listen to examples of music from the Ewe tribe of W. Africa.
13	Indeterminacy	See Indeterminate Jam (Figure 2)
14		Finals

Figure 68.1 Weekly schedule of improvisation activities.

The Indeterminate Jam

The first thing I do is put the “score” to the Indeterminate Jam on the screen (see Figure 68.2, also available on the Supplemental Materials website). I ask students to get their instruments ready, with usually two or three students positioned at the piano. Vocalists can participate equally well in this exercise, unlike some of the other improvisations, where it is sometimes difficult for them to pick out notes in a particular scale or collection. In this jam, pitch is only important in Boxes 4 and 5, but finding the notes is not an issue.

Indeterminate Jam

Guidelines:

All boxes contain directions that can be either played or sung. The conductor decides the order of events by holding up a number in his or her left or right hand. It is also possible to combine two boxes by using both hands (half the room on one box and the other half on another). Another possibility: divide the class in half and separate them spatially; assign a conductor for each half.

BOX #1 Play or sing random high notes, as short and soft as possible, to create a pointillistic texture. Rest in between so the texture stays light.	BOX #2 Play or sing long low notes and make them loud, gross, and “growly.” This should create a dense texture.
BOX #3 Play or sing any note; give it a strong attack and a long decay. If singing, use the word, “Bah”!	BOX #4 Play or sing any chromatic notes within the minor 3rd between A and C (choose whatever 8ve is comfortable); play them fast, softly, in random order, and slurred to create a “murmuring” texture.
BOX #5 Play or sing one of your favorite melodies (in any style).	

Figure 68.2 Indeterminate jam.

Next, we “rehearse” each box as a class to get an idea on how each one works and sounds. The students generally catch on fairly quickly. I then ask for a volunteer to “conduct.” The conductor begins the improvisation by holding up a number in his or her hand, which tells the students which box to execute; they can change this number at any time, or use two hands with different numbers – one for each side of the class.

Two Possible Variations on the Indeterminate Jam

1. Divide the class into two groups and assign two conductors – one for each group. If possible, divide the two groups spatially, to create a spatial element to the improvisation.
2. Provide the class with five empty boxes and have the class come up with their own instructions to create their own textures. This could be done as a group activity, where each group comes up with its own instructions.

Purposes and Benefits of the Indeterminate Jam

One of the primary purposes of this exercise is to have students explore multiple dimensions of indeterminacy (pitch, rhythm, articulation, timbre, texture, form). In doing so, they get the experience of creating a variety of textures. An added creative element is that the conductor(s) have control over the form, length of the piece, dynamics, and texture. As in all of the improvisation exercises, students develop their collaboration skills by listening and reacting to the other performers. Unlike some of the other exercises, all students can participate equally, since singers do not need to struggle to sing “correct” notes. In fact, both students and instrumentalists become

less inhibited about improvising since there is no such thing as a wrong note. Students find this exercise to be a welcome expressive outlet, especially since it comes in the last few weeks, at a particularly stressful time in the semester.

Additional Improvisational Activities

Figure 68.1 shows more of my favorite jams and how they might fit into a typical semester schedule. The first activity in Figure 68.1 involves using a single modal scale as a departure for an improvisation; this is a great way to “break the ice” in the first week of classes. Any music major is capable of playing or singing a scale. I instruct them to enter with an ascending scale at any time, and to play evenly but at their own pace. I suggest they begin slowly and when they reach the top, start the scale again from the bottom, a little faster each time. On a cue, they finish their ascending scales and begin descending scales. On another cue, they finish their descending scales and end on a unison C. The indeterminate element is in the tempo and entry points. I like to use the C Lydian-Mixolydian mode, but any mode can be substituted and several modes can be combined or alternated. The overture to John Adams’s *Nixon in China* can serve as a model of an extended passage based on constantly rising scales (links to this and other recordings mentioned can be found on the Supplemental Website). Students who play low instruments might even be encouraged to sustain bass notes so that the scale suggests different centers, as in Adams’s overture. He begins with an Aeolian scale on A, with A in the bass; by measure 6, F becomes the bass note, turning the scale into F Lydian.

The octatonic jam is particularly effective, especially if you have a student in class who can lay down a groovy walking bass line. I got the idea for the octatonic jam from a tune recorded by the Philadelphia/NYC jazz musician, Steve Coleman, called “Eight Base Probing.” (A link to a recording and materials for studying this piece are available in the Supplemental Materials.) To prepare for this improvisation, I ask my students to transcribe the tune as an assignment, which makes an excellent dictation exercise. I provide a template for them with varying amounts of information dependent on the level of the class (see two different templates in Supplemental Materials). We study the tune in class before doing the improvisation because it is jam-packed (pardon the pun) with contemporary techniques: polytonality (B versus F); polymodality (F major/minor triad as constant bass ostinato); parallelism (parallel diminished triads); asymmetrical meter of $\frac{11}{8}$ (3+3+3+3+2); and polyrhythm ($\frac{11}{8}$ over a $\frac{2}{4}$ bass ostinato). Most importantly, the tune is based on one octatonic scale and the improvisations are drawn primarily from this scale. I guide the student improvisation by asking students to take solos, duets, or cue the whole class as a group. The bass ostinato can either continue, or morph into a walking bass line. This exercise usually requires some coaching on how to swing.

For the twelve-tone jam, I model our improvisation on an exercise from Meyer Kupferman’s book, *Atonal Jazz*. He splits his twelve-tone row into its discrete trichords, which are all (014)s and (026)s. (An example is available in the Supplemental Materials.) These trichords become the chord progression for a 32-bar “blues.” After one 4-bar phrase of the Prime (one trichord per bar), another row form can be used for the second 4-bar phrase, etc. As in the octatonic jam, we do this in a jazz style. The pianists can play the trichords in various voicings and registers; the instrumentalists/singers improvise using notes from the trichords, and someone lays down a walking bass line. The background preparation for this exercise includes set theory, twelve-tone theory, and properties of the trichords. Note that (014) and (026) are especially “jazzy” trichords; for example, the (026) can imply a major-minor seventh chord, the typical harmony of a blues.

Purposes and Benefits of Improvisation in the Classroom, More Generally

1. Students get to work (play) with the materials that we are studying.
2. Students are actively engaged.
3. Students develop their ears and their technique.
4. Students learn to listen to one another and collaborate.
5. Students develop skills that they may need as professional musicians.
6. Students learn how to swing and follow “changes” in time.
7. Students often discover that they really CAN be creative and begin to explore improvisation and/or composition further.
8. Students can apply the sense of “play” and active engagement in other classes and other aspects their lives.
9. Students learn skills that will help them get jobs (See AAC&U Report, quoted below).

According to a 2013 study by the Association of American Colleges & Universities (AAC&U), “It Takes More Than a Major: Employer Priorities for College Learning and Student Success,” the number one trait that employers are looking for is innovation. These statements occur at the very beginning of the report:

Nearly all employers surveyed (95%) say they give hiring preference to college graduates with skills that will enable them to contribute to innovation in the workplace. More than nine in ten agree that ‘innovation is essential’ to their organization’s continued success.

The Importance of Incorporating Improvisation (and Composition) in Theory Classes

Christopher Azzara begins his TEDx talk about improvisation with the following statement: “Improvisation is one of those topics that when most people hear the word, they think of two four-letter words: ‘jazz’ and ‘fear.’” Students with years of classical training are often afraid to play without music for fear that they might play wrong notes or because they think they are not capable of being “creative.”

According to Stephen Wanhg, “If we ... taught our students no more than how to transform their fears into positive creative sources, that lesson alone might be worth the tuition.” The National Association of Schools of Music (NASM) recognizes the importance of incorporating improvisation into our courses. The word “improvisation” appears on a total of 14 pages in the *NASM Handbook 2017–18* under many programs (both graduate and undergraduate). The following is one quote, from the “Common Body of Knowledge and Skills for all Baccalaureate Degrees in Music and All Undergraduate Degrees Leading to Teacher Certification”:

Composition/Improvisation. Students must acquire a rudimentary capacity to create original or derivative music. It is the prerogative of each institution to develop specific requirements regarding written, electronic, or improvisatory forms and methods. These may include but are not limited to the creation of original compositions or improvisations, variations or improvisations on existing materials, experimentation with various sound sources, the imitation of musical styles, and manipulating the common elements in non-traditional ways.

I’ll end with a quote attributed to Benjamin Franklin: “To cease to think creatively is to cease to live.”

Bibliography

- Azzara, Christopher. 2011. TEDxRochester. Accessed 9/30/19. www.youtube.com/watch?v=e4LlKG035Eg.
- Coleman, Steve and Five Elements. 2002. "Eight Base Probing," *On the Rising of the 64 Paths*. LBLC 6653. Accessed 9/30/19. www.youtube.com/watch?v=B4J_j6_I5DM.
- Hart Research Associates. 2013. AAC&U Report, "It Takes More Than a Major: Employer Priorities for College Learning and Student Success." Accessed 9/30/19. www.aacu.org/leap/documents/2013_EmployerSurvey.pdf.
- Kupferman, Meyer. 1992. *Atonal Jazz: A Systematic Approach to Atonal Jazz Improvisation*. Dorn Publications.
- NASM *Handbook*. 2017–18. Accessed 9/30/19. <https://nasm.arts-accredit.org/accreditation/standards-guidelines/handbook/>.
- Wangh, Stephen. 2013. *The Heart of Teaching: Empowering Students in the Performing Arts*. Routledge.

NOTES ON CONTRIBUTORS

Editor

Leigh VanHandel is Associate Professor of Music Theory at the Michigan State University College of Music, with a courtesy appointment in Cognitive Science. Her research interests include music cognition, music theory pedagogy, the relationship between music and language, computer applications in music research and pedagogy, and how all of those things relate to each other. She has presented papers at numerous regional, national, and international conferences and has published articles in journals such as the *Journal of Music Theory Pedagogy*, *Music Perception*, *Journal of New Music Research*, and *Empirical Musicology Review*. She is the author of *Music Theory Skill Builder*, a web-based fundamentals development environment licensed and distributed by Oxford University Press.

Contributors

Joshua Albrecht is an Assistant Professor of Music Theory at Kent State University. He has published on musical expressivity and communication, computational musicology, music cognition, and folk and popular music analysis, appearing in journals such as *Music Perception* and *Music Theory Online*. Tying these various research threads together is the application of empirical methodology to music research. Two recently published methodological chapters on this topic have appeared in the *Oxford Handbook of Music and Corpus Studies* and in *Historische Musikwissenschaft* in the *Kompendium Musik* series. He has previously served as Associate Professor of Music Theory at the University of Mary Hardin-Baylor.

Anjni H. Amin is a Doctoral Researcher at Northwestern University. Her research addresses a range of issues, including expressive performance, music theory pedagogy, world music pedagogy, music and emotion, music education, and the intersection between psychology and music theory. Her dissertation examines the development of expressive interpretation skills through communicative interaction between performer-pedagogue and student in the collegiate performance studio.

Joe Argentino is Associate Professor of Music Theory at Memorial University of Newfoundland, specializing in post-tonal and serial music. His current research interests include the connection between form and text in Arnold Schoenberg's religious works, the pedagogical study of improvisation at the keyboard, and the late works of Franz Liszt. He has presented papers at numerous regional, national, and international conferences, and has published articles in *Intégral*, *Music Theory Online*, *Music Analysis*, *Journal of New Music Research*, and *Music Theory Spectrum*, and

reviews in *Music Theory Online* and *CAML Review*. He won the prestigious McMaster Students Union Excellence in Teaching Award in Humanities at McMaster University in 2013.

Brent Auerbach is Associate Professor of Music Theory at the University of Massachusetts, Amherst. His research focuses on formalizing the concept of the musical motive and extending its applications for analysis. Other research interests include the group-mathematic properties of harmonic sequences, theory pedagogy, and the aesthetics of Baroque composition and counterpoint. Brent has had articles published in *The Journal of Music Theory*, *Music Theory Online*, *Theory and Practice*, *Intégral*, and in *Pop-Culture Pedagogy in the Music Classroom*, ed. by Nicole Biamonte (Scarecrow Press, 2010). He has given papers at annual meetings of the Society for Music Theory, the New England Conference of Music Theorists, the Music Theory Society of New York State, the West Coast Conference of Music Theorists, and the Texas Society for Music Theory.

Michael Baker is Associate Professor of Music Theory at the University of Kentucky. His teaching and research focus on text-music relationships in song and opera, Schenkerian studies, and semiotic approaches to musical meaning. His research appears in journals such as *Theory and Practice*, *College Music Symposium*, *Music Analysis*, *Journal of Schenkerian Studies*, and *The Musical Times*, and in essay collections published through Oxford University Press and Routledge Press. He was recognized through the College of Education's Teachers Who Made a Difference program in 2017 and 2019, and serves as a faculty fellow within the Chellgren Center for Undergraduate Excellence.

Nathan Baker is the Music Theory Coordinator at Casper College in Wyoming where he teaches courses in written and aural theory, music technology, and film and video game music, as well as running the composition and low brass studios. He has written on topics ranging from neo-Riemannian patterns in Schoenberg's early atonal music to form, harmony, and meaning in video game music. More recently his research has focused on music theory pedagogy, particularly historical traditions such as partimento practice. Outside of teaching, Baker performs regularly as a trombonist and is a member of the Wyoming Symphony Orchestra. In his (limited) free time he enjoys playing contemporary board games and exploring world cultures by learning to cook their cuisines.

Michael Berry is a part-time Lecturer in Music at the University of Washington (Seattle and Tacoma campuses) where he teaches and supervises the first-year theory and ear training sequence. He also teaches courses on rap music, music and trauma, post-tonal theory, and the history of rock and roll. He previously served as associate professor of music theory and coordinator of undergraduate theory at Texas Tech. His textbook, *Listening to Rap*, was published by Routledge in 2018. He is active as a classical double bassist in the Pacific Northwest.

Nicole Biamonte is Associate Professor of Music Theory at McGill University in Montreal. Among her publications are articles and book chapters on pitch structures, form, and meter and rhythm in popular music (in *Music Theory Spectrum*, *Music Theory Online*, and numerous essay collections); exoticism in the music of Rush (*Rush and Philosophy*, ed. Berti and Bowman); musical representation in the video games *Guitar Hero* and *Rock Band* in her own edited collection, *Pop-Culture Pedagogy in the Music Classroom*; and historicist aspects of nineteenth-century art music (*Beethoven Forum* and *Intégral*). She recently completed a three-year term as the editor of *Music Theory Online*.

Jason Britton is Assistant Professor of Music at Luther College in Decorah, Iowa, where he teaches courses in music theory and aural skills. He received his PhD in Music Theory from the University of Oregon, and his research explores aspects of Schenkerian analysis, phrase rhythm, and musical humor. Most of all, he enjoys getting outdoors with his wife and two young sons.

Michael Buchler is Professor of Music Theory at Florida State University. He has served as Vice-President of the Society for Music Theory and President of Music Theory Southeast. He principally writes about atonal music and its analytical methodologies and about the music of Broadway and its Tin Pan Alley antecedents. His work appears in *Music Theory Spectrum*, *Journal of Music Theory*, *Music Theory Online*, *Intégral*, *Journal of the Society for American Music*, and other publications. He has received awards for undergraduate and graduate teaching at Florida State University, The University of Iowa, and the Eastman School of Music, where he earned his PhD.

Patricia A. Burt is an Assistant Professor of Music Theory at the University of Delaware. Her research in the field of music theory pedagogy includes the use of play in the theory classroom, the cultivation of fundamentals fluency in first-year music majors, and approaches to large-scale design at the outset of the theory core. Outside her work in the field of pedagogy, she has developed an approach to register analysis that can be applied to stylistically diverse compositions in order to study the ways in which register and the use of registral space contribute to the musical design and meaning of a composition.

Timothy Chenette is Associate Professor of Music at Utah State University. His pedagogy research addresses creativity, diversity of repertoire, and aural skills curriculum reform based on research in cognitive science, and has been published in *Journal of Music Theory Pedagogy*, *Engaging Students: Essays in Music Pedagogy*, *College Music Symposium*, and *Utah Music Educators Journal*. He has also published and presented on the analysis of early music, particularly the music of the c. 1400 *Ars subtilior*.

Thomas Childs is the head of Theory and Musicianship at Interlochen Arts Academy. He is a composer who explores the intersection of popular, classical, and world music traditions. His works have been performed by eighth blackbird, Alia Musica, and Tala Rasa Percussion among others, from Pittsburgh to Paris. His work *Coffee Hands* is a symphonic exploration of the folk music and culture of coffee-growing regions around the globe.

John Covach is Director of the University of Rochester Institute for Popular Music and Professor of Theory at the Eastman School of Music. He has published dozens of articles on topics dealing with popular music, twelve-tone music, and the philosophy and aesthetics of music. He is the principal author of *What's That Sound? An Introduction to Rock Music* (W.W. Norton) and has co-edited *Understanding Rock* (Oxford University Press), *American Rock and the Classical Tradition* (Routledge) and *Traditions, Institutions, and American Popular Music* (Routledge), *Sounding Out Pop* (University of Michigan Press), and the *Cambridge Companion to the Rolling Stones* (Cambridge).

Stacey Davis holds a PhD in Music Theory from Northwestern University and is currently Associate Professor of Music Theory and Associate Chair of the Department of Music at the University of Texas at San Antonio. She is also a 2019 recipient of the University of Texas System Regents' Outstanding Teaching Award. In her research, she seeks to make connections between the analysis of musical structure, empirical research in music cognition, studies of expressive performance, and music theory pedagogy. Published articles appear in *Music Perception*, *Psychology of Music*, *Musicae Scientiae*, *Music Theory Online*, *Journal of Music Theory Pedagogy*, *BACH: Journal of the Riemenschneider Bach Institute*, and *Understanding Bach*.

Stefanie Dickinson is Associate Professor of Music Theory at the University of Central Arkansas. She has presented papers and published on Liszt's late experimental idiom, multi-level approaches to memorizing piano music, and music theory pedagogy. In addition to her work as a

music theorist, she is an avid proponent of new music. She has performed works of many living American composers as both soloist and collaborative pianist, including world premieres in the United States and abroad. Most recently she collaborated on a CD of composer Karen Griebing's song cycle "Fractal Heart" on the Centaur label. She holds degrees in Music Theory from the Eastman School of Music (PhD) and Northwestern University (MM) and in piano from Auburn University (MM) and the University of Georgia (BM).

Christopher Doll is Chancellor's Scholar and Associate Professor of Music in the Mason Gross School of the Arts, at Rutgers, the State University of New Jersey. He teaches graduate and undergraduate classes in music theory, analysis, composition, and the history of popular music. He is the author of the monograph *Hearing Harmony: Toward a Tonal Theory for the Rock Era* (University of Michigan Press, 2017) and articles on a range of topics, from Bach to Babbitt to Hans Zimmer to "Louie Louie."

Douglas Donley is a PhD candidate in Music Theory at the University of North Texas. He has previously completed a Bachelor's in Music Education at Louisiana Tech University and a Master's in Music Theory at the University of North Texas. His teaching experience spans classes in music theory, aural skills, choir, wind ensemble, and piano. In addition to pedagogy, his research interests include rhythm and meter, history of music theory, hymnology, war-era music, the *partimento* tradition, and schemata theory.

Philip Duker is Associate Professor of Music at the University of Delaware. His current research focuses on pedagogy, aesthetics, and repetition in twentieth-century music. He has published articles in *Perspectives of New Music*, *Music Theory Online*, and *GAMUT*. In addition to being one of the coordinating editors for *Engaging Students: Essays in Music Pedagogy*, he is the director of the Institute for Transforming University Education at the University of Delaware.

Walter Everett is Professor of Music at the University of Michigan. He is the author of both the two-volume study, *The Beatles as Musicians*, and *The Foundations of Rock*, and co-author with Tim Riley of *What Goes On: The Beatles, Their Music and Their Time*, all published by Oxford University Press. He is currently co-authoring, with Katie Kapurch, a book on sex and gender in rock music, for Bloomsbury Press. In addition to editing or co-editing three other books of analytical essays on popular music, Everett has published more than 30 chapters and articles on rock music from Elvis to Missy Elliott, as well as other analytical papers on eighteenth- and nineteenth-century song. He has presented keynote talks to national and international meetings in Liverpool, Nashville, Rochester, Finland, and Germany, and has spoken at dozens of conferences and universities from Vancouver to Salzburg to Canberra.

Cynthia Folio is Professor and Chair of Music Studies at Temple University, where she was honored with the Lindback Award for Distinguished Teaching and the Creative Achievement Award. Her areas of research are in the relationship between analysis and performance, analysis of jazz, and analysis of contemporary music, including articles and book chapters in *Perspectives of New Music*, *Intégral*, *Concert Music*, *Rock and Jazz Since 1945*, and *Berio's Sequenzas*. She is also a flutist and composer; her compositions are recorded on many CDs, including *Inverno Azul* (BCM+D label); *Flute Loops: Chamber Music for Flute by Cynthia Folio* (Centaur); and a jazz CD, *Portfolio* (Centaur).

David Geary is an Assistant Professor of Music at Wake Forest University. His research interests include music theory pedagogy, popular music, rhythm and meter, Verdi operas, and Renaissance counterpoint. He has published in the *Journal of Music Theory Pedagogy* and has presented at meetings

for the Society of Music Theory, Music Theory Midwest, the Music Theory Society of New York State, and Pedagogy into Practice: Teaching Music Theory in the Twenty-First Century. He earned a PhD in Music Theory from Indiana University, MA in Theory Pedagogy from the Eastman School of Music, and a BM in both Music Theory and Music Education from Ithaca College.

Chelsey L. Hamm is Assistant Professor of Music Theory and the Coordinator of the Music Theory, Aural Skills, and Keyboard Curricula at Christopher Newport University. Her research focuses on subjects such as music theory pedagogy, music and meaning, medieval music treatises, the music of Charles Ives, and most recently vocal timbre in the music of Kesha. She is committed to the pursuit of research in music theory pedagogy, and has recently embarked on a large collaborative project to overhaul and expand *Open Music Theory*, the only online open-source music theory textbook.

Matthew Heap is an Assistant Professor of Music Theory and Composition at West Virginia University. He has given presentations on curriculum reform, digital learning, and gamification at national and regional conferences, and has been given awards for his dedication to the integration of technology into the classroom and his overall pedagogical practice. Matthew's theory research centers around pedagogy, but also includes twentieth-century topics with a particular focus on Luciano Berio's *Sinfonia*. An active composer, Matthew has had pieces performed both across the United States and internationally. He is currently working on a project to use video game mechanics to teach theory concepts.

David Heetderks is an Assistant Professor of Music Theory at the University of North Texas, where he teaches Music Theory classes for classical and pop/rock repertoires. He researches form, text, and chromaticism in pop/rock, and he has also written on the expansion of tonal techniques in twentieth-century classical music. His articles have appeared or are forthcoming in *Music Theory Spectrum*, *Music Theory Online*, *Music Analysis*, *Popular Music*, *Intégral*, and *Theory and Practice*.

Erik Heine is Professor of Music and the Assistant Director of the Honors Program at Oklahoma City University, where his research primarily focuses on film music and music theory pedagogy, particularly form. He is the author of *James Newton Howard's Signs: A Film Score Guide*, published by Scarecrow Press in 2016. His articles have appeared in various edited collections, as well as journals such as *Music Analysis* and *The Journal of Music Theory Pedagogy Online*. He also regularly contributes to *Film Score Monthly Online*, the industry's premiere resource for film music.

Áine Heneghan is Associate Professor of Music Theory at the University of Michigan. In 2019 she was Visiting Professor at the Universität für Musik und darstellende Kunst Wien. Her research interests include the Second Viennese School, sketch and source study, history of music theory (with an emphasis on theories of form), and the analysis of world music (especially Irish music). Her work has been published in *Music Theory Spectrum*, *Journal of Music Theory*, *Perspectives of New Music*, *Journal of the Arnold Schönberg Center*, *Theory and Practice*, and *Music Theory & Analysis*, as well as in various edited collections. She has served as Reviews Editor for *Music Theory Spectrum* and as Member-at-Large on the Society for Music Theory's Executive Board.

Melissa Hoag holds a PhD in Music Theory from Indiana University with doctoral minors in piano and music history. She is an Associate Professor of Music Theory at Oakland University (Rochester, Michigan), where she has taught undergraduate and graduate courses in music theory and aural skills since 2007. Her publications on Brahms lieder and music theory pedagogy have appeared in a variety of publications, including *BACH: Journal of the Riemenschneider Bach*

Institute, Music Theory Online, Engaging Students, Dutch Journal of Music Theory, Gamut, Journal of Music Theory Pedagogy, Music Theory Pedagogy Online, College Music Symposium, Notes, and Semiotica. She has also served as a reader, table leader, and sight-singing question leader for the College Board's Advanced Placement exam in music theory.

Eric Hogrefe holds a PhD in Music Theory from the University of Texas at Austin. His research addresses issues of historical distance and musical form in the music of Gustav Mahler, musical meaning in pop and rock music, and the pedagogy of music theory.

Jennifer Iverson is a scholar of electronic music, avant-gardism, sound studies, and disability studies. She is an Assistant Professor of Music and the Humanities at the University of Chicago, and previously taught at the University of Iowa. During 2015–2016 she was a fellow at the Stanford Humanities Center. Her first book was *Electronic Inspirations: Technologies of the Cold War Musical Avant-Garde* (Oxford University Press, 2018). Her articles appear in journals such as *Music Theory Spectrum*, *Journal of the American Musicological Society*, and *Twentieth-Century Music*, and in collections such as *Sounding Off* and the *Oxford Handbook of Music and Disability Studies*.

J. Daniel Jenkins is Associate Professor of Music Theory at the University of South Carolina, where he coordinates the first-year music theory and aural skills curricula. He is editor of *Schoenberg's Program Notes and Musical Analyses* (2016), and has also published on the music of Elliott Carter and music theory pedagogy. He has received teaching awards from the Eastman School of Music, the University of Rochester, and the University of South Carolina. In addition to his university-level teaching activities, he teaches at Lee Correctional Facility in Bishopville, SC, and the Lourie Center in Columbia, SC.

Patrick Johnson is Instructor of Music Theory at Michigan State University, where he specializes in form, counterpoint, performance and analysis, and galant style. He also teaches piano literature. He received the Dortha J. and John D. Withrow Award for Excellence in Teaching from the MSU College of Music in 2018, and MSU's Excellence-in-Teaching Citation in 2013. Johnson performs regularly as a solo, collaborative, and orchestral pianist. He is principal pianist for the Lansing Symphony Orchestra and the Michigan Philharmonic. He has also been an organist in the Archdiocese of Detroit for over 15 years.

Shersten Johnson is Professor of Music at the University of St. Thomas in St. Paul, Minnesota, where she teaches undergraduate and graduate music theory and composition courses as well as interdisciplinary honors seminars. Her interests include contemporary opera, embodied cognition, disability studies, and theories of music pedagogy. Her publications appear in journals such as *Music Theory Spectrum*, *Music & Letters*, *Music Theory Online*, *Opera Today*, *PsyArt*, *Engaging Students: Essays in Music Pedagogy*, and *The Journal of Music and Meaning*. She is also author of several book chapters including "Understanding is Seeing: Music Analysis and Blindness" and "Embodied Rhythm and Musical Impact of Ritualized Violence in 20th-century Opera" both in Oxford Handbooks.

Alexandrea Jonker is a doctoral student in Music Theory at McGill University where she is a TA for undergraduate theory and a course lecturer for aural skills. She received a MM in Music Theory from Michigan State University and a BMus in Music Theory from Wilfrid Laurier University. She has presented research at conferences around North America including the New England Conference of Music Theorists, the International Conference on Music Perception and

Cognition, the International Music by Women Festival in Columbus, Mississippi, and several graduate student conferences. Her research has also been published in the conference proceedings from the ICMPC.

Gary S. Karpinski is Professor of Music at the University of Massachusetts Amherst. He has published articles on aural skills, music theory pedagogy, early twentieth-century music, and computer-assisted instruction in *Music Theory Spectrum*, *Music Theory Online*, *The International Journal of Musicology*, and *The Journal of Music Theory Pedagogy*. His book *Aural Skills Acquisition* was published by Oxford University Press. He was editor of the *Festschrift for George Perle*, published by Peter Lang. His textbooks are published by W.W. Norton: *Manual for Ear Training and Sight Singing* and *Anthology for Sight Singing*, which also include an extensive Instructor's Dictation Manual, online student recordings, and an Instructor's Anthology Search website. He is a past president of the New England Conference of Music Theorists, and has served as president of the Association for Technology in Music Instruction and as Board Member for Music Theory in the College Music Society.

Stanley V. Kleppinger is Associate Professor of Music Theory in the Glenn Korff School of Music at the University of Nebraska–Lincoln. His writings about the teaching of Music Theory appear in the *Journal of Music Theory Pedagogy* and *Indiana Theory Review*. The University of Nebraska has recognized Dr Kleppinger's teaching with its College Distinguished Teaching Award, the Hixson-Lied College of Fine and Performing Arts' Leadership Award in Curriculum or Programmatic Development, and the college's Junior Faculty Achievement Award in Teaching. He has served as president of Music Theory Midwest and secretary of the Society for Music Theory.

Edward Klorman is Assistant Professor at McGill University's Schulich School of Music. He previously taught music analysis, viola, and chamber music at The Juilliard School and Queens College. He is the author of *Mozart's Music of Friends: Social Interplay in the Chamber Works*, an award-winning study that integrates historical, analytical, and performance perspectives. He currently serves as co-chair of the Society for Music Theory's Performance and Analysis Interest Group.

Jon Kochavi is an Associate Professor of Music at Swarthmore College, teaching courses in Music Theory. His research areas include transformation theory, scale theory, analytical applications of mathematical principles to music, music and disability studies, and music theory pedagogy. An active member of the Society for Music Theory (SMT), he has served as an editorial board member and associate editor of *Music Theory Online* as well as Chair of the Accessibility Committee for the SMT. He has also written program notes for hundreds of professional orchestral and chamber music concerts across the States. Once, he played the cannon in a performance of the *1812 Overture*. He currently serves as Director of Music at Swarthmore.

Lynnsey J. Lambrecht is an Assistant Professor of Music Theory and Composition at Bradley University, and she was an instructor of Music Theory at Western Michigan University. She received a DMA in composition and MM in theory from Michigan State University, MM in theory and composition from the University of Northern Colorado, and BA in music education from Colorado Mesa University. She has presented her research at international, national, and regional conferences throughout North America, and her research has been published in the International Conference on Music Perception and Cognition proceedings. Her compositions and arrangements are published by Grand Mesa Music Publishers, Eighth Note Publications, and Blue Note Music Press.

Justin London is the Andrew W. Mellon Professor of Music, Cognitive Science, and the Humanities at Carleton College, Northfield, Minnesota. He received his BM degree in Classical Guitar (The University of Cincinnati) and a PhD in the History and Theory of Music (The University of Pennsylvania). His research interests include meter and micro-timing in Western and non-Western music, music perception and cognition, and musical aesthetics. He has held appointments at The University of Cambridge, the University of Jyväskylä, Finland, the University of Oslo, and the Max Planck Institute for Empirical Aesthetics, Frankfurt. He served as President of the *Society for Music Theory* in 2007–2009, and as President of the *Society for Music Perception and Cognition* in 2017–2018.

Victoria Malawey is Associate Professor of Music at Macalester College and active as a scholar, composer, and singer-songwriter. Her articles have appeared in *Popular Music*, *Music Theory Online*, *The Journal of the Royal Musical Association*, and *Indiana Theory Review*. Her article, “‘Find Out What It Means to Me’: Aretha Franklin’s Gendered Re-Authoring of Otis Redding’s ‘Respect’” (*Popular Music*) won the International Alliance of Women in Music Pauline Alderman Award for the best article in feminist music scholarship in 2015. Her monograph *A Blaze of Light in Every Word: Analyzing the Popular Singing Voice* is forthcoming publication by Oxford University Press in the Oxford Series in Music Theory, edited by Steven Rings.

Rachel Mann is an Assistant Professor of Music Theory at the University of Texas Rio Grande Valley and has held previous appointments at the University of Illinois, the University of North Texas, and the University at Albany. Her research interests include the music of Roberto Gerhard and developing educational technology. As Senior Content Developer for Illiac Software, Inc, she creates content for Harmonia, a music theory app funded in part by the National Science Foundation that combines automatic analysis of tonal harmony and voice-leading with a music notation editor to provide a platform for practice and assessment with instant feedback. She has presented her research throughout the United States, Canada, Germany, Spain, and United Kingdom and has been published by Ashgate and Cambridge Scholars Press.

Justin Mariner is an Assistant Professor at McGill University’s Schulich School of Music, where he teaches undergraduate aural skills, theory, and keyboard. His work with Peter Schubert on the use of technology and improvisation in aural skills instruction is described in their article “New Frontiers in SmartMusicianship” (*Engaging Students* 5, 2017). His compositions have been performed in Canada, the United States, and Europe, and have been included in the Gaudeamus International Music Week, the Winnipeg New Music Festival, Cluster Festival, the Victoria Symphony Orchestra’s Reel Music project, and the Toronto International Film Festival. He has been commissioned to write pieces for the Via Salzburg Chamber Orchestra, the Ensemble contemporain de Montréal, the Société de musique contemporaine du Québec, Quatuor Bozzini, and Brigitte Poulin.

José Oliveira Martins holds a PhD from the University of Chicago, and currently is at the Faculty of Arts and Humanities of Universidade de Coimbra. Previous appointments include Principal FCT-Researcher and vice-director of the Research Center for Science and Technology of the Arts in Porto, and Assistant Professor at the Eastman School of Music. His research interests focus on the modeling of multilayered musical systems and the analysis of musical gesture, appearing in the *Journal of Music Theory*, *Perspectives of New Music*, *Theory and Practice*, *Portuguese Journal of Musicology*, among others. He chaired the organization of the 2019 Música Analítica: Porto International Symposium on the Analysis and Theory of Music.

Elizabeth West Marvin is the Minehan Family Professor and Professor of Music Theory at the Eastman School of Music. Her research interests include music cognition, absolute pitch, and pedagogical implications of music-cognitive research. She is a past president of the Society for Music Theory and Music Theory Society of New York State. Her articles appear in *Music Theory Spectrum*, *Journal of Music Theory*, and *Journal of Music Theory Pedagogy*, among others. She is 2013 recipient of the Gail Boyd de Stwolinski Prize for Music Theory Teaching and Scholarship, and co-author of *The Musician's Guide* textbooks, with Jane Clendinning, Joel Phillips, and Paul Murphy (W.W. Norton).

Andreas Metz is a Lecturer of Music Theory at the Sibelius Academy, University of the Arts Helsinki, Finland, where he teaches harmony and voice-leading, form analysis, and partimento realization. His PhD dissertation focused on temporality and pace in slow instrumental movements by Brahms. Other research interests include Schenkerian analysis, schema theory, and music theory pedagogy, as well as stylistic composition and improvisation. He has presented at numerous conferences including EuroMAC, the Sibelius Academy, MTSNYS, and the Mannes School of Music.

Jan Miyake is Associate Professor of Music Theory at Oberlin College and Conservatory, where she teaches the eight courses in the core curriculum, seminars in form and analysis, and an introduction to Schenkerian analysis. She is the author of numerous book chapters, e-articles, and journal articles on a range of subjects including issues of access in pedagogy and form in Brahms, Mozart, and Haydn. Former treasurer of the Society for Music Theory, she has served on the editorial boards of *Music Theory Online* and *Journal of Music Theory Pedagogy*.

Gabriel Ferrao Moreira, Professor of Music Theory at Federal University of Latin American Integration, Brazil, is the leader of the Center for the Research of Latin American Music, where annual congresses are held on the subject of Latin American Music, ranging from classical to popular music in a variety of approaches, binding the interests of many specialists in the search of picturing different aspects of Latin American Music practices and discourses.

Gabriel Navia is Professor of Music Theory and Guitar at the Federal University for Latin American Integration in Brazil. He holds a Master's degree in Guitar Performance and a PhD in Music Theory from the University of Arizona. His research focuses primarily on musical form, tonal harmony, and the instrumental music of Franz Schubert. His current work is devoted to the harmonic analysis of popular music and to the formal analysis of Latin-American popular music genres. He is co-editor of *Musica Theorica* (the *Journal of the Brazilian Association for Music Theory and Analysis – TeMA*).

Meghan Naxer holds a PhD in Music Theory from the University of Oregon. She is currently an Instructional Design Specialist at Oregon State University. Prior to joining OSU, she was an Assistant Professor of Music Theory at Kent State University. She has presented and published research specializing in online pedagogy, educational psychology, Self-Determination Theory, video game design, and music theory pedagogy. She is also co-editor of *Engaging Students: Essays in Music Pedagogy*. She is active on Twitter @mnaxer.

William O'Hara is Assistant Professor of Music Theory at Gettysburg College. He received his PhD from Harvard in 2017, and previously taught at Tufts University. His research interests include contemporary film and video game music, popular music, chromatic harmony, and the history of music theory. He is currently at work on a monograph entitled *Recomposition in Music Theory*, and his recent essays and reviews have appeared in *Music Analysis*, *Music Theory and Analysis*, *Analitica: Rivista online di studi musicali*, and *Engaging Students*.

Cora S. Palfy is an Assistant Professor of Music Theory at Elon University, where she coordinates the Music Theory and Aural Skills curriculum. She earned her PhD in Music Theory with a specialization in Music Cognition at Northwestern University in 2015. Her work explores the intersection between music theory, music cognition, and psychology. She has published articles and book chapters on the way that music encourages listeners to form relationships with it or the performers playing it and is the author of *Musical Agency and the Social Listener*, which is forthcoming with Indiana University Press.

Susan M. Piagentini, a Charles Deering McCormick University Distinguished Lecturer, is Coordinator of the Music Theory and Cognition Program, and the Coordinator of the First-Year Core Curriculum at the Northwestern University Bienen School of Music where she teaches graduate and undergraduate courses in music theory, aural skills, and music theory pedagogy. Along with Dr Jennifer Snodgrass, Piagentini is co-author of *Fundamentals of Music: Rudiments, Musicianship and Composition* (Pearson, 2012, 2019). A frequent presenter on the use of technology to enhance learning in the theory and aural skills curriculum, her research interests integrate pedagogy, music cognition, and music theory.

Marcelle Pierson is a lecturer in Music at the University of Pittsburgh, where she teaches classes on music theory, new music, heavy metal, and noise. She has also taught at the University of North Carolina, the University of Notre Dame, Harold Washington College in Chicago, and the University of Chicago, where she received her PhD. She has published in *Twentieth-Century Music*. Current research interests include accommodating popular music in the theory classroom, using technology to enhance student musicianship, the problem of melody in new music, and applying new modernist studies to music.

Deborah Rifkin, Associate Professor of Music Theory at Ithaca College, is an award-winning teacher whose research interests include the music of Sergei Prokofiev, gesture and narrative in neo-tonal music, and pedagogy of music theory and aural skills. Her articles have appeared in *Music Theory Spectrum*, *Theory and Practice*, *Twentieth-Century Music*, *Journal of Music Theory Pedagogy*, *Ex Tempore*, and *Engaging Students: Essays in Music Pedagogy*. She is a violinist-cum-fiddler and performs in local bands for klezmer and Yiddish swing dances.

Nancy Rogers is Professor of Music Theory at Florida State University, where she supervises first-year Music Theory and teaches a variety of undergraduate and graduate courses. She is co-author, with Robert Ottman, of *Music for Sight Singing*, currently in its tenth edition (Pearson, 2019). Her current research focuses on correlated music theoretical and mathematical abilities; other recent publications focus on modernizing the traditional minuet composition project and improvisational activities for the music theory classroom. She has served as Vice President and Secretary of the Society for Music Theory, President of Music Theory Southeast, and Treasurer of Music Theory Midwest. She received her PhD in Music Theory from the Eastman School of Music, and she holds multiple teaching awards.

Charlene Romano maintains an active private flute studio in Winchester, Virginia, as well as serving as an Adjunct Assistant Professor at Shenandoah Conservatory, where she has taught applied flute, written theory, ear training, and twentieth-century listening, and coached small ensembles and directed the flute choir. Ms Romano is a sought-after clinician and adjudicator, and has published several pedagogical articles in *Flute Talk*, *The Flute View*, and *The Double Reed*. She has extensive chamber music and orchestral experience, and has performed with the San Francisco Concerto Orchestra, the Sacramento Ballet, the California Wind Orchestra, and many others. She

has adjudicated several competitions for the Mid-Atlantic Flute Convention, and currently coordinates the Flute Society of Washington's Mid-Atlantic High School Flute Choir Competition.

Jena Root, Professor of Music at the Dana School of Music at Youngstown State University in Ohio, is the author of *Applied Music Fundamentals: Writing, Singing, and Listening* (Oxford University Press) and *Applied Music Theory: A Practical Guide for Writing, Listening, and Understanding* (OUP, forthcoming). Her service in higher education has spanned more than two decades in the music theory and aural skills classroom, including positions at Shenandoah Conservatory, Syracuse University, Yong Siew Toh Conservatory at the National University of Singapore, and St. Olaf College. Dr Root has served as Resources Editor for the *Journal of Music Theory Pedagogy*, and is also an active composer.

Andrew Schartmann is a Professor of Music Theory at the New England Conservatory, and holds the title of Audio Director at Yale's Play4REAL Lab. He is the author of two books, including *Koji Kondo's Super Mario Bros. Soundtrack* (Bloomsbury 2015), which *The New Yorker* praised for its "overwhelming precision," and has published in *Slate*, *Bandcamp*, *Clavier Companion*, and Bloomsbury's *33 1/3: The B-Sides*, among others. He was appointed Treasurer of the New England Conference of Music Theorists in 2019 and currently serves as Associate Editor of *DSCH Journal* – a biannual publication devoted to the life and work of Dmitri Shostakovich.

Peter Schubert studied with Nadia Boulanger and received his degrees from Columbia University. He has published two textbooks on counterpoint and many articles on Renaissance and twentieth-century music and on music pedagogy. He conducts the Orpheus Singers of Montreal and recorded six CDs with VivaVoce, a professional vocal ensemble that he founded in 1998. He has recently posted several videos to YouTube: three on "contrapuntal thinking" and nine on Renaissance improvisation. In 2015 the *Vierter Leipziger ImprovisationsFestival* said "*Peter Schubert gilt als großer Improvisations-Guru Nordamerikas*," and in 2019 he was awarded the Gail Boyd de Stwolinski Prize for Lifetime Achievement in Music Theory Teaching and Scholarship.

Daniel Shanahan is an Assistant Professor of Music Theory at Ohio State University, where he runs the Music Cognition Lab and teaches classes in cognitive and computational music theory, as well as coordinating the first-year music theory curriculum required of all music majors. His research interests include music and emotion, the diffusion of musical style, corpus studies, and the computational analysis of jazz and folk music. His research has been published in *Music Perception*, *Journal of New Music Research*, *Journal of Jazz Studies*, *The Journal of the Acoustical Society of America*, *Frontiers in Psychology*, *Musicae Scientiae*, *Cognition and Emotion*, and *Empirical Musicology Review*, among others.

Jennifer Snodgrass is Professor of Music Theory in the Hayes School of Music at Appalachian State University. Her research has been published in numerous journals including *Journal of Music Theory Pedagogy*, *College Music Symposium*, *Inside Higher Ed* and the *Music Educators Journal*. She is also the author of several texts including *Fundamentals of Music*, *Contemporary Musicianship*, and the forthcoming *Teaching Music Theory: New Voices and Approaches*. Snodgrass maintains an active presentation schedule, most recently presenting at the national meetings of the Society for Music Theory, College Music Society, and the National Association of Schools of Music. Dr Snodgrass has received numerous awards in relation to excellence in undergraduate education, and in 2017 was named an official quarter finalist for the Grammy Foundation Music Educator Award. She currently serves as an editor with the *Journal of Music Theory Pedagogy* and as assistant director of the Gail Boyd de Stwolinski Center for Theory Pedagogy.

Daniel B. Stevens is Associate Professor of Music at the University of Delaware. He has published numerous articles and resources on music pedagogy and assessment in the *Journal of Music Theory Pedagogy*, *Engaging Students: Essays in Music Pedagogy*, and the *Journal of Performing Arts Leadership in Higher Education*. These publications provide new approaches to aural skills and analysis that fuse student-centered pedagogy and assessment with creative thinking and listening. Stevens performs regularly as a pianist and chamber musician. His essay, "Rhythm and the Performer's Body," appears in *The Oxford Handbook of Music and the Body*.

Paula J. Telesco is an Associate Professor of Music Theory and Aural Skills at the University of Massachusetts Lowell. Her research interests include the Pedagogy of Music Theory and Aural Skills; Music Cognition; Music and Early Literacy; and Eighteenth-Century Music Theory, including enharmonicism, and the Scottish music theorist and mathematician, Alexander Malcolm. She has articles published in the *Journal of Music Theory Pedagogy* (print journal and online journal), *Music Theory Spectrum*, *The Journal of Musicology*, and the *Forum on Public Policy*. She has been serving on the Editorial Board of the *Journal of Music Theory Pedagogy* since 2005. In 2013 she was selected as an Outstanding Teacher of Music Theory and/or Aural Skills by the board of the *Journal of Music Theory Pedagogy Online*, and invited to be featured speaker at Fall 2013 National College Music Society Conference in Cambridge, MA.

Gene S. Trantham is Associate Professor of Music Theory at Bowling Green State University where he has served as Chair of the Musicology/Composition/Theory department. In addition to undergraduate music theory and aural skills, he teaches graduate courses in theory pedagogy, analysis and performance, and counterpoint. His research interests include theory pedagogy, music technology in instruction, analysis and performance, and the music of Frescobaldi as well as other seventeenth-century composers. He is the author of *Instructor's Resources for The Musician's Guide to Theory and Analysis* (Clendinning/Marvin) from W.W. Norton which is now included as part of the second and third editions of that text. His publications appear in *College Music Symposium*, *Sixteenth Century Journal*, *TDML ejournal*, and *Musical Insights*. Since 1991, he has been serving as a GRE and AP Music Theory Reader for Educational Testing Service in Princeton, New Jersey.

Andrew Vagts is a PhD candidate in Music Theory at the University of North Texas. He completed an AFA in Music at Anoka-Ramsey Community College and a BA in Music and MA in Music Theory at the University of Minnesota. His dissertation examines formal and narrative use of musical topics in Mozart's operas. His conference presentations include "Not Only the Finale: Aesthetics of the Sublime in Mozart's Symphony No. 41" at the American Musicological Society Midwest Fall Meeting and "Motive and Meaning in Mozart's *Don Giovanni* Act II Scene 15" at the 13th International Congress on Musical Signification in Canterbury, United Kingdom.

Natalie Williams is the Dean of the School of Music, Art, and Theatre at North Park University in Chicago. As a teaching composer, her research output includes essays on music theory pedagogy and collaborative composition. Her works have been published by Cengage Learning and recorded on Albany Records and Wirripang Records. Her teaching portfolio includes contemporary counterpoint, form and analysis, post-tonal theory, and applied composition. Conference papers include research on digital musicology (Sydney), twentieth-century counterpoint (London), and composition in a digital world (Canberra). In 2016 and 2017, she was a keynote speaker at the Melbourne Music Analysis Summer School (Victoria, Australia), presenting on post-tonal theory and the work of Ruth Crawford Seeger. In 2017 she directed an international research conference, *Women in the Creative Arts*, at the Australian National University.

CREDITS

Capers: Billie's Song – IP 5013354

'Billie's Song' by Valerie Capers from 'Portraits in Jazz' © Oxford University Press Inc. 2000, assigned to Oxford University Press 2010. Reproduced by permission. All rights reserved.

Crumb, George. *Makrokosmos*, Vol. II. New York: C.F. Peters, 1973.

Luigi Dallapiccola, "*Fregi*" (from *Quaderno Musicale di Annalibera* for piano)

© 1952 by Sugarmusic S.p.A. – Edizioni Suvini Zerboni, Milan (Italy)

Luigi Dallapiccola, "*Vespro tutto riporti*" (from *Cinque Frammenti di Saffo* for voice and piano)

© 1943 Sugarmusic S.p.A. – Edizioni Suvini Zerboni, Milan (Italy)

"String Quartet" by Roberto Gerhard

© 1955 Boosey and Hawkes Music Publishers

International Copyright Secured. Reprinted by Permission.

"Clapping Music" by Steve Reich

© 1972 by Hendon Music, Inc.

All Rights Reserved. Used With Permission.

The World's Greatest Criminal Mind

from THE GREAT MOUSE DETECTIVE

Words by Ellen Fitzhugh and Larry Grossman

Music by Henry Mancini

(c) 1986 Wonderland Music Company, Inc.

All Rights Reserved. Used by Permission.

Reprinted by Permission of Hal Leonard LLC

Under The Sea

from THE LITTLE MERMAID

Music by Alan Menken

Lyrics by Howard Ashman

Credits

(c) 1988 Wonderland Music Company, Inc. and Walt Disney Music Company
All Rights Reserved. Used by Permission.
Reprinted by Permission of Hal Leonard LLC

L'Aube enchantée *by Ravi Shankar*
© Copyright by Editions Henry Lemoine
27 boulevard Beaumarchais, Paris – France. All rights reserved.

Alfonsina Y El Mar

Words by Felix Cesar Luna Music by Ariel Ramirez
Copyright © 1970 Editorial Lagos (Sadaic)
All Rights Administered by WC Music Corp.
All Rights Reserved
Used By Permission of Alfred Music

Agitando Papeles

Words and Music by Adolfo Armando Abalos, Roberto Wilson Abalos, Victor Manuel Abalos,
Marcelo Raul Abalos and Mapoleon Benjamin Abalos
© 2006 Warner Chappell Music Argentina (Sadaic)
All Rights on behalf of Warner Chappell Music Argentina Administered by WC Music Corp.
All Rights Reserved
Used By Permission of Alfred Music

Segura Ele

Os Oito Batutas

By Benedicto Lacerda and Alfredo Da Rocha Viana
Copyright (c) 1947 by Irmaos Vitale Editores Ltda.
Copyright Renewed
This arrangement Copyright (c) 2019 by Irmaos Vitale Editores Ltda. All Rights Administered by
Peer International Corporation International Copyright Secured All Rights Reserved
Reprinted by permission of Hal Leonard LLC

Proezas De Solon

By Benedicto Lacerda and Alfredo Da Rocha Viana
Copyright (c) 1947 by Irmaos Vitale SA and Mangione & Filhos
Copyright Renewed
This arrangement Copyright (c) 2019 by Irmaos Vitale SA and Mangione & Filhos All Rights
for Irmaos Vitale SA Administered by Peer International Corporation International Copyright
Secured All Rights Reserved
Reprinted by permission of Hal Leonard LLC

Excerpt from:

Argentina's Tango – The Best Ever Collection

Publishing Brand – Ricordi
Edition Code – MLR 638
Copyright © 2003 by Casa Ricordi S.r.l. – Milan, Italy
All Rights Reserved. International Copyright Secured
Reproduced by kind permission of Hal Leonard Europe S.r.l. – Italy

Credits

Work credits:

A Su Majestad

Music by Juan & Mario Canaro

Published & administered by Universal Music Publishing MGB Argentina

All Rights Reserved. International Copyright Secured



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

INDEX

- accessibility 3–11, 220–222, 237–238, 376–380, 397–406; 407–412; 413–419
- accidentals 22–26
- animation 255, 384, 410–411
- applied harmony *see* tonicization
- assessment 184, 194–196, 202, 400, 411, 416, 420–423, 455–456, 471
- audiation 204–209, 450–454
- augmented-sixth chords 133–140, 146–147, 166
- aural skills 27–31, 63–67, 175–222, 366–374, 413–418, 450–458
- beaming 39–40, 68–71, 453–454
- best practices 19–20, 353, 372, 433–435
- binary form *see* form, binary
- Bloom’s taxonomy 377–379, 421–423
- blues: twelve bar 340–344
- borrowed chords *see* modal mixture
- cadences 100–103
- chromatic mediants 152–156, 350–353
- cognition 3–11, 96–104, 360, 421–423
- common tones: in chromatic mediants 350–355; diminished-seventh chords 162–168
- concerto form *see* form, concerto
- conducting 17–18, 53–54, 60, 90–91, 188, 314, 477
- contouring 27–31, 168
- copyright 386
- curiosity 459–467
- curriculum revision 424–458
- dialogical pedagogy 387–388
- dictation 63–67, 81, 187–199, 206, 207, 209, 220, 352–353, 371, 413–417
- dissonance 77, 101–103, 132–139, 332
- do/ti* test 211–216
- drum machine 63–67
- dyslexia 413–419; *see also* accessibility
- error detection 204–210
- expanded cadential progression 293, 296–300
- flipped classroom 443–449, 455–456
- folk music 97–104, 206–207, 297
- form: binary 301–310; concerto 324–328; sonata 23–24, 305, 319–328; ternary 278, 305, 309, 311–318
- fugue 407–411, 446–448
- graduate theory review 424–432
- graphic analysis 261–266, 453–454
- harmonization 157–160, 235, 371, 473
- hypermeter 52–53, 61, 314–317
- improvisation 82, 87–95, 187–199, 237, 293, 368–374, 378–380, 409–410, 451–457, 475–479
- intervals 16, 41–42, 182, 221, 360, 462–463
- keyboard 32–35, 145, 188, 233–238, 378, 409–411, 472
- kinesthetics 32–35, 188, 233–238, 409–410
- lament-bass 126–129, 157–160
- Latin-America: popular music in 295–300
- lead-sheet symbols 111, 115–116, 159
- leitmotif 239–242
- melodica 32–35
- melodic-harmonic divorce 322–324
- memory 184, 195, 379–380; working 3–11
- meter 17–19, 39–41, 47–61, 68–74, 78–83
- modal mixture 182, 215, 316–317, 345–349
- motivation 459–462
- motive 188–192, 225–231, 239–242
- music industry 366–374
- Neapolitan sixth 120, 135–137
- notation 4, 22–26, 41, 50–53, 68–71, 190, 204–210, 453–457

Index

- objectives-based learning 377–378, 400, 409–411
- ostinato 157–160, 237

- podcasting 390–395
- polymodality 244–249
- polyphony: implied 124–130
- popular music 63–67, 295–300, 329–345
- post-tonal theory 223–268
- public music theory 382–392, 462

- recomposition 235, 279–283
- remediation 359
- rhythm 39–40, 45–84, 121, 194, 206–210, 228–229, 293, 334–337, 378–380, 453–455

- scales 15, 27–30, 39, 244–249; degrees 39, 97–98, 133–137, 145, 180–185, 188–190; symmetrical 234–236; whole-tone 234–235, 239–242, 256–257
- schema 5–11
- Scratch (programming language) 57–62
- Sequencer *see* drum machine
- serialism 217–222, 250–260
- service-learning 382–388
- set theory 225–232, 245–249, 252–254, 256–259, 264–265
- sight-singing 87–88, 179–180, 193–195
- singing exercises 14–16, 27–30, 188–190, 198, 454–455, 473
- skill-scaling *see* accessibility
- SmartMusic 194–198

- solfège 201–203, 204, 206–207
- solmization 177–185, 319–328
- sonata *see* form, sonata
- Sonic Visualiser 391–395
- standards-based grading 359–361
- suspensions 91–92, 159

- tactus* 48–55
- tāl* 78–83
- tempo 48, 60, 65–67
- ternary *see* form, ternary
- texture 63–66, 75–76, 124–130, 291, 334–336, 477
- timbre 79–80, 205–209, 316
- timeline: audio timeliner software 326–327
- tonicization 141–151, 164, 167–174, 464–465
- transcription 63–67, 188–190, 371, 390–395, 415–418, 452–454
- transposition 114, 168, 241
- triads 16–17, 42–43, 153–156, 234–236

- Universal Design for Learning 399–406, 407;
see also accessibility

- videocast 385
- virtual field experience 78–83
- voice-leading 35, 92–94, 107–109, 118–137, 143–144, 157–160, 167–174, 332–334

- whole-tone 234–235, 239–242, 256–257
- workshop 450–457