
JOURNAL OF MUSIC THEORY PEDAGOGY

Volume Twenty-Seven 2013

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Volume Twenty-Seven 2013

SCHOOL OF MUSIC
THE UNIVERSITY OF OKLAHOMA

JOURNAL OF MUSIC THEORY PEDAGOGY

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Journal of Music Theory Pedagogy
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Individual Int'l. Subscriber	\$60.00
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ISSN 0891-7639

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From the Editor

Welcome to Volume 27 of the *Journal of Music Theory Pedagogy*. As usual, this hefty and robust issue contains a wide variety of articles that are sure to whet the appetite of anyone interested in the pedagogy of composition, improvisation, music theory and aesthetics, aural skills, cognition, jazz studies, and disability studies.

William Porter's "Why is Improvisation So Difficult?" sets the stage for the entire volume. He demonstrates that students' abilities and attitudes, fluency in basic musical skills, knowledge of music history and analysis, and personal taste all figure and inform one another in the art of improvisation, and may be elegantly integrated in one's teaching approach.

In his article "The Improvisation of Figuration Preludes and the Enduring Value of Bach Family Pedagogy," Austin Gross reveals how "figuration preludes are flexible tonal models that provide a dynamic way for students to engage with musical structure. The variability of these models allows for musical creativity through progressive stages of mastery. When students encode voice-leading principles from these models into hand positions at the keyboard, they group discrete information into larger patterns, uniting voice leading and harmony. The Bach family pedagogy for improvising figuration preludes can provide benefits to students today, particularly since it anticipates aspects of modern pedagogy."

Melissa Hoag lays out an exciting path that enhances the relevance of music theory to today's students. In her "Hearing 'What might Have Been': Using Recomposition to Foster Music Appreciation in the Theory Classroom" Hoag presents the idea of recomposition, an activity that sensitizes students to the fact that composers could have taken any number of musical paths instead of the one they ultimately took.

A pair of articles share a common inspiration: Prof. Elizabeth West Marvin, the recipient of the 2012 Gail Boyd de Stwolinski Prize for Lifetime Achievement in Music Theory Teaching and Scholarship, awarded by the Gail Boyd de Stwolinski Center for Music Theory Pedagogy at the University of Oklahoma. Again, as in the previous volume of the *Journal*, we have created a more visible and permanent picture of the recipient by highlighting

his or her legacy of influence. In consultation with Betsy, two former students in the field were invited to write an article on a pedagogical topic of their choosing, sharing how the winner's pedagogical approach enhanced their own. Indeed, Nancy Rogers and Chris Stover eloquently describe their experience with Prof. Marvin. Rogers writes: Betsy is a friendly, likable, down-to-Earth person with a good sense of humor. She is open to other people's ideas and interests: students who pursue research outside the mainstream of music theory or who focus on music beyond the canon often cite Betsy's encouragement as a turning point in their lives. I feel very privileged to have worked with Betsy, and I know that my own modest professional successes stem in no small part from her inspiration, wisdom, and support." Prof. Rogers' "Modernizing the Minuet Composition Project" re-visits the tried-and-true exercise and updates it with one that "relies on one of the few remaining popular genres that employ conservative common-practice harmony: the college fight song chorus." Rogers takes the reader through a step-by-step working method, interweaving her students' attempts at satisfying the project's requirements.

In a similar vein, Chris Stover writes: "When I think of the types of questions that emerge from a particularly productive starting place, I frequently return to the lively discussions that emerged in Betsy Marvin's 'Writing Music Theory' course at Eastman in the mid-1990s. In addition to her important, influential, and impassioned work as a pedagogue and cognitive theorist, Professor Marvin brilliantly reinforced the importance of clarity of thought, compelling rhetoric, and analytical approaches that bring together rigor and imaginative reading." Stover's "Analysis as Multiplicity" begins with a central concern of everyone who teaches music theory: "When we think about analyzing a piece of music, we should always be prepared to think about what kind of an activity analysis *is*, what it intends to *do* for us, and what the appropriate means are for carrying it out. An important goal is to enrich our perspective of what is possible within the context of the music: this is true whether we are coming from the standpoint of listeners, composers, interpreters, or improvisers. We should step back, too, and consider seriously how a creative reading of a musical work transcends the notes themselves to account for things like historical contexts and the range of previous performance practices that have affected subsequent interpretation. At the same time,

we might strive to consider equally seriously the kinds of analytic methodologies that have been brought to bear on the music, and how those methodologies have worked both to illuminate various aspects of the music's structure and possibly to foreclose alternative readings; that is, to limit how we might interpret the music. When we analyze music as improvisers—shifting our focus from interpretive to productive orientations—these kinds of considerations can become even more pronounced."

David Castro presents in his "Playing With Motives: Aural Skills Exercises for Tonal Structure" "a type of musical comprehension that is the goal of dictation exercises, [one that] depends entirely on the cognitive systems that are available to students in order for them to make sense of what they are hearing.... It is just this sort of meaning that the discipline of music theory engages and it is this sort of meaning that we want our students to learn.... The primary purpose of this article is to present a few aural skills exercises that focus directly on students' schematic familiarity with the diatonic scale, enabling them to recognize and/or reproduce scale degrees quickly and accurately."

"Serving Musicians With Visual Impairment in the College Classroom: Building Bridges Toward Understanding" by Jeffrey Gillespie provides an important addition to the new field of Disability Studies. In it, Gillespie begins: "Music instructors at the college level are often at a disadvantage when teaching students who have disabilities, because we tend to lack sufficient knowledge and training in how to best serve their needs. With an ever-increasing number of students with disabilities entering our classrooms, it is crucial that we learn as much as possible about the pedagogical issues surrounding such students.... Furthermore, most of the advice shared in this article on teaching students with visual impairment may be applied more broadly to teaching all students."

Paula Telesco, in "Teaching Elementary Aural Skills: How Current Brain Research May Help", interweaves the current state of aural skills teaching with cognitive studies, shedding new light on how we approach teaching skills. "All music departments share at least one common goal: to cultivate the musicianship of all their students, enabling each to be a better musician than he or she was upon entering the program. In a general sense, that means increasing the literacy and fluency of all music students. It

may, therefore, behoove us to revisit and reevaluate what most of us would probably agree is a standard Aural Skills curriculum to determine whether the model is still as universally valid as it once was, and if not, to consider plausible alternatives.”

Kristen Wallentinsen provides a summary of the Workshops in Music Theory Pedagogy, which took place in June 2013 at the University of Massachusetts, Amherst. Ms. Wallentinsen’s overview includes a detailed summary of the faculty’s daily presentations and other events occurring at this stimulating event.

A pair of reviews, the first by Jane Piper Clendinning, outline and critique two new twentieth-century theory and analysis textbooks: *Understanding Post-Tonal Music* by Miguel Roig-Francolí, and *Twentieth-Century Music Theory and Practice* by Edward Pearsall. Prof. Clendinning focuses on each author’s choice of repertoire, presentational style, and analytical tack. Nathan Flesher’s “There’s an App for That: Music Theory on the iPad, iPhone, and iPod” assesses current skills applications, focusing on the most useful of these, and identifying not only their highpoints, but also potential pitfalls.

Finally, as a reminder, the new website, *Music Theory Pedagogy Online* is designed for a range of instructors, from those who teach in the high school and community college, to those at the conservatory, liberal arts college, and university. The variety of curricula and teaching strategies employed across the country is so diverse that it can be bewildering, especially given the variability of the training and experience of the faculty, the goals of the program, and the students’ experience and aptitude. Ultimately, our aim is to improve the quality of teaching nationwide by providing the specialist and non-specialist with clear and up-to-date musical models and materials. In other words: we offer access to tried-and-true best practices. For information on subscribing to the site, see jmtp@ou.edu

Sincerely,

Steve Laitz, Eastman School of Music

Editor, *Journal of Music Theory Pedagogy*

Executive Editor, *Music Theory Pedagogy Online*





Why is Improvisation So Difficult?¹

BY WILLIAM PORTER

Dear friends, it is an honor and a privilege to speak to you this evening, and I thank you all for coming to what promises to be a stimulating and fascinating three days together enjoying improvised music making and discussing how to craft a future for improvisation at the organ that will build upon the rich foundations that we have inherited in order to encourage a continued flowering of the art in which improvisation plays a central role in the world of organ playing, a world which we often characterize as small, but one which shows many signs both of health and of growth. I should warn you, however, that this address is not an improvisation, as you can see from all these papers in front of me. It may or may not be a good improvisation model, though it does, in its structure, reflect some sort of classic rhetorical disposition. Its title is due to the fact that improvisation seemed particularly difficult on the day that Hans said, "I need your title, TODAY."

What I would like to do is to speak of some of the concepts and situations that weigh on my mind as contributory to the fact that many people find improvisation to be not only difficult, but well nigh impossible for some of us to engage in, with the hope that some of the ideas expressed here might be pursued further in the panel discussions which will take place in the next few days, as well as in our informal conversations.

That, by the way, was the exordium. We proceed to the narratio.

Why is improvisation so difficult? I have chosen this title for this evening's address mindful that the question itself begs some further questions. For instance, why should we begin a conference with reference to what a difficult topic it is which we are about to celebrate? Why begin with focusing on difficulty rather than on beauty or inspiration or even – fun? Or – one could ask – why do we say that improvisation is difficult, when there are clearly people who do not find it difficult at all? True, there are such people, but they seem to be few and far between, and we all know that some of our most gifted performers, superb musicians, find improvisation not only difficult, but downright scary. Or at least discouraging. The late Canadian organist, Charles Peaker, used to characterize his own

¹ Editor's note: This unedited keynote address was delivered by Prof. Porter at the 2011 Eastman-Rochester Organ Initiative Festival.

improvised preludes as “low D on the pedal Bourdon, followed by vague rumblings.” Surely that is not difficult to achieve, and it might even be fun, and I suspect we all have done it. His conclusion was that he should stop improvising his preludes and play what he referred to as “real pieces.” For Mr. Peaker, improvisation, at least his own improvisation, was the inferior form of music making, to play compositions the superior form. I believe that many of us, even those of us to whom improvisation comes relatively easy, hold a similar view; one might even say that it is the dominating view today. We may enjoy improvising, but we don’t regard the music we make in this way as being up to the standard of “real” composition. Contrast this with a number of remarks made by seventeenth and eighteenth century musicians, which tell us that playing a written-out composition for a church service or – in particular – for an audition was the inferior form of music making, and that improvising constituted the superior form.

Before we ask how we got from there to here, let us just notice the implications. At least until the middle of the eighteenth century we can generally say that improvising, or – perhaps better – what we now call improvising was the normative way by which organists in the church made their music. Not only that, but not to do so was considered to be a fault, a weakness. We have records of what skills organists were required to display in an audition for a church position in this earlier time, and they all involve the ability to make one’s own music on demand, not to play written out compositions by others. Those whose skills in this area are particularly known to us today, Sweelinck, Santa Maria, Banchieri, Frescobaldi, Weckmann, Reincken, François Couperin, Louis Marchand, and Bach, to name only a few, have also left us wonderful written-out compositions, and it is inevitable that we should want to know what we can about how closely these pieces represent what their contemporaries heard when they improvised. On this matter, perspectives are changing, and I would count myself among those who find, with increasing study and experience, that the gap between what was written down and what we can reasonably imagine as having been improvised has steadily become narrower and narrower. But these musicians, whom we revere today as exceptional, simply expressed on a very high level ways of music making which were normative for everyone. How then did we come from a musical culture in which improvisation was the norm, to one in which even some of our most gifted performers find it to be exceedingly difficult?

That is a complicated story, and there are signs of this happening even in the eighteenth century. One could oversimplify the story and say that it was related to the waning emphasis on the study of counterpoint as a performance skill. And that it had to do, in Protestant lands, at least, with the changing requirements of liturgical organ playing. But whatever the combination of factors that led to the present-day situation, we should still regard the nineteenth century as being more similar to the eighteenth than to the twentieth-century, in terms of the role that improvisation played in the professional life of the organist. At the same time, a new concept of improvisation was taking shape, one which we still have with us today, and I believe it is a concept that is severely detrimental to any kind of recovery of improvisation as central to the organist's life as a musician.

So now we come to one reason why, in my opinion, improvisation is so difficult, and that is, since the variety of creative activities – across time and cultures – for which we use the word improvisation are so diverse in nature and so diverse in terms of their presuppositions, we are left in a state of confusion about what the word improvisation itself really means. Nonetheless, there are prevailing ideas about what it means, and some of those ideas miss the mark when applied to different traditions of improvisation, and only impede our understanding of those traditions, and therefore impede our ability to train ourselves and our students to realize these traditions in performance. Sometimes I think we would be better off with a different word, one with less baggage, or – better still – different words for different traditions.

These ideas have to do with our understandings of spontaneity, originality, and the distinction of improvisation from composition. You may now note that here endeth the narratio, and we proceed to the confutatio, which will be in three parts, or – as organists love to say – sections.

Let us consider first the idea of spontaneity. Charles Tournemire, in his *Précis d'exécution de registration et d'improvisation* (1936) contains the statement that “all preparation is opposed to this special art.” One sometimes sees this remark, lifted out of its original context, to support the idea that improvisation is an art for which preparation is not only not required, but for which preparation is actually detrimental. This of course is a slippery slope to the idea that the ability to improvise is really a special gift from on high; either you have it or you don't. In fact, we don't even need Tournemire to get this idea; it is to be found just about everywhere. It is in the air we breathe.

But before we indict Mr. Tournemire as a culprit in furthering a misunderstanding about the nature of improvisation, we should read a little further in the *Précis*, and find what else he has to say, for to take this remark out of its context is to do him a grave disservice. Tournemire, who was not known for his consistency, sometimes makes apparently contradictory remarks, and apparently means them. But if we take him at his word in what he has to say about spontaneity, perhaps we should also take just as seriously what else he has to say about improvisation. For he goes on to say that disorder in an improvisation is not acceptable, and – and here is the main point – that in order to improvise well, one must undergo rigorous training in preparatory exercises, and acquire a deep understanding of harmony and – above all – counterpoint. One does not learn to improvise without rigorously practicing its procedures, just as one does not learn to compose without practicing the procedures of composition. Tournemire thus seems to be saying that in order to improvise without preparing, one must...prepare. In other words, the regular practice of harmony and counterpoint allows one to choose the spontaneous moment in performance.

A similar view is echoed by Alan Fletcher, sometime Provost of New England Conservatory, in a letter to the faculty on the subject of improvisation, dated October 2, 1997. Here he says,

“There is no aesthetic problem for me in reconciling the varying degrees of preparation involved in different instances of improvisation. Just about every performance involves preparation, even to the point of memorization. The happier experiences of performance are those where the unexpected element was hoped for and prepared for – was chosen.”

My dear late father-in-law was a shy man. A distinguished academic, he did not enjoy the public attention he sometimes received as a result of his intellectual accomplishments, and, as quiet folk often are, he was a creature of habit. So he very much attracted the attention of the household one day when he announced that he didn't think that he was spontaneous enough, and he was therefore going to undertake a campaign to practice being spontaneous. There were raised eyebrows at this remark, particularly from my mother-in-law, who was an accomplished eyebrow raiser, having practiced the art over a long period of time. My father-in-law had bushy eyebrows, but did not raise them much. His eyes, however, twinkled when he made this remark, for he knew from conversations with his daughter concerning her scholarly work in traditions of

literary improvisation in other cultures where internalization of process, imagination, and memory play a major role, and can be learned only through disciplined concentration over a long period of time. I believe he got it right: improvisation is about practiced *spontaneity*. Spontaneity does not exist in a vacuum.

When we consider, however, *originality* as a goal of improvisation, we have a different kind of dynamic, one which easily contributes to the difficulty of the art. Spontaneity may not exist in a vacuum, but the imperative to originality can create one. The imperative to originality was a hallmark of the twentieth century, so much so that it was often confused with creativity. Composers and other artists were often subjected to this imperative, so that one's own sense of authenticity as a creative person was bound up with doing something new, something which had never been done before. Imagine if you are a serious improviser, operating under the assumption that you can do whatever you want as long as it is something that has not been done before. It may work for a while, but it almost certainly will eventually lead to a kind of paralysis, the more one realizes the vastness of what has been done before. Now if you are a composer or an improviser, or – better yet – an improvising composer, and you are not conversant with much of the music written in the past century, you may enjoy the exhilaration of originality, thinking that you are doing something new, but the more you know about what is out there in the world, the more difficult it becomes, the more futile the search for originality becomes. One might even say that the imperative to originality only works to the extent that you are ignorant of what has already been done. How can creativity flourish under such a regime?

But wait. There is a flip side to this coin. (Remember we are still in the middle of the confutatio, and we are about to invert the subject.) And this flip side is equally problematic: it is the notion that one of the goals of improvisation is the ability to sound like somebody else. With no down payment and for just pennies a day you too can sound like Tournemire, or Bach, or Messiaen. Call now, operators are standing by. And indeed they are. If improvisation is a party trick, of course there is good entertainment value in sounding like somebody else. I really do love Victor Borge. And, it is true, one of the most beautiful improvisations I ever heard was one which was essentially like a second Mendelssohn sixth sonata, but based upon Christ lag in Todesbanden rather than Vater unser in Himmelreich. But what made it beautiful was not its resemblance to Mendelssohn

so much as its compositional integrity and its responsiveness to the implications of the chorale melody. The performer was someone so deeply immersed in the many traditions of organ improvisation and so confident of his own voice that the momentary reference to Mendelssohn enhanced, rather than diminished, the realization that we were hearing authentic music of a high order. (That performer, by the way, was Rudi Lutz. I hope that you all will have the chance to hear him some day.) But – for the most part – I do not think we get to that point of authenticity by teaching our students how to imitate someone else.

Is there no way out of this double bind, this tension between improvisation as necessarily original and improvisation as imitation? I believe that there is, and it requires that we first of all distinguish between originality and creativity. To be original is to do something that has not been done before. To be creative is to engage in both the joy and agony of making something that you believe in, something that you care about. If you are an orator, the best way to be compelling and convincing is to say something that you are yourself compelled by and convinced of, and to care enough to work at the techniques of oratory so that others may share your passion. Such an orator may not be primarily concerned with whether her thought is original, but rather with whether the thought has its own integrity. The imperative to originality is at best a mere distraction from the matter at hand, and at worst, a demon. It is the same way, I believe, for an improviser. It is better to be interesting than to be original, and it is better to be interesting than to try to sound like Buxtehude. So we may say that both the imperative to originality and the imperative to imitate are twin demons, waiting to distract us from the business at hand. The business at hand is to develop the compositional skills that – over time – will allow you to say something interesting and communicate it effectively, the skill to develop one's creativity. So let us banish the demons and move to the business at hand.

So far I have talked about the imperative to an unpracticed spontaneity and the imperative to originality as two of the reasons why many of us find improvisation to be so difficult. These reasons we could call attitudinal reasons; that is, our attitude, or how we think about something like improvisation affects how we work at it, or don't work at it, as the case may be. If we could help our students develop a taste for the concentration and preparation that allows a practiced spontaneity to emerge, we shall have done something

important towards making improvisation less difficult. And if we can help our students to steer themselves on a course which does not get mired in the imperative to originality at the same time avoiding the distraction of a crass imitation of someone else, we shall have helped them further on the way. But the third reason I mentioned earlier, that of our ideas about the distinction between improvisation and composition, while attitudinal, also presents us with some concrete course of action, which I believe can perhaps be the most help of all.

So here is a question: why do we sometimes operate as if we thought that improvised music is by its nature a fundamentally different kind of music from what we tend to think of as composed music? We sometimes hear – or use – phrases such as “in an improvisatory style,” or “that passage sounds improvised.” We seem to have a habit of labeling as “improvisatory” musical passages that call to mind the words in the book of Genesis describing the universe before the first day or creation: “without form and void.” Or perhaps the word “improvisatory” comes to mind when we hear music that has no perceptible meter, or development of material.

Ad libitum music may be improvisatory by tradition, but not all improvised music is ad libitum, historically speaking. The rich history of musical improvisation includes far more than cadenzas and homophonic preludes. And even if we speak only of improvisation in western cultures, and then only of improvisation at the organ, we know that from the earliest days of the use of the organ in church, organists made their music on the plainsong melodies of the day, that they wove polyphony around the appointed chants for the mass and the office, day in and day out. We are fortunate to have some documents which give us a window into how they did this at some times and some places: the *fundamentum organisandi* of the mid 15th century, along with some other similar sources show us how an organist learned to play into being organ works based upon a cantus firmus; we know from Tomas de Santa Maria how a 16th century keyboard player could learn to make a polyphonic fantasia in the act of performance; we know from surviving contrapuntal studies how the students of Sweelinck learned to build the rich tradition of composition in performance that flourished in northern Europe in the 17th century, and we know some of the pedagogical materials that organists in southern Europe worked with at the same time. Therefore we know that the music that resulted from such learning included *ricercars*,

canzonas, fugues, chorale preludes, and chorale fantasias, as well as the shorter versets, which have come to us from all over Europe. So a *ricercar* by Frescobaldi and a chorale fantasia by Buxtehude also deserve the term “improvisatory” if we are going to retain the word as a synonym for composition in performance. Otherwise, we risk using the word only for that music which we can imagine someone making up as they go along, so to speak. This would be too bad, for we often see that our imaginations fail us, and we end up imagining too little about what was possible then, and about what is possible now.

But let us trust the capability of our imaginations to imagine grand things, as if that is what our imaginations were made for, and imagine that some of the most sublime music that we know of the past, not to mention the present and future, was generated in compositional performance, that is – improvisation. How did they do it? They practiced compositional procedures at the keyboard. This means that for our ancestors, even some of our recent ancestors, counterpoint was learned by playing and composing it at the keyboard. How do we teach counterpoint today? Is it not a classroom activity, involving much paper and chalkboards? How many students of counterpoint are actually encouraged to listen to the exercises they produce, much less to generate them by playing rather than by writing? Have you ever known of a course in counterpoint to take place primarily at the keyboard? I hope so, but I expect not.² Can you imagine, for instance, a course in continuo playing that took place in the classroom, rather than at the harpsichord or organ? How could a keyboardist ever achieve skill in continuo playing if all she were required to do was to produce written out realizations of figured bass? But do we not do precisely the equivalent with the teaching of counterpoint? One could say the same for the teaching of harmony, and while some schools laudably continue to teach keyboard harmony, it all too often takes a back seat to the teaching of harmony on paper, away from any musical instrument. Is it any wonder then that few people can improvise a proper fugal exposition, or improvise meaningful harmony with attention to voice leading? Is it any wonder that improvisation is so difficult, when so many of the essential skills in composition –

²Editor’s note: In his 2012 article “Teaching Baroque Counterpoint Through Improvisation: An Introductory Curriculum in Stylistic Fluency” Michael Callahan presents a detailed discussion of precisely the sort of course that Porter describes here. (Vol. 26 of this journal)

regardless of style—if they are taught at all, are taught as classroom activities, in which the keyboard plays either a minor role, or no role at all?

So thus beginneth the peroratio, which I promise will be not much longer than the exordium. In framing the questions in this way, I hope to have begun to point to some answers. Apart from questions of spontaneity and originality, improvisation is difficult because our systems of musical education make it so, to the extent that they deprive our students of the means by which it could be made much easier.

What's a body to do in such a situation? One answer may be found in one word in that question: the word "body." Improvisation, to be sure, involves the intellect and the imagination, but it also involves the body, and so many of the skills I have mentioned, which we recognize as essential to improvisation and composition, are taught in such a way that they become disembodied skills, learned with the mind, but learned in the body in a diminished and at times impoverished fashion. What if we could return those skills to the performer's body with the same kind of dedication that we value when we teach keyboard technique as a bodily art? Can you imagine how much easier improvisation might become for our students, and for us as well, if we understood counterpoint with and in our bodies to the extent that making counterpoint at the keyboard is as much a physical response to stimulus as it is a mental one? What if our bodies knew voice leading as well as our minds do? Or if we taught ear-training at the keyboard with at least as much emphasis that it is given in the classroom? Or if the movements of harmonic progression could flow more directly from our inner ears to our fingers as a result of our bodies already knowing those movements? Or if any number of compositional techniques of more recent times were already practiced in our bodies by the time that our imaginations want to use them? If we do not teach our students these skills as bodily skills, then anything we do in a course called improvisation will never lead to the creative freedom that it could.

I believe passionately in creative freedom. I do sometimes think, however, that in teaching improvisation we often run the risk of doing something like encouraging people to play in a sandbox without giving them either good sand or the box. (We might think of the "good sand" as being intensive instruction in ear-training *at the keyboard*, and counterpoint and harmony, *at the keyboard*, along with whatever else we value in building the skills of musicianship,

done *at the keyboard*. The “box” is a structured curriculum necessary to rigorous learning.³ All this needs to be done before we teach whatever we call improvisation, otherwise improvisation risks being little more than “self-expression,” done without our having given our students the skill to express something of substance.

When I began preparing to speak to you about why improvisation is so difficult, I put the question to our students. Here is what some of them had to say:

“It is difficult because it happens so late.” This is from a gifted graduate student, who had no opportunity to learn these skills at an early age.

“It is difficult because it so often lacks the requirement of structure. I have plenty of ideas; the problem is to know what to do with them particularly regarding harmony.”

“It is difficult because it is difficult to develop the skill of being coherent.”

“It is difficult because improvisation involves learning a musical language, having its own vocabulary, grammar, and syntax.”

“It is difficult because I am afraid to do something I have not been prepared to do.”

³Editor’s note: Peter Schubert introduces and develops this very image in his recent article “Thinking in Music (2011) in this journal. He writes: “Improvisation, for instance, is a “play-in-the-sandbox” exercise intended as a voyage of discovery. It’s important to do it.... This tongue-in-cheek term refers to a serious activity in which we acknowledge that beginners must be allowed to make mistakes. The results are often horrendous, but that’s the point, letting the student wrestle with the material (my TAs complained that some of the students were “eating the sand”). Dissonant downbeats, parallels, etc. are a small price to pay for giving the student a chance to feel around in the dark, and students should not be penalized for such mistakes at this more exploratory stage; the instructor can explain what was wrong but moves right on to the next thing. Play-in-the-sandbox institutionalizes the process of discovery by making time for it under the teacher’s supervision but without the pressure that results from being graded.”

I am particularly touched by the last remark. Rather than to tell them that preparation is not important (they won't believe you if you tell them this, because they know that it is important), our task is to prepare them better, and as I have suggested, this means teaching things that are not generally called improvisation. Nothing would make me happier than if one of the outcomes of this conference would be a new enthusiasm for working together to find new ways of teaching the vocabulary, grammar, and syntax of diverse musical styles as keyboard skills, that is as embodied skills, even from the first years of musical study. Some of these things are already happening, one of the happy developments of the past decades, but so much more can be done, and it will probably fall to the performance faculty in our music schools, rather than to theorists and composers, to make it happen. It might not really qualify as improvisation as we understand it, but I have a growing confidence that it might gradually bring us to the point where the difficulties are so much less than the joy of playing into creation something that was not there before, the product of imagination nourished by skill.



The Improvisation of Figuration Preludes and the Enduring Value of Bach Family Pedagogy

BY AUSTIN GROSS

Figuration preludes present flexible tonal models that provide a dynamic way for students to engage with musical structure. The variability of these models allows for musical creativity through progressive stages of mastery. Students begin with a basic model, learn standard variants, and then proceed to more complex variants. Figuration preludes also provide an early opportunity for students to study complete pieces, to examine the interaction of form and tonal structure, and to integrate the study of musical structure, history, and creativity.

J. S. Bach featured figuration preludes prominently in his teaching, maintaining different versions of these pieces for use with different levels of students. He used basic versions of his preludes in C major, C minor, D major, and E minor at the beginning of his instruction book for his son, the *Clavier-Büchlein vor Wilhelm Friedemann Bach*. He included slightly more advanced versions of these four preludes in the opening of Book I of *The Well-Tempered Clavier*, a work which Christoph Wolff notes had a “pedagogical intent.”¹ In fact, because these four preludes share basic elements of their tonal plans, they constitute a kind of introductory chapter in J. S. Bach’s teaching of tonal structure.²

Another of his sons, Carl Philipp Emanuel Bach, advised using a four-part plan for improvising preludes: an opening tonic pedal, a bass octave, a dominant pedal, and a closing tonic pedal. After describing this formal outline, he provided specific tonal models for each of these types of sections.³ J. S. Bach’s introductory figuration

I would like to thank Michael Callahan and Mark Rimple for their thoughtful comments on this paper.

¹ For the *Clavier-Büchlein*, see J. S. Bach 1720/1959. For the widely available paperback copy of *The Well-Tempered Clavier*, see J. S. Bach 1983. David Schulenberg provides a listing of sources for *The Well-Tempered Clavier* (2006: 206-207). For Wolff’s comments on the pedagogical intent of *The Well-Tempered Clavier*, see Wolff 2000: 226

² Robert Gauldin (1988: 103) and Joel Lester (1998) have both noted that the versions of these four preludes in Book I of *The Well-Tempered Clavier* share basic elements of their tonal plans.

³ C. P. E. Bach 1762/1949 (Part II): 431-433.

preludes follow this four-part plan and demonstrate salient aspects of the tonal models that his son presents, suggesting that C. P. E. Bach was in part transmitting some of his father's instruction.⁴ These models and the various techniques employed in the different versions of J. S. Bach's introductory figuration preludes provide evidence of this creative tradition and demonstrate the fruitfulness of the model.

The four-part plan allows students to internalize and, subsequently, develop tonal models within an overarching formal framework. When students encode voice-leading principles from these models into hand positions at the keyboard, they group discrete information into larger patterns, uniting voice-leading and harmony.⁵ Grouping these hand shapes, known by German Baroque musicians as *Griffe*, or grips, into a comprehensive overall hand position plan makes this knowledge accessible in performance, and provides a physical groundwork for the improvisation of chord alterations and ornamentation.⁶ Here, the physical motion of the hands reinforces conceptual mastery and enables creativity.

⁴Joel Lester has noted the relationship between C. P. E. Bach's comments and J. S. Bach's figuration preludes (1998: 33-37).

⁵Felix Diergarten (2011) examines the relationship between creativity and the physicality of performance in evaluating Haydn's connection to the Italian partimento tradition (see especially pages 55, 72, and 74).

⁶On the German practice of teaching *Griffe*, see Ledbetter 2002: 44, 56. Using handshapes as performance aids anticipates more recent work examining how learned motor skills precede the accomplishment of specific tasks. For an account of casting chords and melodic gestures as handshapes within the jazz tradition, see David Sudnow's book, *Ways of the Hand* (1978/1993/2001). In discussing the role of the hand in craftsmanship, Richard Sennett notes the idea of "prehension", where a person forms the shape of an object with the hand prior to grasping the object, as in cupping the hand while reaching for a glass (2008: 153-155).

J. S. Bach's *Precepts* Model

In a set of pedagogical materials associated with his teaching in Leipzig, *Precepts and Principles For Playing the Thorough-Bass or Accompanying in Four Parts*, J. S. Bach provided a basic tonal model that underlies each of these four preludes.⁷ While much of this work is based on the treatise of Friedrich Erhardt Niedt,⁸ Bach's own additions include a section on harmonizing octave bass lines, a tradition of harmonic pedagogy known as the rule of the octave.⁹ Although the rule of the octave tradition provided harmonization options for any scalar bass fragment, Bach's harmonization (Figure 1) can also serve in its entirety as a tonal plan that can be used as the outline for a figuration prelude.¹⁰ Starting with this sequence gives students a picture of the overall work, since students can then embellish this model to create the four-part formal plan.

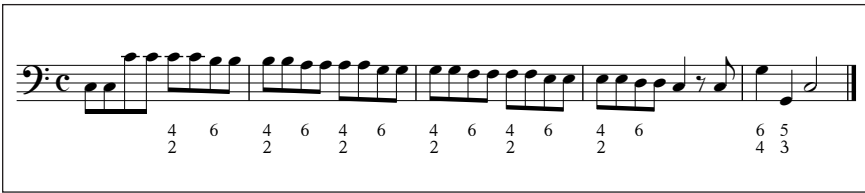


Figure 1: J. S. Bach's Harmonization for an Octave Bass Descent using $\frac{4}{2}$ - $\frac{6}{8}$ Sequence¹¹

⁷ In her introduction to the translation, Pamela L. Poulin provides an overview of the history and scholarship surrounding the extant manuscript (Bach 1738/1994). While Poulin notes that student realizations appear elsewhere in the work, the title for the section of figured basses that includes the pattern shown in Figure 1, “Principles for Playing in Four Parts”, suggests that this set of examples was to be realized directly at the keyboard, and accordingly no extant student realizations appear here (see Poulin in Bach 1738/1994: xiv-xv).

⁸Friedrich Erhardt Niedt's (1674-1708) *Musikalische Handleitung* was published in three volumes, some of them posthumously: 1700/1710, 1721, 1717.

⁹For an overview of the rule of the octave, also known as the *règle de l'octave*, see Barnett 2002: 441-444, Christensen 1992, Jans 2007, Lester 1992: 72-74, and Lester 2007. The models of both J. S. Bach and C. P. E. Bach suggest that having more than one chord per bass note was standard fare, even if it may not have constituted the introductory approach to the *règle*.

¹⁰Lester notes that the *règle* was used as the basis for the opening of J. S. Bach's C Major Prelude in Book I of *The Well-Tempered Clavier*, but with "interpolated harmonies" (1992: 74).

¹¹J. S. Bach 1738/1994: 54. As in the other figured bass examples in

Conveniently, the $\frac{4}{2}$ - $\frac{6}{8}$ sequence consists of an alternating set of hand positions. Students with little to no keyboard background can internalize this pattern by working in a step-by-step manner, as shown in Figure 2, starting with the bass line alone, adding parallel 3rds, and then adding a 5-6 motion above each bass note. Finally, as shown in Figure 3, a 2-3 bass suspension yields the model, which can be played in major or minor modes.¹²

Figure 2: Preliminary Steps in Internalizing the $\frac{4}{2}$ - $\frac{6}{8}$ Bass Octave Model

this section of his work, Bach presents this pattern in C major, G major, A minor, then again in C major (through a *Da Capo* indication). Since a transitional leading tone occurs on the upbeat before each of the two internal keys, this has been replaced here by rendering the final C in Figure 1 as a half note rather than a quarter note, modeling the rhythmic setting that Bach used for this pattern in A minor, where there is no leading tone pick-up note back to the *Da Capo* in C major.

¹² Figures 2 and 3 provide a pedagogical sequence for internalizing the hand positions of a $\frac{4}{2}$ - $\frac{6}{8}$ sequence. Giorgio Sanguinetti notes that, historically, Italian partimento pedagogues led students sequentially from simple cadential patterns to the ascending rule of the octave through a series of increasingly elaborate diminutions (2012: 114). In addition, Matthew Brown

Replicating the hand position pattern for each $\frac{4}{2}$ - ^{6} motion facilitates the eventual figuration of the model. For the $\frac{4}{2}$ chord, students can make the space of a 3rd with the thumb and middle finger of the right hand, and place this a step above the bass note. To move to the 6 chord, they expand the outer voices. This process then repeats through the descending bass octave, so students hold the bass note of the 6 chord, again “make a 3rd” with their right hand, and place this third a step above the held bass note to create the $\frac{4}{2}$ chord. They then “expand” the outer voices to move to the next 6 chord, and so on. I find that the “make a 3rd” and “expand” prompts are helpful to students as they practice this component.

Figure 3 shows two musical staves illustrating the 4/2 - 6 Bass Octave Model (3-Voice Setting). The top staff is labeled "Model in Major" and the bottom staff is labeled "Model in Minor". Both staves are in 4/2 time and show a sequence of chords and bass notes. The right hand plays a series of chords, and the left hand plays a descending bass line. Fingerings are indicated by numbers 1-5 below the notes. The sequence of chords and bass notes is: 5 - 6, 4/2, 6, 4/2, 6, 4/2, 6, 4/2, 6, 4/2, 6, 4/2, 6. The minor model follows the same pattern but with appropriate key signatures.

Figure 3: $\frac{4}{2}$ - ^{6} Bass Octave Model (3-Voice Setting)

Completing the Basic Model

After internalizing the general tonal outline shown in Figure 3, students can complete the four-part formal model by expanding the opening tonic chord and treating the culminating dominant and tonic notes as pedal points. Students can develop these areas by following the guidelines given by C. P. E. Bach and the principles demonstrated in the four introductory figuration preludes of his

(2005) has provided a conceptual framework for generating sequences through the manipulation of voice-leading lines over an octave bass line. His Figure 3.23a shows a rhythmic displacement of parallel 3rds, as in Figure 2.2 here, leading to the displacement of these two lines and resulting in the arrangement shown in the lower two voices of Figure 3 here.

father. Couching these three additional sections within the model students have already learned reinforces the idea that each of these formal sections expands a single structural component from a basic tonal plan, and that more specific versions of the model are realized through hierarchical levels of ornamentation, or diminution. The following discussion examines the opening tonic expansion, dominant pedal, and final tonic pedal, as well as a short pre-dominant area that generally precedes the dominant pedal point. As a point of reference, the tonal plan and formal layout for the C Major Prelude from Book I of *The Well-Tempered Clavier* is provided in Figure 4.

The figure displays the tonal plan and formal layout of the C Major Prelude from Book I of *The Well-Tempered Clavier*. It consists of two staves of music. The top staff is divided into two sections: 'Exordium (opening tonic expansion)' and 'Octave Descent in Bass (including local interpolated 5-1 motions)'. The bottom staff is divided into three sections: 'Pre-Dominant Link', 'Dominant Pedal', and 'Closing Tonic Pedal'. The music is written in C major, with the key signature showing two sharps (F# and C#). The notation includes various chord symbols and melodic lines, with the bass line showing a prominent octave descent.

Figure 4: Tonal Plan and Formal Layout of the C Major Prelude from WTC1

The expansion of the opening tonic chord consists of a four-chord succession, with tonic, pre-dominant, dominant, and tonic. Such an opening pattern is often referred to as an Exordium, a term borrowed from the tradition of rhetoric.¹³ Whereas in public discourse an Exordium allowed the speaker to provide an overview of the forthcoming speech, students can be reminded that their Exordium patterns provide the listener with a tonal orientation as they expand the opening tonic chord, introduce the listener to the figured pattern to be used in the piece, and even provide a small-scale version of the tonal underpinnings of the large-scale formal sections of the piece (T-PD-D-T). Figure 5 shows two possible voice-leading patterns for the Exordium, each of which is shown in a 3-voice and a 4-voice setting. Patterns 1a and 1b use a $\hat{3}\text{-}\hat{4}\text{-}\hat{4}\text{-}\hat{3}$

¹³ On the precedents for the formal arrangement of preludes as described here, see Porter 2000.

soprano line over a $\hat{1}-\hat{1}-\hat{7}-\hat{1}$ bass line.¹⁴ Patterns 2a and 2b use a $\hat{5}-\hat{6}-\hat{7}-\hat{8}$ soprano line over a pedal bass. Hand position motions can be helpful here as well. For example, in pattern 1b, students move the right hand shape up a step, then bring the two lower voices down, then contract the reach of the hands as the top two voices and the bottom voice converge back on the tonic.

Figure 5: Two possible Voice-leading Outlines for Exordium (in 3- and 4-voice settings)

The stages of learning to perform over the dominant pedal area consist of a gradual increase in complexity and length. The versions of the C Major Prelude and C Minor Prelude in the *Clavier-Büchlein vor Wilhelm Friedemann Bach* contain abbreviated dominant pedal sections that are expanded in the corresponding versions of these

¹⁴ The opening up of the texture here, with the line starting on $\hat{3}$ in Figure 3 inverting with that starting on $\hat{5}$, leads to the construction of parallel 10ths between the soprano and bass. Robert Wason (2002) has noted how this bass-soprano structural duet in parallel 10ths serves in many figuration preludes as a more specific underlying model than just the descending bass line.

pieces in Book I of *The Well-Tempered Clavier*. This of course makes sense considering that the *Clavier-Büchlein* was begun when Wilhelm Friedemann was only nine years old. Presumably, the student would elaborate in greater detail as his or her skills improved.

With the help of the underlying pedal point, the dominant function of this section can be preserved by following simple models and principles, such as using a specific set of embellishing chords and ending on the dominant chord. One can begin by simply arpeggiating the dominant chord. Initial tonal alterations include a 4-3 suspension as well as a three-chord set: $\frac{6}{4}, \frac{\sharp 7}{2}$ (that is, $\text{vii}^\circ/\text{V}$ or $\text{vii}^\circ/\text{V}$), and $\frac{7}{3}$ (or $\frac{7}{3}$) chords. As shown in Figure 6, J. S. Bach's chordal succession in the C Major Prelude from Book I of *The Well-Tempered Clavier* shows these different techniques in combination. The simpler dominant pedal area in the *Clavier-Büchlein* version of the C Major Prelude, shown in Figure 7, utilizes only the first four chords in Figure 6, leaving off before the chromatic $\text{F}^\sharp 7$ chord.

Figure 6: J. S. Bach's Dominant Pedal Progression in the C Major Prelude from WTC1

Figure 7: J. S. Bach's Dominant Pedal Progression in the C Major Prelude from the *Clavier-Büchlein*

Having students focus on linear motion in one voice, such as the initial 5-6-7-8 strand over the bass in Figure 6, can provide a stronger sense of forward motion and a conceptual guide for the

hand.¹⁵ The two dominant pedal models that C. P. E. Bach provides in his discussion of improvising preludes both contain embedded descending lines through the 8-5 tetrachord over the dominant, with the line from G moving into the lower voice to land on the inner voice D. As shown in Figure 8, these two progressions include varying degrees of chromaticism in this fourth-span.

Figure 8: C. P. E. Bach's Examples of Dominant Pedal Elaboration¹⁶

Although the closing tonic pedal area serves as the resolution of the tonal motion of the work, localized voice-leading motions often occur above this pedal. As in the Exordium, these often involve a T-PD-D-T motion. This closing tonic pedal frequently contains a tonicization of the chord built on scale degree 4. As shown in Figure 9, one of the identifying voice-leading strands of this classic

Figure 9: Closing Tonic Pedal Model

¹⁵ It is certainly the case that, as Matthew Brown has noted, the examples from C. P. E. Bach's treatise "indicate that [he] preferred stepwise strings in the upper voices" above pedal points, and that these strings may be invertible. Brown's Figures 2 and 3 provide a helpful compendium of C. P. E. Bach's pedal point options for varying skill levels (2010: 7-9).

¹⁶ C. P. E. Bach 1762/1949 (Part II): 433. The upper voices have been supplied by the author.

progression moves from $\flat\hat{7}$ down to $\hat{6}$, then back up through $\hat{7}$ to $\hat{1}$.¹⁷

Finally, students can connect the end of the bass octave to the dominant pedal with a pre-dominant area. This connective may consist of a diatonic pre-dominant or may include a motion from a diatonic pre-dominant chord through a chromatic approach chord to the dominant (such as $\text{vii}^{\text{o7}}/\text{V}$). More specific tonal models occur in different preludes. For instance, the approach to the dominant pedal is the same in the WTC1 preludes in E minor and C minor, with a bass line of $\flat\hat{6}-\hat{6}-\hat{5}$ supporting $\frac{6}{3}$, $\frac{\sharp 6}{5}$, and $\frac{6}{4}$ chords, respectively.

At this point, students can begin to figure the model.¹⁸ Some possibilities are shown in Figure 10. First, students can substitute simple arpeggios for block chords, whether the arpeggios are unidirectional or involve some changes of direction. Translated to the hands, this involves simply “oscillating” the hands during the chord progression (Figure 10a). Next, one or two non-chord tones can be incorporated into the figuration pattern, such as neighbor tones (Figures 10b-d), passing tones (Figure 10e), or a combination of both (Figure 10f). Care must be taken with passing tones, as the distance between voices may change from one chord type to the next, such that a third that is filled with a passing tone in one chord (for instance, a D between a C and an E) may become the span of a fourth in the next chord (say, from a D up to a G). Students may also invert the voice-leading lines, such as the arrangement from J. S. Bach’s Prelude from Cello Suite No. 1 (Figure 10g).¹⁹

¹⁷ This is a common pattern that Robert Gjerdingen refers to as a *Quiescenza*. See Gjerdingen 2007, especially pages 181-184, 460.

¹⁸ David Ledbetter provides a cogent overview of the pedagogical goals of different fingering patterns in the figuration preludes in *The Well-Tempered Clavier* (2002: 56).

¹⁹ From J. S. Bach’s *Six Cello Suites*, this prelude uses a figuration pattern that consists of a lower neighbor tone in the top strand of voice-leading, but eventually moves away from a strict repetition of this figure. These pieces, written around 1720, are contemporaneous with the *Clavier-Büchlein vor Wilhelm Friedemann Bach* and Book I of *The Well-Tempered Clavier*. The edition of the cello suites by Diran Alexanian (reprinted 1987) includes both a modern edition as well as a manuscript copy attributed to another of Bach’s students, his second wife, Anna Magdalena Bach. Both Alexanian and Christoph Wolff set the date of composition around 1720 (J. S. Bach 1987; Wolff, “Johann Sebastian Bach”), while Wolff also notes that the copy by Anna Magdalena, who sometimes served as her husband’s copyist, dates from around 1728 (Wolff 2000: 231, 395).

Additionally, students can now attempt to add more voices to the model, taking care to avoid doublings of other voice-leading lines. Bach's C Major Prelude contains 5 voices, but the doubled E in the opening measure is carefully handled moving into the second measure (Figure 10h). The D Major Prelude adds a more active bass, creating more rhythmic diversity between the hands, while the right hand provides a more diverse decoration of the common $\hat{3}\text{-}\hat{4}\text{-}\hat{4}\text{-}\hat{3}$ soprano line over the Exordium (Figure 10i). The opening tonic chord is also doubled in length compared to the pre-dominant and dominant chords in the second measure. More advanced students may wish to incorporate a thicker texture, such as the double lower neighbor tones in the C Minor Prelude, with two hands moving at one time rather than striking each note alone (Figure 10j). Here, for the parallel motion on the offbeats, students should strive to find 3rds or 6ths within the chordal voicings, to create parallel 3rds or 6ths, respectively. Alternatively, students can focus the rhythmic activity in the left hand, as in the E Minor Prelude (Figure 10k), a pattern which can also be used monophonically on a non-keyboard instrument.²⁰

²⁰ Students may also wish to work on transferring Figures 10a-g, or even Figure 10h, to monophonic instruments. For brass or woodwind instruments, I have suggested that students adapt or devise a figuration pattern that incorporates rests, in order to facilitate breathing.

Figure 10 displays nine musical examples (a through k) illustrating various figuration patterns, primarily derived from J. S. Bach's works. The examples are arranged in a vertical sequence, each showing a specific melodic or harmonic pattern in a particular key signature and time signature.

- a** and **b**: Single-staff examples in 4/4 time, showing a pattern of eighth notes with a half rest, repeated.
- c** and **d**: Single-staff examples in 4/4 time, showing a pattern of eighth notes with a half rest, repeated.
- e** (includes passing tone) and **f** (includes passing tone): Single-staff examples in 4/4 time, showing a pattern of eighth notes with a half rest, repeated.
- g**: Pattern in J. S. Bach's Prelude from Cello Suite No. 1 in G major (shown here in C major). Single-staff example in 4/4 time.
- h**: Pattern in J. S. Bach's C Major Prelude from the *Clavier-Büchlein* and *WTC1*. Single-staff example in 4/4 time.
- i**: Pattern in J. S. Bach's D Major Prelude from the *Clavier-Büchlein* and *WTC1* (shown here in C major). Grand staff example in 4/4 time.
- j**: Pattern in J. S. Bach's C Minor Prelude from the *Clavier-Büchlein* and *WTC1*. Grand staff example in 4/4 time.
- k**: Pattern in J. S. Bach's E Minor Prelude from the *Clavier-Büchlein* (shown here in C minor). Grand staff example in 4/4 time.

Figure 10: Figuration Patterns

More Complex Variants

Having internalized the basic model, students can begin to incorporate tonal alterations. Figure 11 offers multiple possibilities for the descending bass line, and each of these patterns can be varied metrically to fit different patterns of figuration. Figure 11.1a utilizes local ii-V-I motions to move to the dominant and into the final tonic. These embedded progressions situate a dominant bass note underneath the upper contrapuntal motion, but the underlying linear motion of the bass remains. The model can eventually be expanded to a 4-voice model.²¹

Figure 11.1b chromaticizes the lower neighbors to the goal notes of each 6 chord. This results in a “tonicization” of many of the 6 chords, as this alteration reconfigures many of the $\frac{4}{2}$ sonorities into dominant seventh chords. Students can be instructed to raise any lower neighbor note that is not already a half-step below its goal note, except where the goal note is scale degree 7. Figure 11.1c combines the variants shown in Figures 11.1a and 11.1b, resulting in the model that serves as the basis for J. S. Bach’s C Major Prelude from Book I of *The Well-Tempered Clavier*.

In minor, Figure 11.2a incorporates a tonicization of III. Here, the tonicization of III is expanded, such that scale degree 5 and scale degree 3 both support III chords. The tonal pattern in III is then mimicked in the tonal pattern that closes on the final tonic (compare measure 3 with measure 4). Figure 11.2b again makes use of half-step lower neighbors, resulting in local tonicizations. Figure 11.2c combines Figures 11.2a and 11.2b, and shows the model that serves as the basis for J. S. Bach’s C Minor Prelude from Book I of *The Well-Tempered Clavier*.

Additionally, at the end of the bass octave the penultimate, dominant sonority can be held over the final tonic note before resolving to the tonic. This variant occurs in the *Clavier-Büchlein* version of J. S. Bach’s C Major Prelude. Filling in for the last five chords of Figure 11.1c, the passage in Figure 12 uses a dominant sonority rather than a pre-dominant sonority over the D in the bass, setting up suspensions that ultimately resolve onto the tonic.

²¹ For instance, in Figures 11.1a and 11.1c, a 4-voice setting could utilize a G-F# motion into the F# shown in the second measure. Until that time, students can strike the F# on the second half of measure 2 to fill out the chord, or eventually incorporate it into their figuration in other ways.

1a Major: Tonicize Dominant and Tonic

5 - 6 4 6 4 (7) 7 4 6 4 6 4 7

2 2 2 2 2 2 2 2 2 2 2

1b Major: chromaticize lower neighbors, resulting in local tonicizations

5 - 6 4 6 4 6 4 6 4 6 4 6 4 6

2 2 2 2 2 2 2 2 2 2 2 2 2

1c Major: Tonicize Dominant and Tonic; chromaticize lower neighbors

5 - 6 4 6 4 (7) 7 4 6 4 6 4 7

2 2 2 2 2 2 2 2 2 2 2 2 2

2a Minor: Scale degrees 5-4-3 in bass suggest III

5 - 6 4 6 4 6 4 6 4 6 4 6 4 6

2 2 2 2 2 2 2 2 2 2 2 2 2

III

2b Minor: chromaticize lower neighbors, resulting in local tonicizations

5 - 6 4 6 4 6 4 6 4 6 4 6 4 6

2 2 2 2 2 2 2 2 2 2 2 2 2

2c Minor: Scale degrees 5-4-3 in bass suggest III; chromaticize lower neighbors

5 - 6 4 6 4 6 4 6 4 6 4 6 4 6

2 2 2 2 2 2 2 2 2 2 2 2 2

III

Figure 11: Bass Octave Variants

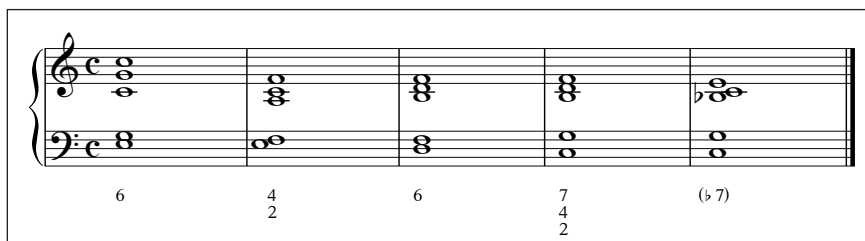


Figure 12: Ending for Bass Octave in C Major Prelude in the *Clavier-Büchlein*

In the C Minor Prelude from Book I of *The Well-Tempered Clavier*, J. S. Bach included a module for strengthening the motion to III, using a local $\hat{6}-\hat{7}-\hat{1}$ bass motion in III (C-D-E $\flat$), as shown in Figure 13. This allows for a register transfer in the bass from the bass G (global $\hat{5}$) to E $\flat$ (global $\hat{3}$), thereby omitting the F (scale degree 4). He then uses the suspension pattern from Figure 12 during the return to the tonic.

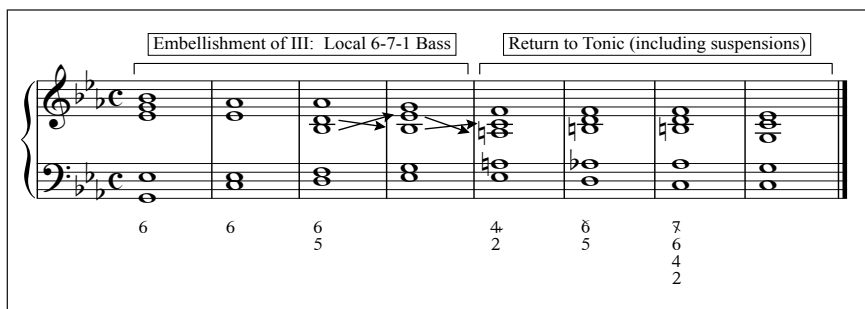


Figure 13: Expansion of III and Ending for Bass Octave in C Minor Prelude in WTC1²²

C. P. E. Bach also offered possibilities for bass line decoration, such as the chromatic treatment of the bass octave shown in Figure 14. While each tone of the descending diatonic scale in J. S. Bach's model (Figure 1) receives two chords, the younger Bach presents the $\frac{4}{2} - \frac{6}{5}$ sequence as a way to harmonize a descending, mostly chromatic octave bass line in minor. Along with the chromatically

²² The arrows in the example indicate a change in the ordering of the notes within the figural pattern at this point in the piece. Inferring that this re-ordering suggests a voice-crossing would obviate what would have been parallel octaves. Thus, from the 3rd to the 4th measure of the example, the D in the alto moves down to B $\flat$ while the lower B $\flat$ moves up to E $\flat$, resulting in a voice-crossing.

altered bass line, some of the $\frac{4}{2}$ chords utilize raised 4ths to tonicize the upcoming 6 chord, creating local $\hat{7}-\hat{1}$ motions in the upper voices, as in some of the examples in Figure 11. Even with these chromatic alterations, C. P. E. Bach's model still treats scale degree 5 in the area of III, as in the model used in J. S. Bach's C Minor Prelude in Book I of *The Well-Tempered Clavier*.



Figure 14: C. P. E. Bach's Rule of the Octave Harmonization using $\frac{4}{2}$ - 6 Sequence²³

Finally, $\flat\frac{4}{3}$ chords can substitute for $\frac{4}{2}$ chords. Whereas a $\frac{4}{2}$ chord can function as V^7 of the next chord, a $\flat\frac{4}{3}$ chord can function as vii^{07} of the next chord. An example of this substitution appears in the two versions of the C Major Prelude, as will be shown later (in Figure 17).

For the dominant pedal area, more advanced possibilities include the use of sequences, which can potentially be construed as canons. The top two staves of Figure 15 show a passage from J. S. Bach's C Minor Prelude from Book I of *The Well-Tempered Clavier*, and the bottom two staves show the tonal outline for this sequence. A solid arrow in the lower staves indicates imitation at the octave: as shown in the top staves, the melodic line on D in the first measure repeats an octave lower in the second measure. The sequence also includes a more masked canonic imitation, as the opening soprano D-E $\flat$ motion on beats 1-2 is mimicked down a fourth on A-B $\flat$ on beats 3-4 (this is indicated with a dotted arrow in the lower staves, since this imitation is only structural; that is, it is not mirrored in the figuration). The dominant pedal then concludes with two iterations of parallel 10ths ($\hat{6}-\hat{5}-\hat{4}-\hat{3}$ over $\hat{4}-\hat{3}-\hat{2}-\hat{1}$), the structural outline for the standard riposte that Robert Gjerdingen refers to as a Prinner.²⁴

In conceiving of sequences as canons, students can think of the alteration of voice-leading motions trading off between the hands. While such highly figured sequential patterns are more advanced, William Porter has noted that such learned patterns "constitute an important part of the vocabulary of images available

²³ C. P. E. Bach 1762/1949 (Part II): 433.

²⁴ Gjerdingen 2007: 45-60, 455.

to the improvising performer.”²⁵ The absence of this passage from the *Clavier-Büchlein* version once again suggests that such passages can be added as the player’s skill improves.²⁶

Figure 15: J. S. Bach’s Dominant Pedal Sequence in the C Minor Prelude from WTC1

²⁵ Porter 2003: 141. Porter’s article includes a historical overview of the use of canons as a way to conceive of and construct sequences.

²⁶ David Schulenberg notes that the version of the C Major Prelude in the *Clavier-Büchlein* may represent an “intermediate” stage of development for the piece (2006: 208), whereas David Ledbetter states that the version of the C Major Prelude in the *Clavier-Büchlein* “is not an intermediate one, but the first version, into which Bach began to add the extra bars from the second version, but did not finish doing this...” (2002: 361, n4). While both of these viewpoints suggest a single-track development from conception to finished work, the absence of passages like the canon in the C Minor Prelude from the version in the *Clavier-Büchlein* highlight what may have been pedagogical choices. In other words, the development of these pieces may have included offshoots: altered versions for educational use that were adapted for different stages of student development.

One possible modification to the final tonic pedal section occurs in the C Minor Prelude from Book I of *The Well-Tempered Clavier*. Here, J. S. Bach embellishes the tonicization of the chord built on scale degree 4. As seen in Figure 16, while the opening chord serves as $\text{vii}^{\circ 7}/\text{iv}$, the F that serves as the local goal note of its double neighbors, E natural and G, continues to change its function, as the figuration dips further below the F in each subsequent arrival. F serves first as a root, then as a third, then as a fifth. This increasingly downward triadic projection from the F creates a tonal progression that moves from the pre-dominant area to the dominant, as iv moves through ii° to vii° , leading to the final return of the tonic.

Figure 16 shows a musical score for J.S. Bach's C Minor Prelude, measures 36-37. The score is in C minor, 4/4 time. The bass line features a descending chromatic line: F4, E4, D4, C4, B3, A3, G3, F3. The treble line features an ascending chromatic line: F4, G4, A4, B4, C5, B4, A4, G4. The bass line is divided into three measures, each with a box below it indicating the function of the F note: '4 = Root iv', '4 = 3rd ii°', and '4 = 5th vii°'. The final measure shows the return of the tonic (C minor).

Figure 16: $\hat{4}\hat{2}\hat{7}$ Rotation from J. S. Bach's Prelude in C Minor, WTC1, mm. 36-37

Comparing Variants of the Model in Two Versions of a Piece

A comparison of the versions of J. S. Bach's C Major Prelude from the *Clavier-Büchlein* and Book I of the *The Well-Tempered Clavier* puts the idea of variants on a model into a broader perspective. Although the same basic tonal plan underlies both versions, differences between them showcase the potential for variation. A comparison also provides a platform for students to study how these variants influence the work's overall effect and affect. Figure 17 aligns these two tonal plans, and numbers differences between them. These differences are described in more detail below the example.

The figure displays a side-by-side comparison of J.S. Bach's C Major Prelude from two different collections: the *Clavier-Büchlein* and the *Well-Tempered Clavier* Book 1. The score is written for two staves, Treble and Bass, in C major and common time.

Clavier-Büchlein: The score is divided into three main sections:

- Exordium:** The first section, consisting of the initial measures.
- Octave Descent:** A section marked with a bracket and numbered 1 through 7, indicating a descending octave exercise.
- Well-Tempered Clavier Book 1:** The second part of the score, which continues the piece.

Well-Tempered Clavier Book 1: This section is further divided into:

- Pre-Dominant Link:** The first part of the second section, numbered 8 through 11.
- Dominant Pedal:** A section marked with a bracket, featuring sustained notes in the bass.
- Closing Tonic Pedal:** The final section, marked with a bracket, concluding the piece.

Below the staves, the labels *CB* and *WTC1* are used to denote the *Clavier-Büchlein* and *Well-Tempered Clavier* Book 1 respectively.

Figure 17: Comparison of J. S. Bach's C Major Prelude in the *Clavier-Büchlein* and WTC1

- 1 - CB includes an extra chord after the tonicization of the dominant, with a major seventh above the root.
- 2 - The voicing of these two chords differs: CB has a smooth soprano descent (B-B $\flat$ -A) while WTC1 pulls the local leading tone motion to the soprano (C $\sharp$ -D), mimicked two measures later with the B-C motion in the soprano.
- 3 - CB includes a 7-6 suspension over the F, with E moving down to D.
- 4 - WTC1 uses a $\flat_3^4$ chord here instead of the $\frac{4}{2}$ chord in the CB. Both examples also use the $\flat_3^4$ rather than $\frac{4}{2}$ at Box 2, over the G in the bass.
- 5 - WTC1 uses ii ^{7} to initiate a ii-V-I motion into the tonic to end the sequence, while CB uses a dominant, which prepares the delay of these notes into the tonic in Box 6.
- 6 - Whereas WTC1 uses a dominant chord here, CB has a dominant sonority delayed over the tonic bass note before resolving, as noted above in Figure 12. Such a displacement is also used at the close of the sequential passage in the C Minor Prelude from WTC1, as noted in Figure 13.
- 7 - CB moves immediately to a tonic with flatted seventh (V ^{7} /IV), whereas WTC1 resolves first to a tonic triad before moving to the V ^{7} /IV.
- 8 - WTC1 chromatically saturates the outer voice-leading lines in CB that connect the pre-dominant to the dominant: a chromatic passing tone in the bass (F $\sharp$) connects F and G and a chromatic passing tone in the soprano (E $\flat$) connects E and D.
- 9 - F $\sharp$ from the bass of WTC1 at Box 8 moves to A $\flat$, overshooting the goal tone, G, and completing a set of chromatic double neighbors, F $\sharp$ and A $\flat$, to the upcoming G. This delays the resolution into the dominant pedal, heightening tension.
- 10 - WTC1 includes a continuation of the opening four-measure unit of the dominant pedal, with the voice-leading continuing chromatically through the soprano F up to G before the motion through the third, G-F-E, back into the tonic area.
- 11 - CB ends here on the tonic chord whereas WTC1 expands the tonic with a T-PD-D-T motion over the tonic pedal, delaying the tonic arrival through the opening flatted seventh on the tonic chord and pushing the progression forward into the subdominant.

Other preludes also show the flexibility of the model. The *Clavier-Büchlein* version of the C Minor Prelude contains a dominant pedal section that is much shorter than the version in Book I of *The Well-Tempered Clavier*. The *Clavier-Büchlein* version omits the entire dominant pedal section after the change of texture, except for the first measure of the monophonic dominant arpeggio, thereby leaving out the canonic passage noted above in Figure 15. The measure of dominant arpeggio then resolves to what is measure 35 in the WTC1 version, albeit with a slight alteration in the first two sixteenth notes, as shown in Figure 18. This alteration in the *Clavier-Büchlein* provides a less syncopated arrival, as the low C sounds on the downbeat of the measure. In addition, the ending passage (including the passage shown above in Figure 16) is missing in the *Clavier-Büchlein*.

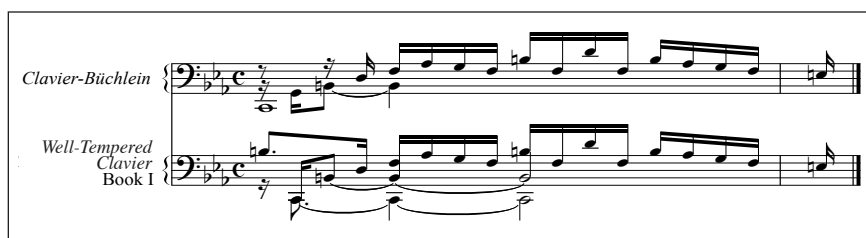


Figure 18: C Minor Prelude's Resumption of Sixteenth Note Pattern after Dominant Pedal

Another of J. S. Bach's introductory figuration preludes highlights different benefits to using these pieces as teaching tools. The opening of the WTC1 version of the E Minor Prelude provides what Robert Gauldin calls a "textbook model" of the technique of creating a melodic line from a simple soprano line, which was given in the right-hand block chords in the *Clavier-Büchlein* version.²⁷ By working between the different voice-leading strands, which have already been internalized in the hands, players can begin incorporating additional ornaments, thereby moving toward improvising more individualized melodic structures based on underlying tonal plans.²⁸

²⁷ Gauldin 1988: 104. Schulenberg couches the melodic additions and formal differences in the WTC1 version in a historical and stylistic context (2006: 222-223).

²⁸ Michael Callahan (2010b) provides an excellent demonstration of the uses of specific types of figures from eighteenth-century pedagogue Michael Wiedeburg.

The *Clavier-Büchlein* version of the E Minor Prelude also differs from the WTC1 version in that it omits much of the WTC1 version after the first rule of the octave. The second half of the WTC1 version has an Exordium and a rule of the octave in the subdominant, A minor. This is similar to Bach's *Precepts* exercises, where he shows rule of the octave progressions moving through multiple keys. Furthermore, although the upper voice-leading of both passages begins in the same way, with a tonicization of the subdominant, differences in the vertical arrangement of the voice-leading strands provide students with the opportunity to examine and then to experiment with inverting lines of counterpoint, re-stacking lines from standard patterns over a pedal point at specific formal junctures.²⁹

²⁹ The WTC1 version includes a descending E-D-C-B-A bass motion into the pre-dominant area (mm. 21-23), while the *Clavier-Büchlein* version places the E-D-C motion in the upper voice, occurring against a tonic pedal in the lowest voice. The reason for the contrapuntal alteration depends upon the placement of each passage with respect to the overall form: the *Clavier-Büchlein* version is drawing to a close at this point, while the WTC1 version is leading into the rule of the octave on A.

CONCLUSION

The Bach family pedagogy for improvising figuration preludes can provide benefits to students today, particularly since it anticipates aspects of modern pedagogy. The act of improvising figuration preludes unites performance with the learning of theoretical concepts and compositional design, modeling aspects of Steve Larson's multi-faceted educational approach, "integrated music learning".³⁰ For Larson, integrated music learning includes engaging ideas not only conceptually, visually, aurally, and vocally, but also, in Larson's terminology, "digitally" (that is, with the fingers). The improvisation of figuration preludes can also build on or be integrated into other materials and approaches used in the theory curriculum. For instance, Aldwell and Schachter's textbook includes keyboard exercises as a way to reinforce student understanding of tonal concepts, presenting them in a larger context and allowing students to focus on voice-leading connections and larger patterns.³¹ Their examples also include embellished versions of tonal patterns.³² With specific regard to Baroque music, Michael Callahan has provided numerous protocols for integrating Baroque improvisation into the modern classroom, including standard patterns of diminution.³³

Figuration preludes also capture another key feature of Larson's approach, where students learn to improvise by using menus, maps, and models. Here, basic tonal patterns serve as "maps" of the possible tonal pathways, and "menus" provide the available chordal options for embellishing or altering these maps. This process

³⁰ The title of Steven Laitz's textbook, *The Complete Musician*, and the "Integrated Approach" noted in his subtitle also reflect this pedagogical goal. Many of Laitz's examples, which focus on voice-leading concepts, could be performed or realized at the keyboard. Indeed, the first edition of Laitz's text included overt "Keyboard" exercises placed regularly throughout the text. See Laitz 2003 (First Edition) and 2012 (Third Edition).

³¹ See the appendix in Aldwell and Schachter 1989.

³² See Aldwell and Schachter 1989: 587-588.

³³ See Callahan 2010a, 2010b, and 2012. While encompassing a much wider scope than figuration preludes, Callahan 2010a does include a brief treatment of diminution in figuration preludes, in which he discusses the use of different figurational permutations. See Callahan 2010a: 158-162.

results in specific pathways through the maps, called “models.”³⁴ Such an approach, adapted to figuration preludes, provides cognitive benefits for learning musical structures, adapting them, and creating from them.³⁵ Students may find it helpful to begin by playing from a written “model”, which can help to internalize the tactile patterning that will serve as a basis for future development and variations, as well as the idea of looking at a structure but playing an ornamented (or diminuted) version of it. Students in my first-level theory classes have found success elaborating at the keyboard from their own written-out “models”, indicating only the bass line and figured bass notation. Then, more advanced harmonic options can be incorporated as additional improvisational “menu” options later in the curriculum.

By improvising from basic patterns, students internalize tonal principles in a creative way. Examining tonal variants between historical works, students study how different pieces exist as multiple outputs from a single underlying model. In this way, this approach aligns the study of musical structure, history, and performance, while also supporting creative opportunities. In doing so, this method demonstrates a number of tenets of Baroque educational practice, including the emphasis on musical fluency in performance, a focus on practical examples in instruction, and the high level of attention placed on the learning experience.³⁶ Ultimately, Larson’s claim about integrated music learning can serve equally well as a slogan for Baroque pedagogical practice: “Music learning is best when it is ‘integrated’--when it combines different ways of understanding musical relationships.”³⁷

³⁴ Larson 1995.

³⁵ Psychologist Jeff Pressing has noted that increased practice of patterns in improvisation decreases the central processing load for playing those patterns, which allows certain features to run automatically and enables the player to focus on other aspects of musical creation during performance (1984: 356-360; see especially his Figure 3 on page 358).

³⁶ Butt 1994: 64-66.

³⁷ Larson 1995: 76.

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Hearing “What Might Have Been”: Using Recomposition to Foster Music Appreciation in the Theory Classroom¹

BY MELISSA HOAG

“To appreciate fully what something is—to comprehend its significance—is to have some notion (however informal or unformulated) about what it might have been. [...] The road actually taken is invariably understood partly in terms of those not taken.”

Leonard B. Meyer²

The majority of music majors spend little time listening to music from the common-practice period; they begin college with a woefully impoverished knowledge of repertoire, even that composed for their major instrument. Because they do not listen to—let alone study the scores of—this repertoire regularly, few students learn to *appreciate* in any substantive manner the construction of a piece and what makes it both unique and yet part of a larger body of music in a given style. Fortunately, some proficiency is gained in their core classes, but it is not sufficient to provide a sophisticated appreciation and general proficiency in grappling with this important repertoire.

But proficiency is not the same as appreciation, if by “appreciation” we mean Meyer’s helpful definition in the passage cited above: to possess a true appreciation means that one can “comprehend the significance” of various musical events in light of an understanding of “what it might have been”—that is, what might have been composed instead. In my view, instilling such an appreciation in our students is just as important as any other musical skills that we hope our students will develop. This article presents a pedagogical approach I call *recomposition*, which serves as a reminder of “what might have been,” whose goal is to refine and heighten students’ ability to “comprehend the significance” of

¹I wish to thank the anonymous readers of the *Journal of Music Theory Pedagogy*, as well as the journal’s editor, Steven G. Laitz, for their many helpful comments as I prepared the final draft of this article.

²Leonard B. Meyer, *Style and Music: Theory, History and Ideology*, Philadelphia, Pennsylvania: University of Pennsylvania Press (1989), 32.

various musical events. In recomposition, students closely study a work, and compose (or imagine, in the context of class discussions) alternate versions of the same work; in one case, students are asked to write a reflective essay comparing their recomposition with the composer's original work. Hearing the original version of a work side-by-side with a different (usually simpler) version encourages students to understand the work they are studying against the backdrop of "what might have been" written instead; it piques their intellectual curiosity, and sharpens their aural skills.³

³While recomposition is a commonly invoked approach in professional music-theoretical discourse, it has had a limited application in music theory pedagogy, and deserves further exploration and dissemination in that regard. Two (of many) examples of recomposition in the theoretical literature are: William Rothstein, *Phrase Rhythm in Tonal Music* (see especially pages 23-24), and Matthew L. BaileyShea, "Filletted Mignon: A New Recipe for Analysis and Recomposition," *Music Theory Online*, Vol. 13, no. 4 (December 2007), <http://mto.societymusictheory.org/issues/mto.07.13.4/mto.07.13.4.baileyshea.html>.

Some types of composition assignments related to the recompositional activities I submit in this article have a long history in the pedagogies of improvisation, composition, and music theory. Using recomposition for pedagogical purposes, for instance, calls to mind the related Baroque practice of learning composition through *partimenti*, as represented by, among others, Giorgio Sanguinetti's *The Art of Partimento: History, Theory, and Practice* (Oxford: Oxford University Press, 2012). *Partimenti*, as William Renwick points out, "...fall precisely on the cusp between musical exercises and compositions. They exhibit the formal properties normally associated with complete compositions, yet their focus is pedagogical, leading to studies in improvisation and fugal composition" (William Renwick, *The Langloz Manuscript: Fugal Improvisation Through Figured bass* [Oxford: Oxford University Press, 2001], 2). Interested readers should also reference Nicholas Cook's excellent text *Analysis Through Composition: Principles of the Classical Style* (Oxford: Oxford University Press, 1996), which presents a range of projects asking students to complete works that exist only in sketch form, or are otherwise incomplete (there are a few examples of complete works, but Cook's intention is for these assignments to be used in self-study). Cook chooses these kinds of examples precisely so that students will be unable to look up the original, complete version of the piece (*Analysis Through Composition*, xi). I would note that the activities I propose in this article are actually recompositions, and not completions of works in the manner of Cook's text, or in the manner of the *partimenti* tradition cited above. Assignments along similar lines are also often included in keyboard skills texts, an exhaustive list of which would be too extensive to include

While most of this article will focus on recompositional activities for upper-level students, I will begin with a simple demonstration of recomposition that I use when introducing secondary dominants to first-year students. (Because beginning students are still learning about basic stylistic characteristics and expectations, instructor demonstrations are the best way to begin to encourage this kind of thinking. A reduction of the opening of Beethoven's Symphony no. 1, which features two secondary dominants as well as deceptive motion, is shown in Example 1a. After playing the introduction for the class and encouraging them to come to grips with the perceptual confusion created by the misleading opening harmonies and lack of V-I motion in the tonic key, I show them the score, and help them to discover the role of secondary dominants in this passage. I will then humorously offer gratitude to the world of harmony for providing today's theory students with such compelling and colorful chords. Just imagine, I will say, what this symphony's opening might be like *without* such harmonies—what if the chromatic chords in this passage were replaced by their diatonic counterparts? I then play Example 1b, which shows a recomposition of the symphony's opening, now using only diatonic chords.



Example 1a. Beethoven, Symphony no. 1, Introduction (reduction)

here; of course, the aims of keyboard skills texts differ substantially from those of most theory curricula for at least two obvious reasons: students in a written theory class often possess widely varying levels of piano proficiency, so expectations cannot be consistent; and, most theory curricula are not taught in piano labs (at least, not every semester).



Example 1b. Beethoven, Symphony no. 1, Introduction (recomposed reduction)

While the musical effect of Example 1b is disappointing in comparison with Beethoven's original, the pedagogical effect is profound: instead of dreading these new chords out of an understandable fear that they won't be able to grasp them, students approach these new chords with a sense of fascination, and can't wait to learn more about them. In other words, they have begun to develop an *appreciation* for these new chords, and for Beethoven's Symphony no. 1, by experiencing "what might have been." Opportunities for similar demonstrations abound throughout the core theory sequence.

The remainder of this article presents ideas for incorporating the general approach of recomposition into upper-level classes, and for placing the task in the hands of the students; such a venture is particularly effective if students have had the seeds planted for this kind of thinking in their lower-level theory classes, in a manner similar to the Beethoven example. Using recomposition in more advanced classes can not only lead to a valuable discussion about what made the original so compelling in comparison to the recomposed version, but it has additional benefits: finely honing their sense of stylistic expectations and a greater capacity to envision composers' choices in various contexts. I reserve this advanced level of application for students who have completed the lower-level theory sequence, and have therefore gained proficiency in part writing, form, and counterpoint. I have used all of the examples and assignments in this article in my elective form and analysis class for juniors and seniors.⁴

⁴Of course, it is certainly possible that some instructors will find it useful to apply some of these ideas in lower-level classes such as sophomore, or perhaps even freshman, theory.

Musical features most effectively illuminated by a recompositional approach include melodic composition, harmonic progression, period structure, and more advanced phrase structure techniques (such as phrase overlap and expansion by deceptive motion), each of which I explore in order below.

1. MELODIC ANALYSIS AND RECOMPOSITION

While there are a number of ways in which melodic recomposition might be implemented, I have found it to be particularly useful for explicating the intricacies of compound melodic structures, which can often be lost on students who tend to read, hear, and consequently perform music in a literal, note-by-note fashion. The first step in recomposing a compound melody is creating a reduction; this encourages attention not only to the adjacent intervallic relationships of an elaborate passage, but also to large-scale linear progressions—structural stepwise lines that occur below the surface of the music and are connected because they occur at the same structural level. Such an endeavor thus imparts valuable insight regarding how the passage is constructed from the inside out.⁵ After creating a reduction, the next step is for students to compose a new melody that is based on the reduced structure of the original, while maintaining the given style. The instructor or students should then perform their recomposed versions and discuss them as a class.

Students are likely to recognize the beginning of Bach's well-known chorale prelude on the hymn "Wachet auf," which features seemingly difficult leaps and accented embellishing tones on its

⁵ It is possible to frame the creation of a melodic reduction itself as a kind of recomposition if one presents the reduction as a simpler version of the original piece. Such thinking leads to a clear comparison with the process of learning species counterpoint or four-part writing: I often tell my students that in counterpoint or four-part writing, we start with something simple and embellish it; in analysis, we start with something that is already embellished and simplify it to better comprehend the structure. Such thinking can also help to clarify the beginning (reduction) stages of Schenkerian analysis; as William Benjamin has observed, "What Schenker asks us to do is to compose simple pieces which may intuitively be heard to underlie pieces from the tonal repertory" (William Benjamin, "Schenker's Theory and the Future of Music," *Journal of Music Theory*, vol. 25, no. 1 [1981]: 159, cited in BaileyShea, "Filletted Mignon," *Music Theory Online*, Vol. 13, no. 4).

surface (Example 2). These leaps and embellishments are easily clarified through step-by-step simplification of embellishments, which can be determined as a class (see Examples 3a-c), and through reduction and discussion, it soon becomes clear that a compound melody forms the background structure of this passage. Students are then asked to create recompositions based on this reduction. Example 4 provides the assignment instructions and template, and Example 5 provides sample student solutions based on the reduction.

After we determined a basic melodic reduction for this exercise as a group, students were given about fifteen minutes to complete their recompositions. Afterward, we played or sang and discussed their solutions. The discussion included both positive and critical observations, but the less-than-perfect solutions turned out to be especially illuminating; the class was able to unpack, for instance, why an apparent unresolved dissonance in Bach's example made sense (usually because of compound melodic structures), while it might not have made sense in a student solution. Asking students to compose a new melody based on this reduction, in other words, facilitated an immediate connection with the common pedagogical techniques of four-part writing and embellishment of simple structures, which can seem artificial if divorced from a work from the literature.

More generally, students agreed that they gained valuable insights into the multiple possibilities inherent in a single structure, and that they grasped the complexity and nuance in Bach's original by trying to compose their own version. In short, they were reminded of "what might have been," in a way that increased their appreciation for Bach's original version and for Bach's contrapuntal prowess in general.⁶

⁶This activity may be thought of as a more advanced version of a common pedagogical exercise for lower-level theory classes—asking students to embellish a given basic framework and then study a major composer's realization of that framework. Additionally, activities similar to this may prove to be a useful way to help students "get their hands dirty" before writing a longer Baroque piece, such as a dance suite movement, an activity which is often quite intimidating for students (particularly those who have not played Baroque dance suite movements for keyboard); while I have not yet had the opportunity to try this technique with my advanced counterpoint students, I believe that it will help them get over the intimidation they feel at the outset of such an assignment.

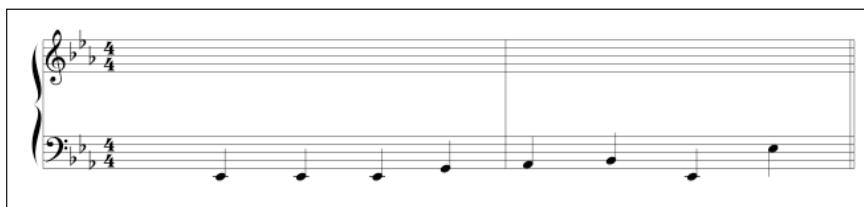
P=Passing tone
IN=Incomplete neighbor (appoggiatura or neighbor tone)
SUS=Suspension

Example 2. Bach, Chorale Prelude on Wachet auf, ruft uns die Stimme, BWV 645 (measures 1–2)

Examples 3a-c. Bach, Chorale Prelude on Wachet auf, ruft uns die Stimme, BWV 645 (measures 1–2, reductions)

Having closely studied Bach's chorale prelude, compose a new melody to go above the original bass line that might form the beginning of your own chorale prelude. You may wish to use the reduction shown in (c) above as a framework, or you may depart from it in some places.

Use primarily eighth notes with some sixteenth notes. Aside from a harmonic and contrapuntal treatment that follows the path of the given example, the style of your recomposition should remain appropriate to the Baroque era, including common Baroque techniques such as *Fortspinnung* and *style brisé*. You may also wish to include compound melody in the manner of Bach's original. (Note: space has been reserved for an anacrusis, should you wish to add one).



Example 4. Recomposition of Bach, Chorale Prelude on Wachet auf, ruft uns die Stimme: Assignment

Example 5. Recomposition of Bach, Chorale Prelude on Wachet auf, ruft uns die Stimme: Sample student solutions

Melodic recomposition can also demonstrate the importance of other melodic features, such as octave displacement. The removal of such a disruptive displacement, of course, can have serious ramifications for the character of a melody. Such examples abound in Brahms's music. For instance, Example 6 provides the beginning of Brahms's Intermezzo in A Major (op. 118, no. 2), which features a prominent octave displacement between B4 and A5. Example 7 shows a simple recomposition of this passage, in which the A5 is replaced with an A4—the minor seventh becomes a major second,⁷ and the entire character of the work is changed.⁷ There is truly a difference between pointing out an octave displacement and actually playing a version in which the displacement is removed. This is particularly true in this case, where the octave displacement motivates much of the melodic activity. When I play the recomposed version in the context of the rest of the texture, students gain a more tangible appreciation for Brahms's version.



Example 6. Brahms, Intermezzo in A Major, op. 118, no. (measures 1–2)



Example 7. Brahms, Intermezzo in A Major, op. 118, no. 2 (measures 1–2; octave displacement removed)

⁷ Of course, this octave displacement amounts to a compositional premise: Brahms intentionally avoids the stepwise $\hat{3} - \hat{2} - \hat{1}$ until the last three notes of the piece. Recomposing it as shown in Example 7 wholly deflates the Intermezzo's impetus for continuation, which proves the importance of the awkward octave displacement to students who might otherwise take it for granted.

2. HARMONIC PROGRESSION

Recomposition can easily be introduced into the harmonic realm by substituting original harmonies with others that share the same function. Opportunities exist wherever chromatic harmonies occur. The fourth movement of Brahms's *ein Deutsches Requiem* provides ample opportunity for harmonic recomposition, particularly in the second theme area, which features two prominent occurrences of $\flat VI$, both on the word *Wohnungen*. The first occurrence (m. 30) results from chromatic 5-6 motion, and it is easy, but revealing, to replace $\flat VI6$ with diatonic $vi6$, which sounds lackluster compared to the magical and distant $\flat VI6$. The second occurrence of $\flat VI$ (m. 40) occurs as a deceptive motion. Substituting tonic or vi are disappointing solutions, paling compared with Brahms's original. Again, such substitutions foster a deeper appreciation of Brahms's version.

Of course, it is essential to incorporate text-music analysis, and to ask students to consider why Brahms might have reserved such a distant chromatic harmony (within what is otherwise a mostly diatonic passage) for the two occurrences of the word *Wohnungen*. *Wohnungen* refers to the Lord's house, which remains accessible only in death. This remote harmony in the original key, then, is appropriate, and the diatonic version would have ill-served the crucial image of the text.

The "Crucifixus" from the *Credo* of Bach's *Mass in B Minor* provides another opportunity for such a discussion. Its acclaimed lament bass in E minor depicts Christ's crucifixion and burial, an apt setting for this portion of the Mass ordinary. The closing measures of the movement, however, present a shock: the appearance of the extraordinary German diminished-third chord wrenches the music toward G major for the final cadence. Once we have identified the tonal function of this aurally marked sonority, I ask students what other more-traditional harmonic solutions are possible. Students usually respond that a secondary dominant or leading-tone seventh chord could have performed the same function as the $Gr^{\circ}3$.

As I play these mundane substitutes, we begin to answer the question, "What does the music gain from the use of $Gr^{\circ}3$ that these other solutions do not deliver?" Students point out that the inclusion of the $E\flat$ as part of the $Gr^{\circ}3$ allows for a chromatic descent in the soprano line, and also (relatedly) that the $E\flat$ enables a $\flat\hat{6}-\hat{5}$ motion above the bass in the new key of G major, which echoes the

lament bass that persisted throughout most of the “Crucifixus.”

I then ask the students to consider whether replacing the $\text{Gr}^{\circ}3$ with more expected harmonies affects our interpretation of the text. This question leads to a meaningful discussion of text painting: the chromatic and transformative nature of the $\text{Gr}^{\circ}3$ could be considered a musical analogue, one that precisely mirrors the potent text: the harmonic treatment, with the expected chord dramatically transformed into the $\text{Gr}^{\circ}3$, could be viewed as the musical representation of the Biblical miracle, as the stone blocking Jesus’s tomb being rolled away, yielding hope for new life and salvation.

In both the Brahms and Bach examples, students are once again reminded of “what might have been”; through detailed consideration of harmonic recompositions, they gain a deep, if not even spiritual, appreciation for these pieces, and their interpretive skills are heightened as a result. I also find that students come away from such discussions much more inspired about the music than if we had just considered the music as written, because hearing the alternate possibilities awakens their ears to the small differences among works that create such diverse musical realizations. While I have described ways in which this technique might work in the written theory classroom, the listening skills gained by such an approach cannot be overestimated; substitution of similar harmonies should be used as frequently as possible in the aural skills classroom, for both listening- and dictation-related activities.

3. PHRASE AND PERIOD STRUCTURE

Asking students to compose or improvise a consequent phrase based on a given antecedent is a ubiquitous pedagogical technique featured in many written and aural skills textbooks, and one that I use regularly. For a more advanced class, I propose a slightly different approach that asks students to recompose an existing consequent with which they are already familiar. As is typical for assignments that ask students to compose a consequent based on a given antecedent, students are asked to complete the period with voice leading and texture taken from the original antecedent.⁸ They are then asked to compare their recomposition with the composer’s

⁸Texts that include assignments in which students are asked to compose a consequent based on a given antecedent are too numerous to list here. One aural skills text that requires this skill is Robert Ottman

original version. The instructor might place several constraints on the recomposition: perhaps they will ask students to recompose a given contrasting consequent phrase to make it parallel with its antecedent, to recompose an expanded consequent to make the phrase symmetrical, or to recompose an existing consequent so that it modulates to a variety of tonal destinations.

A sample assignment follows, which asks students to recompose the well-known contrasting period at the beginning of the second movement of Beethoven's *Pathétique* sonata as a *parallel* period.⁹ Students in form and analysis class will already have encountered this movement at least four times in their theory coursework: once in first-semester theory, when learning part-writing basics; a second time in second-semester theory, when learning phrase structure; a third time in second-semester theory when studying sequence and secondary functions; and a fourth time in sophomore theory when studying rondo form. Students were also instructed to play through the period before beginning the assignment. (Example 8 provides the score referenced in the assignment, and Example 9 shows one student's recomposition of Beethoven's consequent phrase.)

and Nancy Rogers, *Music for Sight Singing*, 7th ed., (Upper Saddle River, New Jersey: Pearson Prentice Hall, 2007), 23–24.

⁹This particular contrasting period falls within a category that Laitz calls "contrasting continuous period," a label which accounts for the lack of tonic return at the beginning of the consequent phrase (Laitz, *The Complete Musician*, 304).

I. Play through the familiar contrasting period (see below) several times. (You may wish to block the chords in this excerpt to get a better handle on the voice leading.) Sing each part, taking care to notice that there are four, not three, “voice” parts throughout most of the excerpt.

II. Compose a new consequent phrase that is parallel to the given antecedent phrase (measures 1–4) and which is the same length as the given antecedent. Maintain the texture, melodic character, and general register of the antecedent in your consequent. Be sure to play your consequent phrase at the piano, or, if you are unable to do so, please have a colleague play your work so that you can hear the effect of your solution.

III. Write a brief essay (1–2 double-spaced pages) describing the decisions you made in composing your parallel consequent phrase, and compare your consequent phrase with Beethoven’s original contrasting consequent.

Example 8. Recomposition assignment: Beethoven, Piano Sonata in C minor, op. 13, II (measures 1–8)¹⁰

¹⁰Ludwig van Beethoven, *Complete Piano Sonatas*, Vol. 1, ed. Heinrich Schenker (Vienna: Universal Edition), 1918.



Example 9. Sample student recomposition of Beethoven, Piano Sonata in C Minor, op. 13, II

The recomposition in Example 9 was the most convincing of the group, and was written by a student who confirmed that she played through her solution at the piano as she composed it.¹¹ As in the melodic recomposition assignment, discussing the technical issues in somewhat weaker solutions proved to be just as valuable as closely studying the stronger solutions; the resulting conversation went a step beyond typical classroom discussions of part writing or counterpoint solutions, because we could compare Beethoven's treatment of these compositional challenges with student solutions.

A class discussion of errors found in a figured-bass realization often refers only to so-called "rules" that have been discussed in class, instead of comparison with actual compositional practice; often, despite the instructor's best efforts, students are left with the impression that the composition part of music theory is all about ironclad "rules."¹² By contrast, a discussion of errors in this kind

¹¹ Not surprisingly, students who admitted to not playing through their recompositions had, on the whole, weaker solutions. Problems typically encountered in the weaker solutions included intervals too large to play successfully in the right hand, questionable doublings, and occasional unresolved sevenths leading to odd melodic trajectories.

¹² As a theorist, I am, of course, the first to admit that music does have "rules." However, among students and non-theorist colleagues, such language can sometimes contribute to a negative characterization of music theory. I am always careful to mitigate such language and

of recomposition assignment invites immediate and close study of Beethoven's actual compositional practice, because the solutions are based on a model from a real piece of music. Finally, within the constraint that the new consequent be parallel to the original antecedent, students are given the ability to choose how to treat the pre-dominant area, and to determine the kind of melodic line that would work best to finish the consequent phrase. Such an activity invites the student to explore or exercise his or her personal instincts and musical tastes, something that is unusual in the standard theory curriculum.

The essay portion of the assignment was particularly illuminating, as it encouraged students to compare the details of their solutions with Beethoven's. More than one student said that while it was quite challenging, they found it revealing to recompose Beethoven's existing consequent while retaining the established piano texture and general approach to voice leading. One student composed several consequents, and another experimented with recomposing the antecedent to end on scale-degree 2 in the upper voice after composing a new consequent. Several students mentioned applying their understanding of melodic fluency to their recomposition of the consequent. One student's description of this process follows:

"The next step was to focus on the antecedent - the melodic fluency as well as how the outer voices were relating to each other (contrapuntally speaking). By focusing on the *shape* of the antecedent, I could see the *shape* of a potential consequent. By seeing the intervallic relationship with the outer voices, I could better see the direction my potential consequent was headed."

Of course, this kind of recomposition assignment retains the benefits gained by the more typical "compose a new consequent to a given antecedent" assignment frequently found in music theory texts; that is, students model (often literally copying at first) the existing texture and voice leading when recomposing the consequent phrase, thus creating a situation in which these parameters may be experienced from within the music's fabric. This is exactly the kind of skill that is not easily developed by moving directly from species or part-writing exercises to model compositions (particularly for students who are not pianists).

to contextualize "rules" with examples from music literature, thus clarifying that rules are really just a reflection of established musical practice.

This assignment also requires students to deal with the harmonic acceleration necessary for a parallel consequent phrase to be the same length as a given antecedent, which is something we regularly discuss in our analysis of phrase structure.

Recomposing an existing period to change its structure demonstrates how exceptional Beethoven's original version is; having tried to compose a convincing parallel consequent phrase based on Beethoven's original antecedent, students gain an appreciation of how intuitive and natural-sounding Beethoven's contrasting consequent is when they listen to it again. We can talk about the contour of the original counterpoint and the expansiveness of the original harmonic progression with an insider's perspective, comparing Beethoven's version with the admittedly somewhat forced continuation of the antecedent as a parallel phrase period.

4. MORE ADVANCED PHRASE STRUCTURE ISSUES

Another application of recomposition clarifies more sophisticated issues of phrase structure, such as phrase overlap and phrase expansion by deceptive motion. In Example 10, a prominent phrase overlap at the beginning of the *Allegro* portion of the first movement of Beethoven's Symphony no. 2 is dismantled to demonstrate the important role phrase overlaps play in the forward momentum of a long sonata-form movement.¹³ This is a straightforward example that can be used to demonstrate the more complex aspects of phrase structure. Removing the overlap demonstrates how halting the music sounds without its exciting momentum-building presence; if repeatedly confronted by such demonstrations (or asked to come up with them themselves), students are unlikely to forget what a phrase overlap is, or why a composer might use this technique. Actually playing a recomposition like the one shown in Example 11 (and not just talking about it!) increases students' appreciation of the original more effectively than merely defining the technique and showing examples of its use.¹⁴

¹³I prefer to begin with a symphonic example (in piano reduction format) because the instrumentation change makes the phrase overlap easier to hear.

¹⁴Another simple symphonic example of phrase overlap appears in Haydn, Symphony no. 101 in D Major, IV (measure 28 is the exact point of phrase overlap). A clear example in piano literature appears in Beethoven, Piano Sonata no. 5 in C minor, op. 10, no. 1, II (measure 91 is the exact point of overlap).

Allegro con brio (♩ = 100)

Instr. a cordes

p

cresc.

p

Hautb. et Basson

p

cresc.

f

f

Example 10. Beethoven, Symphony no. 2 in D Major, measures 34–50
(piano transcription by Franz Liszt)¹⁵

¹⁵Franz Liszt, *Beethoven Symphonies Transcribed for Solo Piano, Vol. 1* (Leipzig: Breitkopf & Härtel, 1871).

Allegro con brio ($\text{♩} = 100$)

Instr. a cordes

f *p* *cresc.*

Hautb. et Basson

p *cresc.* *etc.*

And. *

Example 11. Beethoven, Symphony no. 2 in D Major, recomposition of measures 34–50 (the last three measures of this example constitute my recomposition)

Recomposition can also be used to clarify phrase structure through removal of a phrase expansion, particularly expansion caused by deceptive motion.¹⁶ Students sometimes have difficulty grasping the real function of deceptive motion, which is often to expand a phrase through evasion of an authentic cadence on tonic. This evasion is usually achieved by returning the phrase to the predominant area, thus requiring another trip through the

¹⁶ See Rothstein's excellent discussion of the role of deceptive motion in phrase expansion (*Phrase Rhythm in Tonal Music*, 78–80). Steve Laitz also offers an especially clear explanation of deceptive motion in his undergraduate textbook *The Complete Musician: An Integrated Approach to Tonal Theory, Analysis & Listening*, 3rd ed. (Oxford: Oxford University Press, 2012), 271–2.

dominant area, and finally moving on toward tonic.¹⁷ Removing the deceptive motion and re-routing the music to the original cadence clarifies the function of most deceptive motions.

A perusal of examples of recomposition in the theoretical literature reveals that the process is most often applied to works of the classical and romantic periods, undoubtedly because of the significant degree to which stylistic convention played a central role in shaping musical structure of those periods. There is no reason to restrict recomposition to music of the common practice period, however, because popular music frequently relies on convention and thwarted expectations. This essay has also focused on common-practice repertoire so far, largely because of my initial observation that students are not familiar with this important body of music. I have found, though, that students also do not know “common-practice” popular and rock music, such as that by the Beatles or the Police. Incorporating popular music in teaching is, in general, an effective way to remind students that what they are learning in music theory can apply to different styles of music, and increases their appreciation for the many musical techniques that are common to all tonal styles. For all of these reasons, I try to incorporate popular music examples where appropriate in my teaching, and the next two examples will originate from popular repertoire.

¹⁷ The way in which I have here described the harmonic functions involved with deceptive motion represents how an undergraduate might most easily understand it at first: as it unfolds in time, where the first predominant area leads to a dominant that seems to promise an authentic cadence. This dominant, however, turns out to be followed by deceptive motion, which, in turn, throws the progression back to the predominant area for another attempt at an authentic cadence. At a higher structural level, of course, the vi that follows the V in the deceptive motion would supersede the first V in structural importance, and one would understand the “real” predominant as arriving only after the deceptive motion has occurred, just before the structural V-I cadence. While the latter explanation is the most accurate way of understanding the voice leading, it does represent a retrospective hearing and understanding of deceptive motion, which is why I postpone this deeper yet perceptual explanation until after the students have experienced the progression in its simplest form.

One of my favorite examples of phrase-expanding deceptive motion appears at the end of the Beatles' song, "Octopus's Garden."¹⁸ Recomposing the end of the song to remove the expansion is a simple and effective way to demonstrate the function of deceptive motion in this example.¹⁹ Another example of deceptive motion occurs at the end of the first phrase of The Police's "Every Breath You Take." As would typically occur if a phrase ends with a half or imperfect authentic cadence, this deceptive motion is answered by a perfect authentic cadence at the end of the next phrase.²⁰ As a bonus, the repeated deceptive motions in the song hold particular relevance given the text's meaning, and this aspect should be incorporated into the class discussion: the narrator is threatening to stalk the object of the text ("Every breath you take, / Every move you make, / Every bond you break, Every step you take, / I'll be watching you..."). The deceptive motions that occur throughout the song provide an uncanny portrayal of the narrator's disturbing threat of constant surveillance; the smooth deception of the harmonic progression deepens the text's implication that the narrator is not to be trusted, or, that the narrator has been deceived, and the deception is repeated in the music, followed by "I'll be watching you." (Even the musical terminology—"evaded" and "deceptive"—plays into this reading.) Recomposing the first phrase of this song so that it ends with an authentic or half cadence would undermine/contradict the text, and thus provides ample evidence of the importance of text-setting subtleties, whether it be found in classical or popular music.

¹⁸ Two additional examples of deceptive motion used for phrase-expanding purposes, both by Mozart, include the Piano Sonata in A minor, K. 310, III, measures 16–20 (replace measure 16 with measure 20, and omit the intervening measures), and the Piano Sonata in C major, K. 279, II, measures 1–6 (replace measure 4 with measure 6, and omit the intervening measures).

¹⁹ This use of deceptive motion in cadence evasion is an example of what Janet Schmalfeldt has called the "one more time" technique ("Cadential Processes: The Evaded Cadence and the 'One More Time' Technique," *Journal of Musicological Research* 12/1–2 [1992], 1–52).

²⁰ This use of deceptive motion (where the cadence evasion takes the place of a half or authentic cadence in a would-be phrase period model, thus returning the harmonic progression to the tonic area instead of the pre-dominant area) is relatively unusual. For an example with a similar structure, see Mozart, Trio in E $\flat$ major, K. 498, measures 9–16, which is cited in Edward Aldwell and Carl Schachter (with Allen Cadwallader), *Harmony and Voice Leading*, 4th ed., (Boston, MA: Cengage Learning, 2011), 238.

Of course, recomposition need not fall into any of the specific categories outlined above; I frequently turn to recomposition in other situations as well. For instance, when introducing the *Prelude* to Wagner's *Tristan und Isolde*, I first play the opening three measures and ask the class what tonic is implied, without revealing the rest of the score. The best answer at this point is A, due to the E major-minor seventh chord in measure 3. I then play a recomposed version of measures 4–7, which leads to a cadence on A (see Example 14). This recomposition prolongs and eventually resolves the dominant function originally presented in measure 3.

Though we discuss the complex harmonic issues contained within measures 1–3, the recomposition shown in Example 14 demonstrates that the opening of the *Prelude* itself is not so tonally vague; it is in fact the sequential treatment of this material that throws the tonality of the opening passage into question. This sequential tendency is one of the central traits of the *Prelude*, and demonstrating the potential direction of the opening motivic material through recomposition clarifies the role of sequence in the *Prelude's* peripatetic harmonic unfoldings. The recomposition is, of course, a different thing altogether than Wagner's original *Prelude*, which is exactly the point: to illuminate what is so unique or special about the *Prelude* by offering an alternative. Hearing my recomposition first sets students up to be even more amazed by Wagner's inventive treatment of harmony, counterpoint, motive, and form.²¹



Example 14. Recomposition of the *Prelude* to *Tristan und Isolde*, measures 1–7 (measures 1–3 are a piano reduction of Wagner's original version; measures 4–7 are a recomposition of the original)

²¹ For a detailed discussion of implied dominants in the first measures of the *Tristan* Prelude, see John Rothgeb, "The *Tristan* Prelude: Identity and Origin," *Music Theory Online* 1/1 (January 1992), <http://www.mtosmt.org/issues/mto.95.1.1/mto.95.1.1.rothgeb.art>.

PRACTICAL MATTERS

The reader may be wondering about the implications of class size for the activities I have proposed above; while instructor demonstrations using recomposition work well for classes of any size, I have only used small-group recomposition or assigned take-home recompositions in classes of fifteen or fewer students. The question of assessment may also be of concern to some readers. For me, it is important that recomposition remains a low-risk activity so that students are encouraged to explore without fear of grade penalties. Often, I assign short recompositions to be completed during class, either alone or in pairs, and they are not graded at all. Instead, I play the solutions without revealing the composer, and the class discusses them. When I collect solutions for a grade, I grade based on contrapuntal correctness (as I would a counterpoint assignment), and, where appropriate, on how thoughtfully students answer questions that explain the choices they made in their recompositions.

CONCLUSION

Recomposition can be a powerful tool in music theory teaching. By asking students to consider the various possibilities inherent within a given musical construct, recomposition challenges the unexamined assumption on the part of many music students that the way a work stands at its completion was inevitable; it reinforces the valuable idea that there are many paths a piece of music might have taken that would also have been technically correct, if, however, not as convincing. Fostering such engagement allows students to develop a sense of surprise toward musical events that they might at first take for granted; it encourages them to more actively engage with the creative process of music analysis by making them aware of the myriad possibilities and realizations that abound in any piece of music. As shown through the various activities outlined in this article, recomposition also allows for discussion of *why* a composer might make a particular compositional choice over another. The point of such a discussion, of course, is not necessarily to come to a single conclusion, because in most cases it is impossible to know the definitive answer to such a question. Rather, the purpose of such speculation, and of recomposition in general, is to encourage students to participate in the moment-to-moment decisions made among a spectrum of possible alternatives as a piece of music unfolds: to remind students to remain sensitive to “what might have been,” and, ultimately, to heighten their appreciation and understanding.

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Modernizing the Minuet Composition Project

BY NANCY ROGERS

Elizabeth West Marvin's numerous scholarly publications range from music cognition to the history of music theory to post-tonal analysis, and I have long admired not only the diversity of her research but also her ability to bring different topics together in interesting ways. It is insufficient simply to describe Betsy's work as interdisciplinary: she asks creative questions and draws upon the full range of her knowledge and musicianship to answer them. Not surprisingly, her pedagogical approach displays the same broad-minded orientation. Readers familiar with the *Musician's Guide* series (which Betsy created with collaborators Jane Piper Clendinning and Joel Phillips) know her preference for integrating listening and written skills, her ability to weave performance and history into the discourse, and her knack for including eclectic popular musical examples in addition to common-practice repertoire.

As anyone who knows her can attest, another key to Betsy's pedagogical success is her delightful personality. Betsy is a friendly, likable, down-to-Earth person with a good sense of humor. She is open to other people's ideas and interests: students who pursue research outside the mainstream of music theory or who focus on music beyond the canon often cite Betsy's encouragement as a turning point in their lives. I feel very privileged to have worked with Betsy, and I know that my own modest professional successes stem in no small part from her inspiration, wisdom, and support.

I offer this article as a tribute to Betsy Marvin, hoping that it reflects some of her diverse scholarly interests, her practical orientation, and her utter lack of musical snobbery.

* * *

A style-based composition project is an appealing option for core undergraduate music theory classes. Students are provided with the opportunity to showcase their ever-increasing knowledge of harmony, voiceleading, meter, phrase structure, and form while addressing skills such as motivic development and the generation of musical momentum — important creative factors that tend to be neglected by more mundane assignments. Not only does the project provide a meaningful way to engage with some elusive elements

of musical style, but students who struggle to manage seemingly independent musical elements in order to fashion a coherent composition will also emerge with a deeper understanding of previously abstract concepts and how they interact.

Among music theory curricula that include a composition component, the most common project is a galant-style minuet. This tradition may be traced back to Joseph Riepel's engaging dialogue-style treatise *Fundamentals of Musical Composition* (*Anfangsgründe zur musikalischen Setzkunst*, 1752–1765), in which the student volunteers to demonstrate his musical skills for the master by composing a minuet. Indeed, the student over-confidently declares this task among the easiest in the world, boasting that he could instantly write a dozen minuets in a row. This offhand remark, of course, contributes to the humor when we later see striking peculiarities such as his thirteen-measure second reprise.

Notice that the student's boast — however unwarranted it turns out to be — also hints at an essential element of Riepel's treatise: the conversation between the student and the master (and the lesson absorbed by the reader) fundamentally depends both on the student's (and reader's) intimate familiarity with the specific genre as well as the student's (and reader's) more general internalized knowledge of musical patterns. Furthermore, although the student's artistic taste is criticized, it appears likely — given various references to speed and to placing appropriate diminutions in context — that he is comfortable improvising. Indeed, this would have been a fundamental skill in the eighteenth century, and it is unlikely that Riepel would have sharply distinguished improvisation from composition, particularly since he was relying on the minuet's ability to trigger reflex-like responses.¹

To a budding eighteenth-century musician, the minuet was an ideal point of departure: because its conventions were extremely familiar, composition teachers could easily address issues of style and taste. Today's music students, however, are considerably less acquainted with galant minuets: they cannot compose — let alone improvise — in this style without fairly detailed explicit

¹Contradicting the conventional wisdom of modern-day musicians, Steve Larson points out that improvisation arguably requires more conscious calculation and knowledge of musical conventions than does composition. See his article "Composition versus Improvisation?" *Journal of Music Theory* 49, no. 2 (2005), 241–273.

instructions.² In my opinion, this greatly diminishes the value of a minuet composition assignment from almost any educational angle. Is the project's objective a demonstration of the student's musical knowledge? Unfortunately, the compositional output probably indicates the quality of the teacher's instructions at least as reliably as it reflects the student's stylistic capabilities. Is the goal instead simply to provide a creative outlet? Fulfilling an itemized list of requirements may strike some students as analogous to paint-by-the-numbers artwork. Whatever our priorities, surely such a project will be immeasurably more valuable if students themselves can establish the compositional framework and meaningfully evaluate the results.³

In the spirit of Riepel's treatise, I find familiarity of style and reliance on musical intuition highly desirable for a modern-day composition project. I also believe that Riepel was wise to focus on a ubiquitous genre. My composition project therefore relies on one of the few remaining popular genres that employ conservative common-practice harmony: the college fight song chorus.⁴ Fight songs seem almost inescapable for Americans: even people who have never followed college sports, who never participated in

²Providing excellent models is also helpful, of course, but students who are completely unfamiliar with a compositional style can't easily extract important features on their own. A certain level of expertise is required to distinguish compositional hallmarks from incidental details.

³Clearly I disagree with Stefan Eckert, who finds stylistic unfamiliarity advantageous. Eckert claims that historical distance allows students to disregard their musical preferences, and that striving to recreate a style from the past frees students from textbook descriptions of what sounds good. I contend that students lacking stylistic instincts will almost necessarily become *more* reliant on their textbooks and instructors. (See Eckert, Stefan, "So, You Want to Write a Minuet?" *Music Theory Online* 11, no. 2 [2005], paragraph 3.)

⁴I must stress from the outset that fight songs employ the same harmonic language and formal structures that we encounter in common-practice compositions. Phrases typically begin with tonic expansion and predictably include a pre-dominant → dominant → tonic progression at the final cadence, for instance. The V-IV successions, ♭VII chords, and abrupt modulations frequently encountered in other popular styles do not arise in fight songs. Furthermore, fight songs employ traditional voiceleading and motivic treatment. In short, a unit devoted to fight songs will not undermine a class's study of more serious music, and the principles learned will apply directly to common-practice music.

a high school pep rally, and who claim not to know any fight songs whatsoever will probably recognize — often to their great surprise — especially famous examples such as “The Notre Dame Victory March” and “Hail to the Victors.”

Students (collectively, if not individually) realize that many conventional characteristics of fight songs are inherently desirable for practical reasons. For instance, fight songs must be constructed in consistent eight-beat segments because marching band members are taught to cover five yards in eight steps. A three- or five-measure phrase is not merely an anomaly: it is a blatant and unacceptable stylistic error. Knowing the typical context of a fight song performance and its social purpose also makes the benefits of a limited vocal range, simple rhythms, and relatively uniform note values self-evident: such features will help a crowd of non-musicians successfully sing in unison. For similar reasons, an effective fight song should also be instantly recognizable and easy to memorize. In a word, it must be “catchy.” This almost invariably means that it will be saturated with an obvious motive.

The familiarity of the fight song provides distinct pedagogical advantages. Perhaps most importantly, students who intuitively grasp the social role of a fight song are far less likely to perceive the genre’s stylistic constraints as arbitrary “rules.” It is also considerably easier to emphasize features that give the music popular appeal rather than perpetually dwelling on errors to be avoided. In an unfamiliar style, unfortunately, we tend to focus on the negative simply because mistakes are easier than nuances to explain. I also find that there is less need for some kinds of negative feedback because students tend to exercise appropriate restraint. For instance, even the earliest fight song drafts are rarely plagued by a burst of sixteenth-notes within a passage of half-notes, whereas I formerly found similar oddities with surprising frequency in minuet projects.

Naturally, a composition project will be more effective if it is approached methodically. I suggest a combination of written analytical assignments and in-class improvisational exercises that serve five essential goals:

- Familiarize students with a collection of outstanding fight song choruses
- Draw attention to their typical surface-level characteristics
- Illuminate their underlying musical structures
- Identify stylistic norms in a variety of parameters (e.g., form, harmony, and figuration)
- Confirm (or perhaps reveal) listener expectations and discern features that trigger them

The fight song composition project requires in-depth knowledge of phrase structure and at least limited familiarity with chromatic harmony. Because I have the good fortune of teaching an honors class, I am able to reach this point in the second semester at Florida State University, but most students would probably be more comfortable with the project during their third semester, after having gained more experience with chromatic harmony. The project is written in three phases, although I welcome additional revised drafts, so many students receive feedback four or five times before submitting their final version. The three required installments are as follows:

- A melody with a written list of the typical characteristics that it exemplifies
- A melody with a simple representation of the underlying harmony in keyboard style and a stylistically elaborated bass line that reflects the harmonic plan and works well with the melody (see Example 1)
- A melody with accompaniment that resembles a condensed score (see Example 2)

The final version is performed at our last class meeting: students sight sing the melody while I typically play the accompaniment on piano.⁵

⁵Knowing from the outset that their peers will sight read these melodies in class probably encourages appropriate compositional restraint, and performances almost always go smoothly. Students are invited to perform their own fight songs instrumentally, either live or recorded, but the vast majority opt for the default of voice and piano.

The musical score for Example 1 consists of four staves. The top staff (treble clef) contains the melody in E-flat major, 4/4 time, with notes: E-flat (half), F (quarter), G (quarter), A-flat (quarter), B-flat (half), and C (half). The second and third staves (grand staff) show the underlying harmony with block chords and slurs. The fourth staff (bass clef) shows a stylistic bass line with notes: E-flat (half), F (quarter), G (quarter), A-flat (quarter), B-flat (half), and C (half).

Example 1. Melody from the “Notre Dame Victory March” chorus, measures 1–4, shown with underlying harmony (staves 2 and 3) and stylistic bass line (staff 4)

The musical score for Example 2 consists of four staves. The top staff (treble clef) contains the melody, identical to Example 1. The second and third staves (grand staff) show accompaniment with chords and slurs, resembling a condensed score. The fourth staff (bass clef) shows a stylistic bass line, identical to Example 1.

Example 2. Melody from the “Notre Dame Victory March” chorus, measures 1–4, shown with accompaniment resembling a condensed score

The three compositional installments are turned in within a span of only a few weeks, but the broader groundwork is laid months earlier with relevant homework and class activities. The first step, of course, is to choose a collection of fight song choruses that will serve as a miniature anthology. As a starting point, I

suggest choruses from the fight songs of the University of Notre Dame, the University of Michigan, the University of Wisconsin, the Ohio State University, Northwestern University, the University of California at Berkeley, the University of Idaho, and the University of Vermont (the melodies of which are provided in Examples 3–10). Although there are numerous effective fight songs, I chose these because they are particularly beloved, they represent a reasonable stylistic diversity within the genre, and all are in the public domain. Accompaniment has been omitted for the sake of space efficiency and because there are so many different possibilities. Furthermore, the harmonic implications of these melodies are sufficiently strong that written accompaniment is unnecessary for the purposes of this article; recorded band arrangements available online will immediately clarify any ambiguities.⁶

⁶Readers interested in perusing a large assortment of fight songs should consult William E. Studwell and Bruce R. Schueneman's published collections of college fight songs (complete references are provided in the bibliography). Despite an unfortunate number of errors in the printed music, these two volumes contain a wide variety of excellent fight song melodies with piano accompaniment.

The image displays a musical score for the chorus of the "Notre Dame Victory March." The score is written on a single staff in treble clef, with a key signature of three flats (B-flat, E-flat, A-flat) and a common time signature (C). The melody consists of eight measures, each beginning with a circled measure number: 5, 9, 13, 17, 21, 25, 29, and 33. The notes are as follows: Measure 5 (half note B-flat, quarter note D, quarter note E-flat, half note F); Measure 9 (half note G, quarter note A, quarter note B-flat, half note C); Measure 13 (half note D, quarter note E, quarter note F, half note G); Measure 17 (half note A, quarter note B-flat, quarter note C, half note D); Measure 21 (half note E, quarter note F, quarter note G, half note A); Measure 25 (half note B-flat, quarter note C, quarter note D, half note E); Measure 29 (half note F, quarter note G, quarter note A, half note B-flat); Measure 33 (half note C, quarter note D, quarter note E, half note F). The score concludes with a double bar line.

Example 3. "Notre Dame Victory March" chorus, University of Notre Dame; music composed in 1908 by graduate Michael J. Shea

Recording: http://www.mmbolding.com/bowls/Music_Notre_Dame_Fight_Song.htm

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13

17

21

25

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Example 4. "The Victors" chorus, University of Michigan; music composed in 1898 by student Louis Elbel

Recording: <http://www.umich.edu/~mgoblue/sounds/victors.au>

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Example 5. "On, Wisconsin" chorus, University of Wisconsin at Madison; music composed in 1909 by William Thomas Purdy

Recording: <http://archives.library.wisc.edu/uw-archives/exhibits/onwisconsin/bandperformances.html>

Example 6. "Across the Field" chorus, Ohio State University; music composed in 1915 by student William A. Dougherty, Jr.

Recording: http://www.scarletandgray.info/osu/songs/across_the_field.html

The image displays a musical score for the chorus of "Go U Northwestern" in 2/4 time, featuring a key signature of two flats (B-flat and E-flat). The score is presented in a single system with eight staves, each beginning with a circled measure number. The notation includes various note values (quarter, eighth, and half notes), rests, and accidentals. Measures 13 through 16 contain rests marked with 'x' on the staff. The piece concludes with a double bar line at the end of measure 30.

5

9

13

17

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Example 7. "Go U Northwestern" chorus, Northwestern University; music composed in 1914 by graduate Theodore C. Van Etten

Recording: <http://www.nusports.com/trads/nw-songs.html>

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Example 8. "Fight for California" chorus, University of California at Berkeley; music drawn from the trio of the "Lights Out March," composed in 1905 or 1906 by Earl Elleson McCoy

Recording: <http://calband.berkeley.edu/media/cal-songs/#Fight%20for%20California>

The image displays a musical score for the chorus of "Go, Vandals, Go" in 4/4 time, featuring a key signature of three flats (B-flat, E-flat, A-flat). The score is presented on eight staves, each beginning with a circled measure number: 5, 9, 13, 17, 21, 25, and 29. The notation includes various note values (half notes, quarter notes, eighth notes), rests, and ties. The melody is primarily composed of half notes and quarter notes, with some eighth-note passages. The score concludes with a double bar line at the end of the eighth staff.

Example 9. "Go, Vandals, Go" chorus, University of Idaho; music composed in 1930 by student J. M. "Morey" O'Donnell

Recording: <http://www.uiweb.uidaho.edu/marchingband/sub/songs/govandals.html>

The image displays a musical score for the chorus of "Vermont Victorious" in 2/4 time. The score is written on a single treble clef staff and consists of 32 measures, organized into eight systems of four measures each. Measure numbers 4, 9, 13, 17, 21, 25, and 29 are circled at the beginning of their respective systems. The melody features a variety of note values including eighth, quarter, and half notes, with frequent use of beamed eighth notes and slurs. A key signature of one sharp (F#) is indicated by a sharp sign on the F line of the staff. The piece concludes with a double bar line at the end of the eighth system.

Example 10. "Vermont Victorious" chorus, University of Vermont; composed in 1918 by students A. F. Furman, H. P. Sharples, and L. F. Killick

Recording: http://www.youtube.com/watch?v=Yc_kIAuDSsI

Early homework assignments are primarily designed to familiarize students with the music and steer them toward noticing some broad trends. Sample questions appear below.

- What is the prevailing hypermeter of these fight songs?
Between the staves, number the measures to convey your hypermetric analysis. Are there any hypermetric disruptions? Did this match your expectations?
- Label all cadences on the scores, specifically identifying each by type. If any cadences strike you as unusual, explain your interpretation.

The hypermeter is, of course, relentless quadruple (generally adding up to units of eight beats), and in a follow-up class discussion students who have participated in a marching band will be able to explain the practical necessity of eight-beat groupings. One can also expect widespread agreement that fight song choruses are typically bisected by a conspicuous half cadence arriving in measures 15 or 16. Beyond this strong trend, the cadence question becomes considerably more difficult and can yield some interesting discussion. For instance, many students will be lured into identifying an authentic cadence in measure 7 of “On, Wisconsin” — but, of course, this is impossible because the first eight measures never leave the tonic triad. Other potential cadence points are more open to interpretation. Is there an authentic cadence in measure 3 of “Fight for California”? Although this is harmonically plausible, the V⁷-I motion is undermined in several ways: the melody’s chromatic motion is not typically cadential, measure 3 seems distinctly early for a cadence at a lively tempo, and by measure 16 we can retrospectively recognize measures 1–4 as the first segment of a sentence structure. Relatively few students will hear a cadence this early in “Fight for California,” but the more important issue is

whether they can explain why not. In general, we may notice that measure 4 often forms some type of dividing point in a fight song, but only at the subphrase (not phrase) level.

The eight-measure level is more likely to spark debate. Is there a plagal cadence in measure 7 of “Vermont Victorious” or in measure 7 of “Go U Northwestern”? While either is possible, we tend not to interpret IV-I as a cadential motion unless it occurs at the end of a work (or at least the end of a significant section), and we might therefore prefer to interpret these passages as subphrases. In any case, it is worth observing that IV-I motions are common in fight songs, and they may occur at fairly prominent boundaries. In most fight songs, measures 17–24 are essentially identical to measures 1–8 (and questions about cadences around measure 8 will therefore apply around measure 24), but it is worth examining the exceptions. “Across the Field,” which initiates a strongly contrasting passage at its midpoint, arrives in measure 24 on a tonicized dominant that could constitute a half cadence. However, measure 25 sounds more like a continuation than the beginning of a new phrase, suggesting that measure 24 is only a subphrase division. Both “On, Wisconsin” and “Go U Northwestern” arrive prominently on V/vi in measure 23, and while students may disagree whether these are genuine cadences or just smaller-scale dividing points, it is important to recognize that an abrupt shift to the relative minor around the three-quarter mark is common in fight song choruses.⁷

Students will reliably volunteer that material from the beginning of the fight song chorus usually recurs at the midpoint, but they should also be prompted to explore whether any generalizations are possible for the exceptions to this general rule. When measures 17–24 differ significantly from 1–8, the change seems designed to set up a particularly high melodic note: “Across the Field” matches its

⁷This feature may almost certainly be traced back to popular American marches of the late nineteenth century. Consider, for example, John Philip Sousa’s “The Stars and Stripes Forever” (1896), with its prominent arrival on V/vi in measure 12 as well as an imperfect authentic cadence in the relative minor in measure 59 (three-quarters of the way through the trio). Incidentally, when V/vi appears in a fight song around the three-quarter point, the chord is likely to be back-relating and will not generally resolve to vi, as would be expected in another context. The V/vi label (as opposed to III#) is still warranted despite this lack of resolution because the chord’s approach is quite formulaic for a half cadence (often a Phrygian cadence) in the relative minor.

highest note thus far in measure 24 and proceeds to the highest note of the entire melody in measure 25, “On, Wisconsin” matches its highest note thus far in measures 23–24 and it reaches a step higher in measure 25 (the highest note of the entire melody will arrive in measure 28), and “Go U Northwestern” matches its highest note thus far in measures 23–24 (the highest note of the entire melody will arrive in measure 28). The locations of melodic peaks are not similarly predictable when measures 1–8 and 17–24 correspond closely.

After discussing cadence interpretations and the features that make them more (or less) plausible, I recommend assigning a follow-up question such as one of the following:

- Diagram the phrase structure of each fight song. Remember that a good diagram should include
 - arches to represent the number of phrases
 - the number of measures in each phrase
 - an additional level of arches depicting how phrases group together
 - brackets to depict prominent subphrases, if they exist
 - cadence types
 - letters signifying whether thematic material is identical, similar, or contrasting (*a*, *a'*, *b*, etc.)

Also identify the phrase structure using any appropriate vocabulary.

- We have touched upon several striking similarities in phrase structure among these fight songs, and you have probably noticed several others. Enumerate as many of these corresponding characteristics as possible.

In addition to confirming that students have absorbed the information addressed in class, such an assignment will demonstrate their level of consistency in making interpretive decisions, and it

may also provide an opportunity for them to present independent observations.

Large-scale form and phrase structure are perhaps the most apparent formulaic aspect of fight song choruses, but there are also numerous shared smaller-scale musical characteristics to which we should draw our students' attention. A representative set of questions addressing underlying voiceleading appears below.

- Make a melodic reduction of the following three passages:⁸
 - "On, Wisconsin," measures 1–8
 - "The Victors," measures 1–9
 - "Across the Field," measures 1–16
- Consider your reductions for all three excerpts. In what obvious way(s) does "Across the Field" differ from the previous two? In what less obvious way(s) is it similar?
- Of the eight fight songs in our class collection, which, in your opinion, begins most similarly to "On Wisconsin"? Which begins most similarly to "The Victors"? Explain.⁹

As in any reductive analysis assignment, mistakes are bound to arise, but it is relatively easy to guide students into noticing a tendency for fight songs to open with an elaborated arpeggiation of the tonic triad or with elaborated stepwise motion between members of the tonic triad.¹⁰

Many fight songs employ prominently repeated motives, and

⁸These reductions are not intended to be particularly difficult, but I know from experience that many students mistakenly are influenced too much by meter and too little by harmony. In "On, Wisconsin," for instance, many students will incorrectly interpret the E in measure 2 and the A in measure 4 as structural because they fall on strong beats. Similarly, in "The Victors" they tend to identify the A in measure 4 and the B in measure 8 as structural. Such analyses provide a good opportunity to review double neighbor tones and accented passing tones.

⁹Although the preceding tasks in this assignment predispose students to focus on underlying melodic structure (which is indeed my primary concern), these general questions about similarity are deliberately open-ended so that students feel free to address a variety of features. Certainly other instructors might prefer a more specific wording.

¹⁰Needless to say, such patterns are also widespread in other musical literature, but fight songs provide an opportunity to discuss features of common-practice art music in a style that may be more accessible to many students, which may eventually help students recognize these features better in other repertoire.

so this is another feature that students should consider before composing on their own. A representative set of questions addressing motives appears below.

- What would you consider the primary motive of “On, Wisconsin”? Write it down and identify its important characteristics.
- On the score, mark all straightforward appearances of this motive.
- Now take another look at the score and mark two less obvious appearances of this motive. The motive might be elaborated, inverted, stretched out, or otherwise transformed in some way. Explain what features are retained, enabling you to hear this musical relationship despite the alteration(s).

The double-neighbor motive in measures 1–2 of “On, Wisconsin” is fairly distinctive, and students are likely to recognize its variation in measures 8–9. We might contemplate what motivated the composer to use chromatic neighbors (rather than diatonic neighbors) in these locations.

For some fight songs, the same questions could be repeated verbatim. For instance, in “Fight for Vermont” students are likely to equate the gesture connecting E–G in measures 0–1 with the gesture connecting C–G in measures 4–7. The changes of contour and rhythm and the use of leaps are overshadowed by several clear similarities: unmistakable underlying stepwise motion connects members of the tonic triad with a rhythm that starts mid-measure and moves from short notes to a longer note. (The student’s explanation, of course, is just as important as recognizing the relationship.) For other fight songs, such as the “Notre Dame Victory March,” I prefer to ask students to identify a primary motive and a secondary motive in order to address both the conspicuous lower neighbors and the underlying passing motion. One could also simply ask a wide-open question such as “List a variety of specific musical features that unify this fight song.”

The last analytical exercise that I ask students to undertake before they compose is making a detailed list of the shared (or at least common) characteristics of the fight songs we have discussed. Students are explicitly encouraged to include multiple parameters, such as phrase structure, form, rhythm, underlying voiceleading patterns, and harmony. I compile these lists into the class’s collective “recipe” for a successful fight song, which I then distribute. Although I frequently clarify a student’s wording and increase the use of technical vocabulary, there are very few content

omissions that I need to fill in. Figure 1 shows the observations of this year's class.

Figure 1. A collective "recipe" for a stylistic fight song

Basic overall characteristics

- Major key with a fairly easy key signature (up to three sharps or flats)
- Moderately fast tempo
- Usually a duple meter; never a triple meter
- Usually a simple meter
- Very regular quadruple hypermeter
- Rhythmic values tend to be fairly uniform, usually ranging from an eighth-note to a half-note
- Short in length — typically 32 measures
- Regular, repetitive, and "catchy" enough to be easily memorized
- Strong and assertive character
- Often an introduction (possibly based on the end of the fight song chorus) is added in order to establish the key and tempo

(Continued next page)

(Figure 1 continued)

Melodic characteristics

- Very likely to begin on $\hat{3}$ or $\hat{5}$; sometimes begins on $\hat{1}$
- Melodic contour tends to emphasize rising gestures
- Repeating a single note quite a few times is not unusual
- Prominent use of a repeated motive (often with a distinctive rhythm in addition to a pitch pattern)
- Opening material often mapped from tonic onto dominant (typically moved up a step)
- Strong dividing point halfway through, with the two halves usually beginning the same way
- Plenty of stepwise motion; however, leaps between members of a prevailing chord are not unusual
 - Arpeggiation is likely to project the tonic, especially near the beginning
 - Arpeggiation may occur in the background rather than the foreground
 - Conversely, foreground leaps tend to overlay stepwise background motion
- Tends to begin by elaborating either a stepwise line connecting two members of the tonic triad or an arpeggiation of the tonic triad
 - If underlying motion is stepwise, a motive that leads I V may be mapped onto a version that leads V I
 - With an underlying arpeggiation, the opening motive may be repeated on different members of the tonic triad
- Most typical embellishments are neighboring tones and passing tones; chromatic lower neighbors and chromatic passing tones are quite common
- Melodic climax often occurs during the third quarter
- Rhythm tends to be rather repetitive (even at times when a melodic motive isn't being used)
- Syncopation is common, particularly patterns like $\text{♩} \text{♩} \text{♩}$; even so, rhythm is not usually very complicated
- Forward-moving unsyncopated rhythms such as $\text{♩} \text{♩} \text{♩} \text{♩}$ and dotted rhythms are also common
- Conclusion is most frequently $\hat{3}\text{-}\hat{2}\text{-}\hat{1}$, although $\hat{5}\text{-}\hat{6}\text{-}\hat{7}\text{-}\hat{8}$ (often elaborated) is also common
- Always ends with a perfect authentic cadence (typically followed by a rest)

(Figure 1 continued)

Phrase/grouping structure

- Phrases likely to be eight or sixteen measures
- Sentence structure is common
 - In addition to typical sentences, sentence-like ratios may occur at levels that don't necessarily correspond to the phrase (see, for instance, "On, Wisconsin" measures 1–8 or "Across the Field" measures 1–4)
- The overall form has an obvious dividing point half-way through, and it often subdivides into even quarters; these units might be phrases or subphrases
 - The overall structure might be a parallel period
 - The overall structure might be a double period
 - The overall structure might be a single long phrase with very prominent subphrases
- Halfway through, there is probably a half cadence or sometimes an imperfect authentic cadence
- In the middle of the second half, there may be a cadence in some secondary key (likely vi)
- Always ends with a perfect authentic cadence

Harmony

- Considerable emphasis on tonic and dominant
- Often a pattern that expands the tonic is repeated/varied so that it expands the dominant
- Likely to begin with a fairly long tonic expansion
- Harmonic rhythm may be fairly slow (often four measure per chord) at the beginning

Students turn in the first draft of their fight song melodies along with a list of the criteria they satisfy, which ensures a reasonable level of care and thought. The sheet of collective observations is a useful reference when I provide feedback, particularly because the style guidelines stem from the students' own experience and not just abstract instructions received from me. I can praise good decisions while pointing out features that deviate from the norm (for instance, "I like the consistent motive and the 2+2+4 sentence structure, but you aren't expanding the tonic as expected").

You may be wondering whether providing students with a detailed list of fight song characteristics leads to a set of essentially

identical (and therefore uninteresting) compositions. This is a reasonable concern, but I have seen considerable variety from my class — perhaps in part because students hope their fight songs will stand out when performed on the last day of the semester. Substantiating my claim, three contrasting student projects appear in an appendix at the end of this article.¹¹ Naturally, there are many similarities among them (and among all of the compositions I received), but this appropriately mirrors the highly predictable structure of fight song choruses.

Thus far I have emphasized intellectual understanding, but developing corresponding aural skills is absolutely crucial. I find paired listening and improvisation exercises indispensable for building and refining style awareness. An improvised response reflects statistical learning, necessarily revealing the improviser's current knowledge of a musical style.¹² There is perhaps no more efficient assessment/feedback mechanism for the students or for the teacher. Improvisation encompasses an enormous range of activities, but in this article I use the term solely to refer to an immediate musical response to a musical prompt. For instance, having first established a key and tempo and simply instructed my students to "sing whatever should come next," I sing a pattern that could serve as the opening gesture of a fight song. Students react immediately, and I can almost elicit a unison response.¹³ A sample prompt with both expected and unexpected responses appears in Example 11.

¹¹ Composition projects and excerpts are reproduced in this article with the permission of the students who wrote them. I would like to thank these students (as well as others whose work could not be included for reasons of space) for their generosity.

¹² Schenker himself recognized a link between improvisation and composition; he lamented that the decline in improvisational abilities since Bach's time had negatively impacted composition. John Rink discusses Schenker's belief that both activities depend upon a musician's ability to realize and elaborate a harmonic plan in his article "Schenker and Improvisation," *Journal of Music Theory* 37, no. 1 (1993), 1–55.

¹³ 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. Sometimes I want to highlight the existence of multiple options. More often, though, my goal is to confirm the existence of some pattern or principle, and so I try to generate a unanimous instinctive reaction in order to underscore its importance.

1 This prompt...



5 almost invariably elicits this response...



5 but never either of these possible responses.



Example 11. An improvisation prompt with both expected and unexpected responses

Why does the expected response seem so right? Students will point out the consistent interval and rhythmic pattern (which automatically makes the material sound motivic), and they will also typically observe how the underlying rise from $\hat{1}\text{-}\hat{2}$ continues $\hat{2}\text{-}\hat{3}$. Why does the first unexpected response (which answers $\hat{1}\text{-}\hat{2}$ with $\hat{7}\text{-}\hat{1}$) seem less suitable? Students usually say that it seems too soon to cadence — or, more generically, that it's too soon to get back to $\hat{1}$. This automatic and seemingly unimportant reaction is actually quite significant, because it illustrates the implicit knowledge that a fight song is likely to begin with a sentence, and sentences typically avoid a strong arrival on $\hat{1}$ before the cadence.¹⁴ Without

¹⁴ This is not to say that $\hat{1}$ *cannot* arrive before the cadence in a sentence. In fact, when a sentence begins with a motion from $\hat{1}$ to $\hat{7}$, the next gesture is often a motion from $\hat{7}$ back to $\hat{1}$ (as in the third movement of Beethoven's Septet, Op. 20). In general, though, a strong motion to $\hat{1}$ will be avoided. Consider, for instance, Beethoven's Piano Sonata No. 3 (Op. 2, no. 3), in which the opening sentence's initial $\hat{3}\text{-}\hat{2}$ motion is answered by $\hat{4}\text{-}\hat{3}$

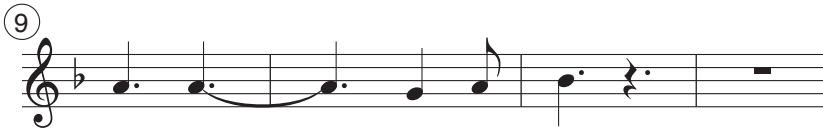
any priming on my part, students unconsciously assume that I am presenting a basic idea, and so they sing an appropriate variation of the basic idea, understanding that the cadence has not arrived. Many students find it more difficult to explain independently why the second unexpected response (which extends $\hat{1}$ - $\hat{2}$ with $\hat{3}$ - $\hat{4}$) doesn't sound quite right, but once someone — either a peer or the instructor — points out that this violates our expectation of a tonic expansion, the concept is fairly easy to grasp.

Responding to the four-measure prompt in Example 11 with another four measures is quite easy; continuing beyond measure 8 requires considerably more musical sophistication. Example 12 illustrates how a naïve student is likely to 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. This response is completely rational but also utterly unstylistic. A more experienced musician will know intuitively that the 4+4 subphrases illustrated in Example 11 should lead to an eight-measure subphrase ending with a cadence. In other words, an expert musician will know how to complete the implied sentence structure.¹⁵

rather than $\hat{2}$ - $\hat{1}$; “Across the Field” begins with a motion from $\hat{1}$ to $\hat{7}$ that continues down to $\hat{5}$ rather than returning to $\hat{1}$ at the song’s midpoint, which would be quite atypical for a fight song.

¹⁵ A half cadence such as the one depicted would be likely at this point of a fight song chorus, but an authentic cadence is also possible.

An inexperienced musician is likely to continue essentially the same four-measure pattern from Example 9.



An experienced musician will instead complete the sentence by continuing to a cadence in an eight-measure unit.



Example 12. A naïve and a sophisticated continuation of the phrase started in Example 11

Example 13. Tonic-to-dominant mapping of two short patterns

Adding leaps to a basic idea can make the task more challenging. In general, a pattern that uses leaps to outline the tonic triad tends to be mapped onto the dominant — that is, its contour and rhythm are preserved but its notes are shifted (usually by step) so that they project the dominant rather than the tonic, as illustrated in Example 13. Notice that this process may affect the size of a leap: Example 13 moves most notes down a step, but some leaps must be adjusted in order to project the desired chord. Example 14 shows a class prompt that includes leaps along with several possible student responses. In the top line, the basic pattern is stylistically varied by mapping the tonic prompt onto the dominant seventh chord, changing the fourth leaps to fifths in the process. While tonic-to-dominant mapping is particularly common, it is also acceptable to transform the basic pattern so that it continues to project the tonic triad — for instance, mapping a $\hat{1}\text{-}\hat{5}\text{-}\hat{1}\text{-}\hat{3}$ arpeggiation onto a $\hat{3}\text{-}\hat{1}\text{-}\hat{3}\text{-}\hat{5}$ arpeggiation (Example 14, second line), in which case the fourth leaps are appropriately changed to thirds. Inexperienced students are often tempted simply to move the basic idea consistently up a step (thus outlining the supertonic triad, as in Example 14's third line), which — although undeniably logical — is considerably less stylistic. This is precisely why exercises focused on the basic skill of mapping gestures from tonic to dominant (or from dominant to tonic) are tremendously helpful for any tonal composition project and also for future analytical activities in a broad range of musical styles.

An experienced musician is likely to map the basic idea to the dominant.



A continued arpeggiation of the tonic is also plausible.



However, an interval-for-interval duplication is far less stylistic.



Example 14. Possible continuations of a basic idea that includes leaps

These instant-response improvisation activities 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? Might we respond differently if we knew that the prompt heard came from the middle of a fight song rather than its beginning? 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.

I also find it productive to turn the tables by asking students as part of a written homework assignment to craft their own prompts for an improvisation exercise. In addition to notating the prompt itself, they must indicate the response they expect and explain the features they have incorporated that should inspire this predicted continuation. A sample assignment appears below.

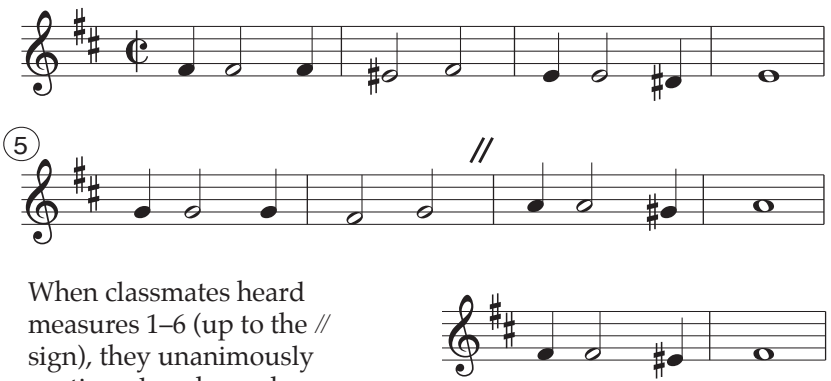
- Construct a two-measure basic idea that could serve as the opening of a musical sentence. The goal is to compose a basic idea that creates such strong expectations that your classmates will immediately sing the next two measures in unison when they hear it. (Yes, we are going to try this in class!)
- Write the next two measures that you believe would best follow your basic idea.
- Briefly explain your prediction: which features (at both the surface and underlying levels) will contribute to strong listener expectations?

The subsequent in-class trial of these improvisational prompts is instructive and quite engaging for students. My primary purpose in this assignment is to integrate the conscious knowledge students have developed through their written assignments with the instincts they display through improvisation. By designing their own improvisational prompts, students may, for instance, discover how to distinguish a motive that is well suited for underlying stepwise motion from one that is better suited for arpeggiation.¹⁶ I

¹⁶ Identifying the musical elements that create specific expectations clearly enhances a student's analytical awareness. Such activities also provide an interesting opportunity to enrich the curriculum with facets of music cognition.

also use in-class improvisation to provide certain types of feedback on early drafts of the composition projects. For instance, when I feel that a student has established a strong expectation but has not fulfilled it, I write a brief note pointing this out and promising to test my hypothesis in class. Example 15 shows such a case from a student's first-draft melody. The motivic correspondence is good, but the overall motion from $\hat{3}-\hat{2}$ in measures 1–4 seems to imply a corresponding motion from $\hat{4}-\hat{3}$ (not $\hat{4}-\hat{5}$, as the student wrote). When I played measures 1–6 as a prompt (stopping at the // symbol shown in the example), the class unanimously sang the two-measure completion shown on the bottom line of the example. The student who wrote this example revised his melody accordingly with no further input from me; his second draft was much more successful.

A student's first-draft melody



When classmates heard measures 1–6 (up to the // sign), they unanimously continued as shown here.

Example 15. A student melody that created strong expectations but did not fulfill them

Conversely, when a student's melody establishes and fulfills expectations especially well, I may write a note of praise and confirm the appropriateness of the student's choices in class. Example 16 provides a relatively complex example. Notice that the student has created melodic implications on a variety of distinct levels. There is the two-measure motivic pattern of neighboring tones that recurs regularly, and this surface-level pattern elaborates an underlying upward arpeggiation ($\hat{1}-\hat{3}-\hat{5}$ in measures 1–6 and $\hat{2}-\hat{4}-\hat{6}$ in measures 9–14). Furthermore, a standard 2+2+4 subphrase

pattern creates a typical sentence structure in measures 1–8 and again in measures 9–16. Although logic might suggest that the long-range motion from $\hat{1}-\hat{7}$ in the first phrase should be answered by $\hat{2}-\hat{1}$ in the second phrase, stylistic knowledge of the fight song guided this student to avoid a perfect authentic cadence at this point (i.e., the middle) and instead lead to $\hat{3}$. Of course, the very typical use of $\# \hat{2}$ (the raised fifth of a V chord) in measure 14 helps make this $\hat{3}$ sound like a suitable cadential point. Because this example is long and fairly complicated, I had to start with short units and steadily increase the prompt length, sometimes asking the class to sing another measure or two, and sometimes asking only for the next note. Throughout the process, there was widespread agreement that this melody was quite well crafted.

Example 16. A student melody that successfully created strong expectations and fulfilled them at a variety of musical levels

Clearly it is helpful for students to be familiar with concepts of small-scale form (especially phrase, sentence, period, and double period) before embarking on a fight song composition project, and fight song analysis could be an effective way to introduce some of these topics. Although fight song choruses are not harmonically complicated, an instructor will also want introduce a handful of

chromatic chords that appear regularly. Secondary dominant chords are not used as frequently in fight songs as they are in the Classical literature, but tonicizations (particularly of V, IV, and vi) are not rare. Also, the pre-dominant chord that occurs before a fight song's structural cadence is quite likely to include $\flat 6$ in the bass. Sometimes this is just a touch of mode mixture (probably iv⁶), but often it is an augmented-sixth chord. The fight song genre's two most frequent and stylistically distinctive chromatic chords, though, are almost surely the common-tone diminished seventh chord and the augmented dominant chord. Each of these chords is a natural byproduct of the fight song chorus's ubiquitous tonic expansion combined with motivic chromatic lower neighbors. A $\hat{5}\text{-}\sharp 4\text{-}\hat{5}$ melodic pattern is very likely to harmonize $\sharp 4$ with a common-tone diminished seventh; V/V is distinctly less typical. A $\hat{3}\text{-}\sharp 2\text{-}\hat{3}$ melodic pattern might harmonize $\sharp 2$ with a common-tone diminished seventh chord or with an augmented dominant triad, likely in first inversion. The standard $\hat{2}\text{-}\sharp 2\text{-}\hat{3}$ gesture that often marks a cadence or subphrase ending also uses an augmented dominant, of course — but this pattern is considerably easier for most students to grasp because they immediately recognize $\sharp 2$ as a chromatic passing tone from a familiar diatonic dominant.

Setting aside composition projects for a moment, fight songs might be an ideal vehicle to introduce several of these chords because they are so stylistic. Many curricula cover augmented-six chords, for example, around the same time as sonata form. This is perfectly reasonable, given how often composers employ augmented-sixth chords to strengthen the modulation to the secondary key in a sonata form. However, wouldn't it be easier for students to encounter augmented-sixth chords for the first time in much shorter works that rarely modulate? Similarly, fight songs present a compact and relatively simple framework for common-tone diminished sevenths and altered dominants. Neither chord is especially difficult to understand, but they may seem intimidating when situated within the music of Brahms or Chopin.¹⁷

I believe that the fight song chorus is an ideal genre to address many features of common-practice art music precisely because it

¹⁷ There are very short Classical and Romantic compositions that include these chords, but the ones that incorporate them into an otherwise simple context are exceptional, whereas this combination is routine in fight songs. An instructor drawing upon fight songs can easily provide multiple in-class examples while still reserving some for exams.

condenses them into a miniature and inviting package. As I have suggested previously in this article, fight songs provide excellent opportunities to discuss underlying voiceleading, motives, tonic expansion, tonic-to-dominant mapping, various chromatic chords, the broad notion of embellishment (including passing and neighboring chords), sentence structure, period and double period, and the concept of what constitutes a phrase. Incidentally, although my composition project does not require students to read Riepel's treatise, most of the suggestions for a minuet provided by the master are quite applicable to a fight song. For instance, he is shocked to see a thirteen-measure unit and remarks that there should always be an even number of measures. The master suspects that peculiarities in the overall form stem from the student's ignorance of how smaller units (including one- and two-measure subphrases) are used. He cautions that a composition sounds incoherent if the second half doesn't resemble the first half. He recommends a rising and falling contour (although we should note that a sizable minority of fight songs ends $\hat{5}-\hat{6}-\hat{7}-\hat{8}$), and also exhorts the student to reserve long notes for phrase endings.

The fight song is not regarded as a high art form — but neither was the minuet during Riepel's time. Riepel found the minuet a useful vehicle because it was short, familiar, and could be used to explain broad compositional principles that applied to more respected genres. In the words of Riepel's master:

It is certainly no great glory to compose minuets, but on the other hand it is very exacting. For a *minuet*, as far as its working-out is concerned, *is nothing other than a concerto, an aria, or a symphony*. You'll see this clearly in a few days. So we'll tend to begin in a wholly small and insignificant fashion, but with the aim of achieving from that something greater and more praiseworthy.¹⁸
[Riepel's italics]

¹⁸ Allanbrook, Wye J. (trans.), "Joseph Riepel: From: Fundamentals of Musical Composition," *Source Readings in Music History*, revised edition, edited by Leo Treitler (New York and London: W. W. Norton & Company, 1998), 750.

APPENDICES

Fight song choruses composed by three students exhibit reasonable — but not excessive — similarity.

The image displays four musical staves, each representing a different fight song chorus. Each staff consists of a vocal line (treble clef) and a piano accompaniment (grand staff). The music is written in a key with two flats (B-flat and E-flat) and a common time signature (C). The staves are numbered 5, 9, and 13, indicating they are part of a larger sequence. The notation shows various musical elements such as notes, rests, and chords, illustrating the similarity between the different choruses.

Appendix A

17

21

25

29

Appendix A (continued)

5

9

13

Appendix B

17

21

25

29

Appendix B (*continued*)

The musical score is presented in four systems, each consisting of a vocal line (treble clef) and a piano accompaniment (grand staff). The time signature is 6/8.

- System 1:** The vocal line begins with a quarter note G4, followed by an eighth note A4, a quarter note B4, and a quarter note A4. The piano accompaniment features a bass line with a quarter note G3, a quarter note A3, and a quarter note B3, and a treble line with a quarter rest, a quarter note G4, and a quarter note A4.
- System 2:** Marked with a circled 5. The vocal line continues with a quarter note G4, a quarter note A4, a quarter note B4, and a quarter note A4. The piano accompaniment features a bass line with a quarter note G3, a quarter note A3, and a quarter note B3, and a treble line with a quarter rest, a quarter note G4, and a quarter note A4.
- System 3:** Marked with a circled 9. The vocal line continues with a quarter note G4, a quarter note A4, a quarter note B4, and a quarter note A4. The piano accompaniment features a bass line with a quarter note G3, a quarter note A3, and a quarter note B3, and a treble line with a quarter rest, a quarter note G4, and a quarter note A4.
- System 4:** Marked with a circled 13. The vocal line continues with a quarter note G4, a quarter note A4, a quarter note B4, and a quarter note A4. The piano accompaniment features a bass line with a quarter note G3, a quarter note A3, and a quarter note B3, and a treble line with a quarter rest, a quarter note G4, and a quarter note A4.

Appendix C

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Analysis as Multiplicity

BY CHRIS STOVER

When we think about analyzing a piece of music, we should always be prepared to think about what kind of an activity analysis *is*, what it intends to *do* for us, and what the appropriate means are for carrying it out.¹ An important goal is to enrich our perspective of what is possible within the context of the music: this is true whether we are coming from the standpoint of listeners, composers, interpreters, or improvisers. We should step back, too, and consider seriously how a creative reading of a musical work transcends the notes themselves to account for things like historical contexts and the range of previous performance practices that have affected subsequent interpretation. At the same time, we might strive to consider equally seriously the kinds of analytic methodologies that have been brought to bear on the music, and how those methodologies have worked both to illuminate various aspects of the music's structure and possibly to foreclose alternative readings; that is, to limit how we might interpret the music.

When we analyze music as improvisers—shifting our focus from interpretive to productive orientations—these kinds of considerations can become even more pronounced. In the following essay, I will focus on improvisation from two perspectives. First, the *work-for-improvisation*; that is, describing the multiple scores, historical performances, performance practices, and so on that interconnect to form something like a “text” from which to begin. And second, the *act of improvising* itself, involving a free play of methodological orientation as it might unfold in the classroom. Ultimately, we will attempt something of a synthesis of the two, creatively inventing new orientations; in other words, we will imagine a *multiplicity* of investigative readings that coexist and

¹When I think of the types of questions that emerge from this particular productive starting place, I frequently return to the lively discussions that emerged in Betsy Marvin's “Writing Music Theory” course at Eastman in the mid-1990s. In addition to her important, influential, and impassioned work as a pedagogue and cognitive theorist, Professor Marvin brilliantly reinforces the importance of clarity of thought, compelling rhetoric, and analytical approaches that bring together rigor and imaginative reading. Many warm thanks are due for the invitation to write this article.

enrich one another.² The endpoint of this investigation is an analytic approach that is intended to open a range of ways that we might begin to creatively define the analyzed object. The goal here is not so much to open an experiential field by bracketing out the known in search of increasingly novel “solutions” as to point toward a solution in which multiple correct readings question, challenge, and enrich one another. Another way to think of this is that we are going to approach analysis by considering a range of knowns, following our individual experiences of prior analytic forays, but to continually acknowledge and then bracket out those knowns in the pursuit of further information and further creative readings.

Our thesis, then, begins with a two-part question: for an improvising musician, what *is* the improvisational object; and how might one engage that object as and how it presents itself?³ In order to engage these questions, I will examine Victor Schertzinger and Johnny Mercer’s 1941 song “I Remember You,” which, like many contemporaneous songs has taken on a rich and varied life as a jazz standard. The following reading of “I Remember You” will consider multiple texts—the fake book “lead sheet” most known to jazz musicians, the published piano sheet music, the original recording by the Jimmy Dorsey Orchestra featuring Bob Eberly, and seminal jazz recordings by Charlie Parker, Lee Konitz, and Dave Brubeck—focusing on how all of these interrelate with one another to contribute to our multiplicity. In this way we will be

² “Multiplicity” is here meant as a construct in which the individuality of each reading contributes dynamically to the plural identity of the work that we’re interpreting. While it is not crucial to an understanding of the following study to know this, much of my line of thought is indebted to the philosophical orientation of Gilles Deleuze, and in particular the way that Deleuze playfully, but powerfully, replaces *identity* (“is”) with *multiplicity* (“and...and...and...”) as one of the fundamental aspects of a philosophy that foregrounds qualitative difference as prior to, and frankly more interesting than, sameness. The interested reader might refer to Deleuze, *Bergsonism* and *Difference and Repetition* as valuable entry-points into Deleuze’s way of thinking.

³ Throughout this essay I will use “object” in a particular sense: as a thing that is itself in a constant state of change. This refers both to what we might call its existential qualities, as a living thing whose identity is best described in terms of flux (this is Deleuze’s difference-as-identity), and from the perspective of the observer: the change that results from bringing new phenomenological or methodological perspectives to bear on the object.

able to open up a rather large horizon of methodological vantage points without necessarily concerning ourselves with the way that methodological identity limits behavioral possibilities of the music under examination. For example, in order to engage chord/scale theory and its one-to-one correspondences between seven-note chords and the scales that map onto them, we should accept its insistence on “avoid notes” and the ways that it flattens harmonic function and voice-leading behaviors.⁴ But we might also recast such insistence as strategic and situational in order to consider a radical reading of chord/scale theory that *does take such behaviors into account*.⁵ Likewise, we will point toward a methodological model that will draw upon Schenkerian theory, but that subtly extends aspects of that theory to reflect a musical syntax that differs in significant ways from those of earlier tonal processes. Eventually a reading of consonance and dissonance will emerge from some of the details of how the music communicates its essence to us; this will be described in terms of a contingent and “tune-specific” notion of consonance and dissonance.

So let us begin our investigation, with the intention of discovering the identity-as-multiplicity of a piece of music. “I Remember You” has become a canonical jazz standard, with hundreds of documented recordings and a staple at jam sessions. One version

⁴ The concept of “avoid notes” emerged in jazz pedagogy as something of a workaround for advocates of chord/scale theory. In short, it recasts expressive dissonant notes like the fourth degree of the major (Ionian) scale as a note to be avoided when improvising using that chord/scale (that is, Major Seventh / Ionian). For a nice description of the discursive complication, to say nothing of the highly troubling syntactic implications of this frame of thinking, see Treseler, *The Living Jazz Tradition*.

⁵ Some key pedagogical texts on chord/scale theory include Aebersold, *How to Play Jazz and Improvise* and *The II-V7-I Progression*, Baker, *How to Play Bebop*, vol. 1-3, Haerle, *The Jazz Language: A Theory Text for Jazz Composition and Improvisation*, and Levine, *The Jazz Theory Book*. Much of this work draws upon and extends John Mehegan’s first forays into chord/scale mappings (Mehegan, *Jazz Improvisation Vol. 1: Tonal and Rhythmic Principles*), the significance of which Henry Martin describes in his summary of the state of jazz theory (Martin, “Jazz Theory: An Overview”). For critiques of some of the foundational principles of chord/scale theory see Rawlins, “Review of Mark Levine, *The Jazz Theory Book*” and Stover, “Theory, Pedagogy, and the Ethics of Chord/Scale Isomorphism: Toward a Minor Literature of Modern Jazz Practice.”

that is particularly well-known in the jazz community is Charlie Parker's 1954 quartet recording for Clef Records, with Al Haig on piano, Percy Heath on bass, and Max Roach on drums, an excerpt of which can be heard at www.morezero.com/parker_head.mp3. We might constructively compare Parker's version with the original 1941 recording by Bob Eberly and the Jimmy Dorsey Orchestra, which can be heard at www.morezero.com/dorsey.mp3, to begin to get a sense of the song's interpretive range.⁶

After listening to these versions, and a few others, I would encourage my students to begin by drawing upon their analytic (or simply observational) experience. This turns out to be a rather more complex question than first assumed. After all, the Broadway show tunes and motion picture hits from the first half of the twentieth century, many of which comprise the large repertoire known collectively as the Great American Songbook, were not written to be improvised on, at least in the sense that jazz musicians generally intend, as vehicles for extended extemporization. But of course over subsequent decades there has been a vast and richly differentiated legacy of jazz musicians doing exactly that, using these songs as launching points for all kinds of idiomatic, even idiosyncratic, exploration, drawing upon not only the melodic, harmonic, rhythmic, and formal elements of the tune itself but on layers of overlapping and occasionally contradictory ways of conceiving of the improvisational object that define some of those very idioms and allow for some of those idiosyncracies. Bruce Ellis Benson succinctly describes this plural way of thinking: "the 'structures' that we call pieces of music are 'composed' of the activity of music making itself, rather than music making 'plus some other thing' (that we would call a 'work')"; in other words, the original activity of composing that results in the score interpenetrates with layers of interpretive activity, all of which conspire to form the musical "structure."⁷

⁶ Dorsey's recording dates from December 1941, just a few weeks before the January 1942 release of the motion picture *The Fleet's In*, for which it was written. The seamless way that Eberly links the verse of the tune—not discussed in this brief exposition due to space constraints and the fact that with a few notable exceptions jazz musicians tend to set aside the verses of the tunes they play—with the refrain is among the many lovely aspects of this recording.

⁷ Benson, *The Improvisation of Musical Dialogue*, 161. The overlapping and occasionally contradictory engagement refers in part to the

So an entry into the improvisatory potential of a tune like “I Remember You” should address a wide range of analytic and experiential vantage points, and should be prepared to bring them into dialogue in some way, whatever that may end up meaning. Again, just to have some kind of a common starting point, I would ask a group of students to begin by bringing the knowledge of their immediately reachable analytic experience to bear, and to withhold judgment about what is correct or better or real “until all the evidence (or at least sufficient evidence) is in.”⁸ With every group of students that I have taken through this project, the same quite interesting result occurred, which was that students began first to address issues of harmonic function in one of two ways (and the second of the two followed closely): either to focus on scalar collections that might be applied unproblematically to the harmonic progression of the tune, or to identify surface-level local tonal areas in terms of “II-Vs” and similar chunks of tonal information. In other words, we might first proceed into something like that shown in either Figure 1, which foregrounds clear and relatively unmarked chord/scale relations, or Figure 2, which begins to chunk surface-level tonal progressions, and the second approach would follow close behind. Or perhaps something like Figure 3, which begins to engage some strategic decisions about what scale might comparably represent both a local tonal area being traversed and its relation to the global key (marking the chord/scale relations, in other words). The annotation in Figure 3 reflects how careful prescriptive attention is given to behaviors that stem from the chords and local tonal areas, as well as how those chords and local tonal spaces compose out the global key (which in turn will eventually point to some of the larger-scale voice-leading considerations discussed below).

application of (modal-based) chord/scale theory to tonal processes, which is addressed briefly below and in more detail in Stover, “Theory, Pedagogy, and the Ethics of Chord/Scale Isomorphism.”

⁸ Ihde, *Experimental Phenomenology*, 36.

														
F Maj7	B min7	E7	F Maj7	C min7	F7	Bb Maj7	Bbmaj7	Eb7	F Maj7	G min7	C7			
														
F Lydian	B Dorian	E Mix.	F Lydian	C Dorian	F Mix.	Bb Lydian	Bb Dorian	Eb Mix.	F Lydian	G Dorian	C Mix.			
														
C min7	F7	Bb Maj7	E min7	A7	D Maj7	E min7	A7	D Maj7	D min7	G7	C Maj7	G min7	C7	
														
C Dorian	F Mix.	Bb Lydian	E Dorian	A Mix.	D Lydian	E Dorian	A Mix.	D Lydian	D Dorian	G Mix.	C Lydian	G Dorian	C Mix.	
														
F Maj7	B min7	E7	F Maj7	Am7(45)	D7	G min7	Bbmaj7	Eb7	Amin7	D7	Bbmaj7	Eb7	Amin7	D7
														
F Lydian	B Dorian	E Mix.	F Lydian	A Locrian	5th mode of G Dorian G harm. min?	Bb Dorian	Eb Mix.	A Dorian	D Mix.	Bbmaj7	Eb7	Amin7	D7	D Mix.
														
G min7	C7	F Maj7	G Dorian	C Mix.	F Lydian	G Dorian	C Mix.	F Lydian	G Dorian	C Mix.	F Lydian	G Dorian	C Mix.	F Lydian
														
G Dorian	C Mix.	F Lydian	G Dorian	C Mix.	F Lydian	G Dorian	C Mix.	F Lydian	G Dorian	C Mix.	F Lydian	G Dorian	C Mix.	F Lydian

Figure 1. “Literal” Chord/Scale Reading.

Diagram illustrating the progression of chords and their functional labels across three systems of music notation.

System 1 (Measures 1-8):

- Measure 1: F Maj7 (I), B min7 (A: ii), E7 (V)
- Measure 2: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 3: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 4: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 5: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 6: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 7: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 8: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)

System 2 (Measures 9-18):

- Measure 9: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 10: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 11: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 12: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 13: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 14: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 15: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 16: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 17: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 18: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)

System 3 (Measures 19-26):

- Measure 19: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 20: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 21: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 22: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 23: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 24: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 25: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)
- Measure 26: F Maj7 (I), C min7 (B: ii), F7 (V), B^b Maj7 (I), B^b min7 (A: ii), E^b7 (V)

Legend:

- I: Tonic
- ii: Supertonic
- V: Dominant
- (A: ii): Mediant
- (B: ii): Submediant
- (C: ii): Subtonic
- (D: ii): Leading tone
- (E: ii): Leading tone
- (F: ii): Leading tone
- (G: ii): Leading tone
- (A: ii): Mediant
- (B: ii): Submediant
- (C: ii): Subtonic
- (D: ii): Leading tone
- (E: ii): Leading tone
- (F: ii): Leading tone
- (G: ii): Leading tone

Figure 2. Tonal Harmonic Analysis.

	F Maj7	B min7	E 7	F Maj7	C min7	F 7	Bb Maj7	Bb min7	Eb 7	F Maj7	1. G min7	C 7		
	1) F Lydian	B Dorian	E Mix.	F Lydian	C Dorian	F Mix.	Bb Lydian	Bb Dorian	Eb Mix.	F Lydian		G Dorian	C Mix.	
	2) F Ionian (thinking diatonic function, Bb UN to A)	B Locr. #2	E Alt	F Ionian			(reflecting IV in home key)	Eb H/W dim	F Ionian					
		(considering common tones in home key)						(reflecting VII as sub for V)						
	9 2. C min7	F 7	Bb Maj7	E min7	A 7	D Maj7	E min7	A 7	D Maj7	D min7	G 7	C Maj7	G min7	C 7
	C Dorian	F Mix.	Bb Lydian	E Dorian	A Mix.	D Lydian	E Dorian	A Mix.	D Lydian	D Dorian	G Mix.	C Lydian	G Dorian	C Mix.
				E Locrian	A Alt	D Ionian	E Locrian	A Alt	D Ionian			C Ionian		
	18 F Maj7	B min7	E 7	F Maj7	A min7(5)	D 7	G min7	Bb min7	Eb 7	A min7	D 7			
	F Lydian	B Dorian	E Mix.	F Lydian	A Locrian	(5th mode of G Dorian harm. min?)	Bb Dorian	Eb Mix.	A Dorian	D Mix.				
	F Ionian	B Locr. #2	E Alt	F Ionian		D Alt	Eb H/W dim	A Locrian	D Alt					
							or Eb Alt	(reflecting tonicization of G min)						
							(NB this time not sub for V)							
	26 G min7	C 7	F Maj7											
	G Dorian	C Mix.	F Lydian											

Figure 3. “Tonal” Chord/Scale Reading.

We might think of the first chord/scale stratum from Figure 3 as a fairly straightforward, mundane reading (following that from Figure 1), and the second stratum as one that engages tonal areas a bit more thoughtfully, making strategic decisions based on the local functional relation of sonic events to one another. While the second stratum builds upon the first, we might take extra care here to resist thinking of it as a refinement or improvement—this in the interest of imagining as wide a range of “correct” answers as we can—and we should continue to think of all of these readings in terms of what value they might potentially bring to our emerging understanding. In other words, and as we will see playing out in practice below, both strata (and more) co-exist and can serve as potential paths through the harmonic framework of the tune.

Following this array of “correct” answers, we can investigate a plural solution that allows for multiple paths through the tune’s harmonic framework, with multiple scale options that might be applied to particular chords or pairs of chords (especially II-Vs), based on context, and that also addresses some fundamental voice-leading considerations that arise from harmonic function. Figure 4 shows one such path through the form, synthesizing our first and strategically chosen strata from our third examples. Note how the chord/scale interpretation culls variously from the two strata in Figure 3; there were specific musically-inspired reasons for these decisions, some of which we will return to below. The important thing to reinforce is that as we examine each reading, we then bracket it out to the best of our ability, as a viable reading to which we’ll return.

At this point in the process it might be useful to offer an admonition from Ornette Coleman about focusing overly on the harmonic progression of a tune: “let’s play the music and not its background!”⁹ Coleman was concerned about the seemingly-exclusive emphasis by contemporaneous improvisers on a tune’s harmonic framework, and thus by the dismissal of a tune’s arguably most salient feature, its melody. While Henry Martin has convincingly argued that at the highest levels this is not entirely true, Coleman’s point is well taken.¹⁰ And as the student responses

⁹ First cited by Martin Williams in the liner notes to Coleman, *Free Jazz*.

¹⁰ See Martin, *Charlie Parker and Thematic Improvisation* and “Charlie Parker and ‘Honeysuckle Rose’: Voice Leading, Formula, and Motive” for compelling readings of Parker’s improvisations that focus on melodic development and its relation to deep structure. See also Hermann,

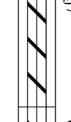
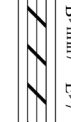
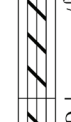
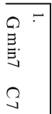
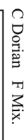
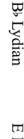
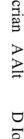
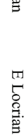
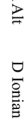
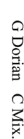
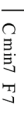
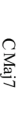
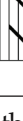
	F Ionian		B Dorian E Mix.		F Ionian		C Dorian F Mix.		Bb Lydian		Bb Dorian Eb H/W dim		F Ionian	1. 	G Dorian C Mix.											
	(A: ii)				V		IV		V		I		V													
							IV ⇒				IV (sVII sub for V)															
	C Dorian F Mix.		Bb Lydian		E Locrian A Alt		D Ionian		E Locrian A Alt		D Ionian		D Dorian G Mix.		C Lydian		G Dorian C Mix.									
	2. C min7 F7		Bb Maj7		E min7 A7		D Maj7		E min7 A7		D Maj7		D min7 G7		C Maj7		G min7 C7									
	(Bb: ii)		D		(D: ii)		I		ii		D	⇒	(C: ii)	V	D	ii	V	//								
	F Ionian		B Locr. ♯2 E Alt		F Ionian		A Locrian (5th mode of G harm. min)		G Dorian		Bb Dorian Eb Mix.		A Locrian		D Alt											
	F Maj7		B min7		E7		F Maj7		Am7(♯5)		D7		G min7		Bb min7		Eb7		A min7		D7					
	I								G: ii		V		i	⇒	(ii)	iv)	(NB different from m. 6: not functioning as sub for V moving to D)									
	G Dorian		C Mix.		F Ionian																					
	G min7		C7		F Maj7																					
	ii		V		I																					

Figure 4. One Pass at Synthesizing Tonal Analysis and Chord/Scale Reading.

described above suggest, the melody is certainly not the first aspect of a tune that aspiring jazz musicians tend to focus on, nor is it a cornerstone of modern pedagogical practice.¹¹

So I might ask a class at this juncture, what about the melody? What do you find about the melody of “I Remember You” that is compelling to you as an improviser? And again, what does “compelling” mean from a productive standpoint, and what might you do with those compelling features? An annotated lead sheet, based on the version well known to jazz musicians from *The Real Book*, is shown in Figure 5. Thinking in terms of what jazz musicians say they privilege we might ask what the most distinctive components are that telegraph the identity of the tune to the listener, and about the lyrics, which virtually every jazz musician claims as a fundamental beginning point. We might notice the opening gesture, a weak-beat upper neighbor ornamenting a consonant third, and the subsequent role that upper neighbors play as the tune unfolds. We might notice the middleground chromatic descent of the “A” section (described below). We might notice the way that repetition abets motivic development: the opening motif (marked “M1” in Figure 5) repeats, but is chromatically inflected in order to propel the second iteration all the way to the end of measure eight. Then we might consider how when the opening motif returns in the bridge it itself is prolonged for four measures to effect the modulation to VI. Indeed, just about all of the motivic activity in “I Remember You” can easily be shown to emerge from that opening gesture. The way that motivic continuity is employed to aid the transition between third-related harmonic spaces will play out in compelling ways in the middleground analysis below.

Following another stream of modern jazz improvisational practice, we might consider some of the characteristic motivic features of “I Remember You” in terms of their potential for development: how might we transpose, invert, retrograde,

“Charlie Parker’s Solo to ‘Ornithology’: Facets of Counterpoint, Analysis, and Pedagogy,” Larson, “The Art of Charlie Parker’s Rhetoric,” Love, “‘Possible Paths’: Schemata of Phrasing and Melody in Charlie Parker’s Blues,” and Strunk, “Bebop Melodic Lines: Tonal Characteristics” for further evidence from different analytic perspectives.

¹¹ I provide evidence for the nearly-exclusive focus on chords and chord/scale mappings in several of the most popular jazz theory and improvisational method books in Stover, “Theory, Pedagogy, and the Ethics of Chord/Scale Isomorphism.”

The musical score is presented in three systems. The first system (measures 1-8) includes the lyrics: "I re-mem-ber you, you're the one who made my dream come true a few k'is-ses a-go, did-n't-cha know?". Annotations include: "M1" above measures 1-4, "UN" above measures 1-2 and 5-8, "E ⇌ E♭" above measure 4, "(pseudo-sequential)" above measures 5-8, "D ⇌ D♭" above measures 7-8, and a first ending bracket labeled "1." spanning measures 8-9. The second system (measures 9-17) includes the lyrics: "I re-mem-ber, too, a dis-tant bell and stars that fell like rain out of the blue, ____". Annotations include: "2." above measures 9-10, "M1 extended" above measures 10-17, "(extension transforms M2 into inversion)" below measures 10-17, "(inv)M2" above measures 11-12, "F♯ ⇌ F" above measures 15-16, and a triplet bracket labeled "3" above measures 15-17. The third system (measures 18-26) includes the lyrics: "When my life is through, and the an-gels ask me to re-call the thrill of it all, then I will ____". Annotations include: "1/8" above measure 18, "(contour of M2 preserved)" above measures 18-20, "(inv)M2 (chromatic)" above measures 20-21, "(seq)" above measures 22-23, and a triplet bracket labeled "3" above measures 22-24. The score concludes with measure 26.

Figure 5. Some Distinctive Motivic Features.

truncate, expand, elide, concatenate, or otherwise manipulate a motif? How might those transformations then be employed in an improvisation that itself attends carefully to the tune's harmonic progression? Or might we imagine one that recasts the tune in any of an infinite range of imaginative ways, including the invention of new developmental processes?¹²

Likewise, the lyrics for "I Remember You" suggest compelling interpretive possibilities, from standpoints of motivic development and phrase structure. The sentiments of the song's lyrics are charming and nostalgic in the manner of many World War II-era popular songs, and there is value in mentioning that lyricist Johnny Mercer acknowledges its mildly scandalous origins, describing how he wrote it specifically "for Judy Garland. I always had such a crush on Garland that I couldn't think straight, so I wrote this song."¹³ Perhaps more clearly germane for the present account, though, is the way in which the prosody of the lyrics shapes the extensions and compressions of motivic material, which turns out to be crucial for the particular path through which the song's phrase structure unfolds. Figure 6 illustrates how prosody and rhyme generate intricate phrase relations from expansions of the initial motif. Here the opening line "I remember you" is followed by the parallel, rhyming phrase "you're the one who made my dreams come true," adding four syllables to the initial statement. The melodic line of the second phrase begins parallel to the first, taking the melody down from E to E_b, and the extra four syllables enact the "pseudo-sequential" action described in Figure 5 above. There are thus at least two antecedent-consequent relations to attend to: the parallelism of the two five-note motifs ending on $\hat{7}$ and $b\hat{7}$ respectively, and the extension of the second phrase that follows the lyrics' rhyme scheme. We might also notice that the "ago" that ends the first eight-measure unit finds its rhymed counterpart eight measures later, reinforcing the structural significance of $\hat{8}$, which will be described shortly. But *à propos* of the initial motif, we see the temporally displaced rhyme of measure five pushed an additional

¹² While several published method books describe melodic manipulation and development (see Liebman, *A Chromatic Approach to Jazz Harmony and Melody*, 45–52, for one compelling exposition), sources that consider how to develop melodic and motivic ideas *derived from the tune being played* are frustratingly rare. We will see one particularly clear example of motivic manipulation when we investigate Brubeck's improvised solo below.

¹³ Cited in Furia, *Skylark: The Life and Times of Johnny Mercer*, 131.

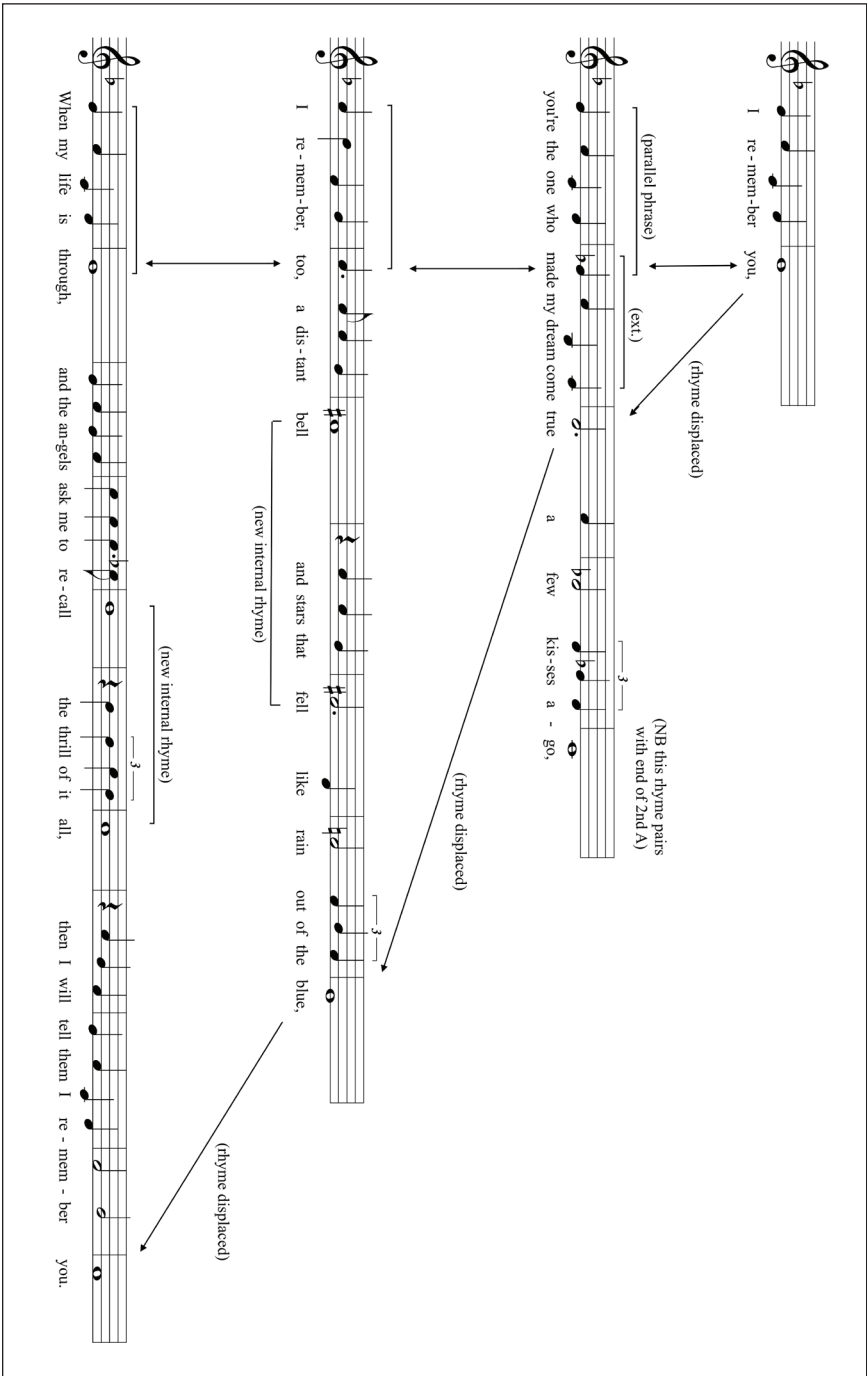


Figure 6. Role of Prosody and Rhyme in Development of Phrase Structure.

two measures back in the bridge; this second displacement is itself enacted by the addition of a new internal rhyme on “bell” and “fell.” Finally, in the last A section the consequent rhyme is displaced further, to the *eleventh* measure, this time abetted by the internal rhyme of “recall” and “all.” It is no stretch to suggest that the way Mercer elongates his phrases through displaced rhymes necessitates the unusual 36-measure structure of the song.

Up to this point we have considered issues of harmonic identity, chord/scale relations, motivic identity, and the fluid phrase structure suggested by the prosody of the lyrics. I would next ask students to consider some elements of deeper structure and process, which generally involves more hand-holding than some of the directions we’ve explored thus far, but which rewards the time spent, especially as we begin to synthesize all of these different vantage points into the multiplicity alluded to above, in which all blend into and inform one another.

“I Remember You”’s opening melodic gesture rises from $\hat{7}$ to $\hat{1}$ over tonic harmony. That semitone motion is mirrored in the first harmonic action—FMaj7 moving down to E7 as the continuation of the II-V motion of measure two; note that in the sheet music version (and in the Jimmy Dorsey recording) there is no pre-dominant chord in this measure—we should take this under consideration as we occasionally elide II-Vs into single harmonic objects.¹⁴ We can think of this opening melodic gesture from at least two structural perspectives: $\hat{7}$ as a lower neighbor to a structurally prior $\hat{1}$ on beat two, or $\hat{1}$ as an incomplete upper neighbor to $\hat{7}$. As Figure 7 illustrates, the first reading opens up an interesting long-range process through the first eight measure of the tune; $\hat{1}$ enacting a descending chromatic line to $\hat{5}$ in measure seven.

¹⁴ In the 1941 sheet music (which is in the key of G), the second measure is an F# chord, but with G in the bass as a pedal point linking measures one and three—we’ll see below that this reinforces some basic claims that are being made here about structural parallelisms and composings-out of melodic gestures.

A) Lower neighbor launching chromatic descent from $\hat{1}$ to $\hat{5}$.



B) Chromatic descent from $\hat{7}$ to $\hat{5}$, with incomplete upper neighbor.



Figure 7. Two Interpretations of Voice Leading in the First Eight-Bar Phrase.

Figure 7B, conversely, reveals a compelling chromatic descent to $\hat{5}$ that begins on $\hat{7}$, with its incomplete upper neighbor and filled-in lower third (a more detailed reading might question whether this third actually suggests an inner voice or compound melody—we'll return to this consideration in the analysis of Lee Konitz's solo below), repeats on $\flat\hat{7}$ (reiterating the upper neighbor gesture) as it passes to $\hat{6}$ supporting pre-dominant harmony, then to $\flat\hat{6}$ with one more upper neighbor to take us to $\hat{5}$. As described in the account of motivic structure in Figure 7, a great deal of melodic action is generated from the melodic figuration of the first measure, and especially from the structural status of the opening dyad. An interesting conundrum results from this reading, however. If structural and surface melodic action are generated from $\hat{7}$ and its dependent upper neighbor, then it seems we are making a case for $\hat{7}$ over tonic harmony to be a consonant structural note, and $\hat{1}$ (tonic, as well as the root of the chord) to be an expressive dissonance. This reinforces a point about the particular kinds of tonal behaviors that occur in the music of the Great American Songbook and jazz standards, which is that, unlike a great deal of the tonal music that preceded and informed it, chordal sevenths are pervasive and very often structurally consonant, even on tonic chords.¹⁵ This is a

¹⁵ Schenker recognized numerous situations in which the seventh of a V7 chord would be prolonged by an upper-neighbor root. An alternate

point that cannot be reinforced enough; indeed, I would argue that many theorists who have been using Schenkerian methodologies to describe jazz practice are doing some small amount of harm to the music by insisting on reducing sevenths to diminutions of more fundamental triadic structures, rather than allowing them to behave as structurally consonant and process-generating chord tones, such as that shown in the opening of “I Remember You.”¹⁶

Considering $\hat{7}$ as a generator of middleground structure also supports the reading of the bridge to “I Remember You” shown in Figure 8, in which $\hat{3}$ supports a IVMaj7 chord (again with its dependent incomplete upper neighbor), which descends through $\hat{2}$ to $\#1$ supporting VIMaj7 in a lovely unfolding of pre-dominant harmony (IV transformed into VI through 5-6 technique), then to $\hat{1}$ through mode mixture and ultimately to $\hat{7}$ and the dominant interruption.

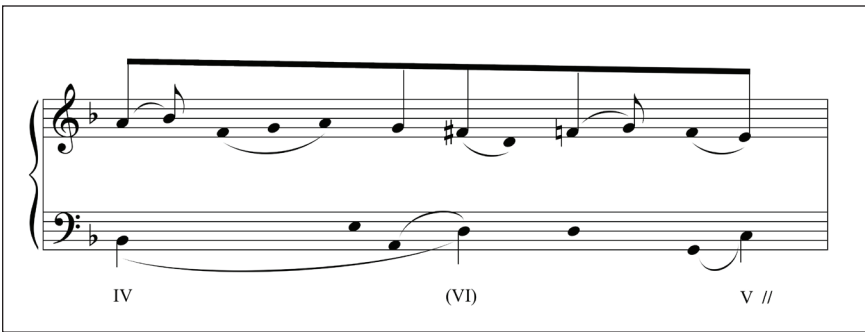


Figure 8. Voice Leading in the Bridge, Following Figure 7B.

There are a few more features of harmonic relationships in “I Remember You” that Figure 8 makes clear. First, recall again how the opening melodic gesture is repeated in the key of the

reading of the present narrative therefore might be one that extrapolates such behavior over tonic harmony, following a free contrapuntal framework that begins with seventh chords as syntactically consonant, whether in tonic, pre-dominant, or dominant contexts.

¹⁶ Mark McFarland offers an excellent synopsis of a schism in the jazz scholarly community, between those that insist on a more conventional Schenkerian approach and those that lean toward recasting Schenkerian principles in terms of a hybrid syntax in which sevenths are consonant and that allows for a (slightly) larger number of fundamental lines to serve as background structures. See McFarland, “Schenker and the Tonal Jazz Repertory: A Response to Martin.”

subdominant. Here the harmonic motion projected from the bass—which originally played out as a lower neighbor returning to tonic, $\hat{1}$ to $\hat{7}$, with the latter's dependent upper fifth, and back to $\hat{1}$ —is recast as V in the key of the major submediant. As Figure 9 suggests, the resolution-drive of measure two is denied, only to be realized in measure eighteen; in other words, the II-V in A of measure two moves deceptively to its $\flat$ VI, while the analogous action in measure eighteen completes the harmonic motion to the local tonic. Note that the choice here to read the motion from measure two to three as deceptive within the local context of the II-V in A is intended to be construed alongside our earlier reading, in which measure two prolongs a bass lower neighbor. Also note how this additional interpretation influences the chord/scale decision shown in Figure 4; if we think of measure two as an unresolved (or deceptively resolved) II-V that will eventually be substantiated in the bridge, then a chord/scale reading that emphasizes its local major-key II-V-ness will reinforce that interpretation.

Figure 9 displays two musical phrases. The first phrase, measures 1-3, shows a deceptive resolution from a II-V in A to a $\flat$ VI. The second phrase, measures 16-18, shows a "correct" resolution from a D: ii - V - I. Chord labels are provided below the bass staff for each measure.

Measure	Chord Label	Resolution Type
1	I	
2	(ii - V - "VI")	(deceptive resolution)
3		
16	IV	
17	(D: ii - V - I)	("correct" resolution)
18		

Figure 9. Non-Fulfillment and Fulfillment of Resolution Impulse.

Such a pluralist reading of elaboration and functional implication becomes a much more important consideration when we zoom out to examine still larger-scale voice-leading connections. The reading shown in Figure 10 suggests that the dramatic octave displacement of the final "A" section, which transfers $\hat{5}$ to the higher octave, in order to enact a quick but greatly delayed five-line descent, is the result of a *reaching-over* in which the middle voice $\hat{5}$ is revealed as an important—the *most* important—structural generator. What this does to our earlier reading of $\hat{7}$ is it recharacterizes it as an upper-third elaboration of $\hat{5}$; in other words, we're now reconsidering $\hat{7}$ as

closer to a surface-level phenomenon. What I would like to reinforce here, however, just like the dual reading of measure two in Figure 9 suggests, is that these two readings operate at roughly equivalent strata; that the nearer-to-surface level is *not subordinate* to the longer-range level. This is what Deleuze would call a *rhizomatic* reading rather than a more traditional tree structure, and it suggests that we can choose to focus on one reading or the other, depending on our productive needs as improvisers. It is also one of the many reasons that I been driving toward conceptual language like multiplicities and pluralities: not just the way that this particular analytic project is being cast fundamentally as a multiplicity, but encouraging the reader to think about existing analytic methodologies in terms of their potential contribution toward reading-as-multiplicity, or toward their potential creative disruption. To this end, we could imagine the further interpretation shown in Figure 11, in which the higher-octave $\hat{5}$ is transferred from the *upper-voice* $\hat{5}$ that ends the first “A” section (measure seven), which itself is approached via its upper third (and which in turn therefore enacts the series of upper thirds that appear throughout).

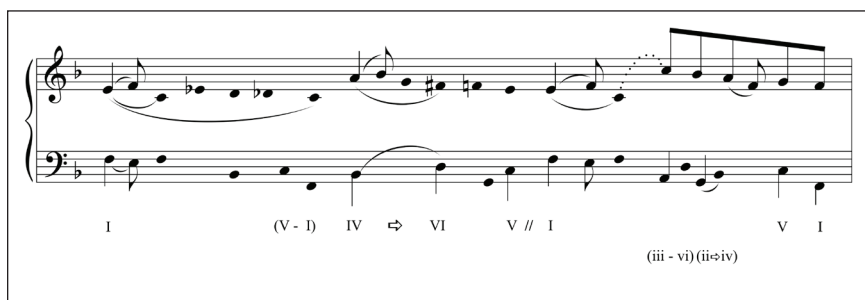


Figure 10. A Deeper Middleground Reading of the Entire Tune.

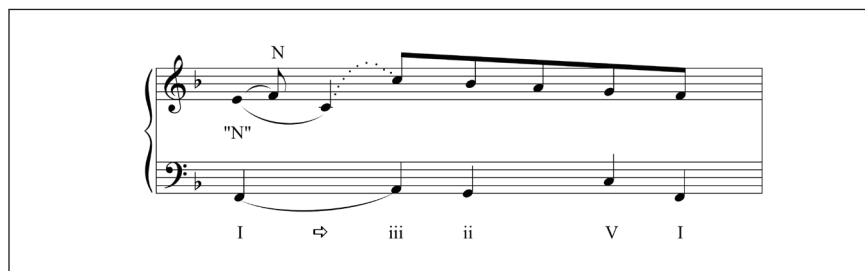


Figure 11. An Additional Interpretive Layer: Displacement of Upper-Voice $\hat{5}$.

Earlier we set aside a number of chord/scale readings, and now we might begin to think of how to assimilate those readings, which represent various ways of approaching the tune from modern jazz pedagogical perspectives, with a melody-oriented reading that engages motivic development and voice leading. Let's begin with that last point: what if we consider voice-leading as a larger harmonic phenomenon? For example, the entire harmonic space of measure two could be said to behave as a *neighbor chord* that links measure one to three, which is itself prolonged by its own upper fifth: II-V as single functional object. Likewise, the way that measure four recasts tonic harmony as V of IV follows suit in a logical manner, preceded by its own dependent pre-dominant, as Figure 12 shows. Here, the beginning of measure two is shown to be structurally dependent on the chord generated from the bass lower neighbor, just as the downbeat of measure four prolongs the transformed version of tonic harmony as it leads to IV. By foregrounding the neighboring action of measure two, we can more closely consider what kind of a chord or chord/scale we wish to engage, as Figure 13 illustrates.

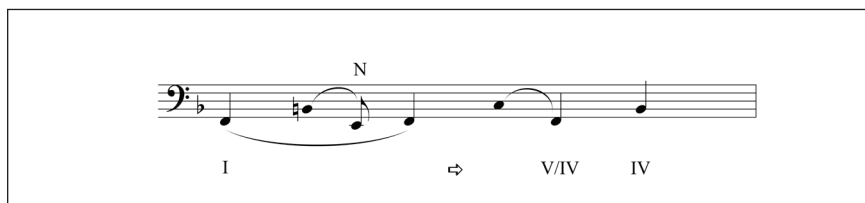


Figure 12. Prolongation of Bass Neighbor Motion.

1 as UN

7 as LN

F Ionian/Lydian E Altered F Ionian/Lydian [?] Bb Lydian

(diatonic in F)

(also NB 15 on E7 chord:
what are the affective
implications of Bb v. Bb?)

Figure 13. Influence of Neighbor Motion on Chord-Scale Reading.

Notice that a strategic decision to add a $\flat 9$ to the E7 chord has been made; this extends two fundamental aspects of compositional design suggested in the previous measure: neighboring motions as syntactically important, and $\hat{1}$ as melodically dependent on $\hat{7}$. In this case, the reading shown in Figure 13 interprets the II-V of measure two in terms of its potential for common-tone relatedness to tonic via the $\flat 9$ (diatonic) neighbor note, and similarly the IV chord of measure five as Lydian, reifying its subordinate role in the home key. Now this seems to contradict earlier thoughts about interpreting the II-V of measure two in the key of A; again we have multiple “correct” answers at work here, and I encourage my students (and the reader) to embrace this multiplicity, and to consider seriously its interpretive implications. Furthermore, the interpretation of Figure 13 extends the range of textual orientations to *include the current investigation*, which is not only very much in the spirit of the kind of multiple reading we are striving for, it is in fact demanded by that kind of reading.

As Joseph Dubiel has written about Schenkerian principles and the particular ways that Schenker characterized them, we *should* consider the ways in which a melodic gesture can penetrate deeper levels of structure, including how a dissonance might be made consonant by becoming a harmony; in other words, we should be thinking actively about behaviors of notes and their generative potential. Dubiel suggests that “Schenker can use the passing tone as the basis for his entire model of musical coherence precisely because he believes that the effect of ‘being passing’ can never be drowned out,”¹⁷ a phenomenon that we can observe of the neighbor notes in the current illustration. In the reading shown in Figure 13, neighbor notes are made consonant as they become neighboring chords, and earlier (Figures 7B and 10), *neighboring thirds* were shown to function in a similar manner. In fact, thirds-as-neighbors are illustrated at two levels in Figure 7B: at the immediate local level ($\hat{1}$ prolonging $\hat{6}$ as a neighboring gesture in measure five), and as nested neighboring figures in measure one ($\hat{1}$ prolonging $\hat{7}$, which in turn prolongs $\hat{5}$ ¹⁸). Recall that this reading, should we choose to engage it, is supported by the strategic larger-scale reading of Figure 10.

¹⁷ Dubiel, “‘When You Are a Beethoven’: Kinds of Rules in Schenker’s ‘Counterpoint’,” 317.

¹⁸ (or vice versa!)

We have now mapped out a multiplicity in which functional harmony, decisions about chord/scale relations, motivic behaviors, lyrics, and large-scale voice-leading connections all interact and enrich one another. All of this activity still engages the tune as a tune; that is, as something much like a fixed text, the details and qualities of which are generated primarily from the lead sheet version most known to jazz musicians, with fleeting references to the original version as represented in the published piano music. As we continue to expand our terrain of experiential and productive possibilities, we should return to our earlier thoughts about historicity, signification, and performance tradition. While we could begin with the Dorsey version we heard above, or with Dorothy Lamour's performance in the 1942 motion picture *The Fleet's In*, it seems more immediately productive to explore how "I Remember You" has been used in the tradition of modern jazz. We will continue, then, by focusing briefly on excerpts from three iconic improvised solos, by Charlie Parker, Lee Konitz, and Dave Brubeck respectively. By doing so we will see how all of these improvisers bring together aspects of their idiosyncratic improvisational proclivities with important structural elements of the tune, and in addition we will be able to observe how the syntax of bebop improvisation is reconfigured through the individual enunciations of each performer. Figure 14 shows a transcription of the second (partial) chorus of Charlie Parker's improvised solo, from his aforementioned 1954 recording. The excerpt shown in Figure 14 can be heard at www.morezero.com/parker_second_chorus.mp3. At the beginning of this chorus, and then again eight bars later, Parker develops the nested upper neighbors prolonging $\hat{7}$ that are highlighted in the figure. We should also note the careful way that Parker brings about long-range connection between active tones, which both Henry Martin and Steve Larson have described about other Parker improvisations.¹⁹ The E of measures 1-2 moves down to E $\flat$ in measure four, which is then transferred up an octave to D in the following measure. The expected descent to D $\flat$ is then prolonged to take the melody back to the original octave and the resolution to C to complete the third-progression (and which in turn immediately descends an additional third, via passing tone, to a consonant A to begin the next phrase). A similar process unfolds, with an analogous octave transfer, in Parker's second phrase. We should also note Parker's choice to interpret measure two as a II-V in A major as described above, deemphasizing that measure's neighbor-note

¹⁹ See footnote 10.

(1:33)

N

projection of chromatic descent:

(cont.)

N

(cont.)

N

projection of chromatic descent:

(cont.)

N

(cont.)

Figure 14. Charlie Parker Solo, Second (Partial) Chorus
(Transcribed by the Author).

relatedness to measure 1; Parker does this by moving down the A major scale with the chromatic passing tone on the “and” of three that would later be characterized as the major bebop scale.²⁰

In his version of “I Remember You” from a lovely trio performance from seven years later, featuring Sonny Dallas on bass and Elvin Jones on drums, Lee Konitz begins with a paraphrase of the melody that initially omits the $\hat{1}$ second pitch—perhaps giving support to the reading that casts $\hat{1}$ as a dependent upper neighbor. In the fourth chorus of his solo, shown in Figure 15, and which can be heard at www.morezero.com/konitz_fourth_chorus.mp3, Konitz begins with a rising diatonic gesture that prolongs $\hat{7}$ as an upper neighbor, with the initial neighboring $\hat{1}$ itself prolonged by its upper third (marked “N” in the figure, and recalling the third-as-neighbor shown in the Parker example above); here we might also notice how Konitz relocates the inner-voice $\hat{5}$ as a pedal with its own dependent upper neighbor, and also how he inverts the initial third to a sixth in measures 9 and 13. The second of these enables a particularly elegant interaction between the expected chromatic descent from $\hat{7}$ to $\hat{5}$ and the careful octave displacement that prolongs that descent: notice how the $\hat{6}$ that serves as the upper sixth in the initial gesture in measure 13 is recast as an octave-displaced sixth in the lower voice descent, eventually returning to the lower register in measure 16.

²⁰ See Baker, *How to Play Bebop* for one explanation of bebop scales and their melodic and metric derivation.

Figure 15 is a musical score for a solo by Lee Konitz, specifically the Fourth Chorus. The score is presented in four staves, each with a treble clef and a key signature of one flat (B-flat). The first staff begins with a time signature of (3:05) and contains a melodic line with a bracket labeled (N^n) . The second staff continues the melody with a bracket labeled N . The third staff features a triplet of eighth notes with a bracket labeled 3 and a note labeled N . The fourth staff also contains a triplet of eighth notes with a bracket labeled 3 and a note labeled $(N?)$. Various annotations are present: an arrow labeled (6th) points to a specific note in the second staff; the text "= m.g. 6" is written below the third staff; and the phrase "6th-unfolding effects additional chrom. descent:" is written above the third staff. The score is enclosed in a rectangular frame.

Figure 15. Lee Konitz Solo, Fourth Chorus (Transcribed by the Author).

In a seminal live recording from 1953, with Paul Desmond on alto saxophone, Joe Dodge on bass, and Ron Crotty on drums, Dave Brubeck explores further ways to interface with the melody and harmony of "I Remember You." Following Desmond's unsurprisingly coherent and motivically cohesive solo, Brubeck begins his solo with the melodic paraphrase shown in Figure 16, which can be heard at www.morezero.com/brubeck_first_chorus.mp3. Brubeck's initial omission of the upper neighbor $\hat{1}$, and subsequent replacement of it with an upper third composed out as a pentatonic figure in measure three reinforces $\hat{7}$'s status as a structural note. This status is reaffirmed eight measures later: in the second "A" section Brubeck greatly exaggerates $\hat{7}$ two times with strong dynamic accents, each time followed by a commensurably soft continuation of the melody. In the bridge, he does play the upper neighbor to $\hat{3}$, but it is delayed by several beats and turns out to serve as the generator of the gesture $\hat{4}-\hat{3}-\hat{2}-\# \hat{1}$, which eventually repeats twice a whole step lower as the figure $\flat \hat{3}-\hat{2}-\hat{1}-\hat{7}$ to return to the melody at the beginning of the final "A" section. The transformation from $\hat{4}-\hat{3}-\hat{2}-\# \hat{1}$ to $\flat \hat{3}-\hat{2}-\hat{1}-\hat{7}$ involves a very striking $G\flat$ against a II-V in C (that is, $G\flat$ over $Dmin^7-G^7$). This supports a reading that suggests that Brubeck is concerned here with motivic coherence, even at the expense of local harmonic fidelity.

In the final "A" section of this chorus, Brubeck continues to explore neighbor motifs. In measure 25 he follows $\hat{7}$'s upper neighbor with $\# \hat{6}$ as a chromatic lower neighbor. Then starting in measure 28 is a long, expanding flow of chromatically-inflected upper neighbors and pairs of neighbors: beginning with $\hat{5}-\flat \hat{5}-\hat{4}$, immediately recast as $\hat{5}-\flat \hat{5}-\hat{4}-\hat{3}$ (mm. 30 to 31; suggesting a reinterpretation of $\hat{5}$ as another upper-third-as-neighbor), which then composes out in measures 32 to 33 as a series of chromatic neighbor pairs and diatonic thirds-as-neighbors.

(4:13)

(NB: no UN)

("N")

5

N

9

(exaggerated emphasis of 7...)

sfz

13

17

(dissonance against Dmin7 to G7)

N

21

⇒ N

(upper 3rd to m. 21)

25

⇒ melody

(chrom. double neighbors)

29

"N"

N

"N"

33

N

"N"

N

Figure 16. Dave Brubeck Solo, First Chorus (Transcribed by the Author).

The jazz performance tradition, and the range of pedagogical models that both describe and inform it, foregrounds close, even mimetic attention to exemplary performers and historical performances. It also foregrounds the internalization of a large number of communally agreed-upon tunes in order to facilitate something of a *lingua franca* among jazz musicians (albeit one that is open to an infinite range of interpretational lines that leave that common framework to varying degrees). The analytic project described above extends and intensifies how a student of jazz improvisation might address the musical work. On one hand, it suggests an open engagement with the possibilities suggested by this or that chord or chord/scale reading, including strategic reasons why one might choose one reading or another at any given moment. On another hand, it engages the tune's melody both as a source for creative motivic development and in terms of short- and long-range voice leading connections. It then begins to demonstrate how the fruits of these kinds of decisions, conscious or not, have emerged in the work of exemplary improvising musicians. In a sense we are formalizing a process that many of the greatest jazz musicians—the Miles Davises, the Joe Hendersons, the Bill Evanses, not to mention the Parkers, Konitzes, and Brubecks—have done through their careers; returning time and again to the same tunes, responding to the traditions that preceded them, including their own earlier performances, and constantly finding new phenomenal points of view from which to regard the tune's melody, harmony, and formal design.

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Playing With Motives: Aural Skills Exercises for Tonal Structure

BY DAVID CASTRO

The type of musical comprehension that is the goal of dictation exercises depends entirely on the cognitive systems that are available to students in order for them to make sense of what they are hearing. There are many such cognitive systems, including the diatonic scale, 4/4 meter, phrase rhythm, and so on, and each one of them allows us to give meaning to the individual events in a given piece or fragment of music. It is just this sort of meaning that the discipline of music theory engages and it is this sort of meaning that we want our students to learn.¹

Consider the following error that is typical of student work. Example 1a shows a melody that was played in class and was to be notated by the student; Example 1b shows what the student actually notated. The error in the student work occurs under the bracket labeled *x*. Notice that these four notes are incorrect in that each one of them is one diatonic step higher than what was played, but that they are correct in that they consist of an ascending third followed by two descending steps. In other words, the contour of these four notes is correct, but they were notated one diatonic step too high.

Example 1a: A sample melodic dictation.

Example 1b: A typical student response.

Examples 1a and 1b

¹The author would sincerely like to thank Music 112 (Fall 2010) and Music 214 (Spring 2012) for being willing to try something new and for their invaluable feedback and advice.

One school of thought among aural skills teachers would interpret this error as the result of a failure to recognize the melodic interval above the bracket labeled *y* in Example 1b, a perfect fifth from D up to A. That interpretation follows from the fact that had that interval been heard correctly, the three pitches that follow it also would have been correct. However, cognitive research tells us that the source of this error is not in the absolute distance from D up to A, but that it is in the recognition of *re*,² which is the goal of the leap and the first scale degree in that contour. Michael Rogers' comments reflect this fact in that no. 6 in his list of twelve specific suggestions for getting the most out of the classroom experience of melodic dictation includes the following statements: "Development of a sensitive feel for the psychological location and the pulls and attractions of each pitch within the major/minor system is one of the goals of doing dictation in the first place. ... This approach is both more musical and useful than trying to compute intervallically from point to point."³ This admonition is based as much on a philosophical orientation as on a practical one, since Rogers is not specifically addressing the type of error that is my concern here. Nevertheless, these words are valid in terms that are both philosophical and practical, for the "sensitive feel" he would have us instill within our students is precisely the key to success in overcoming errors of this type.

The primary purpose of this article is to present a few aural skills exercises that focus directly on students' schematic familiarity with the diatonic scale, enabling them to recognize and/or reproduce scale degrees quickly and accurately. However, because it may not be clear exactly why I am introducing a new type of aural skills exercise, I will begin with a brief summary of the cognitive foundations for *Playing With Motives* in order to precisely define the cognitive systems these exercises engage and reinforce. Following that, I will present the exercises themselves.

COGNITIVE FOUNDATIONS

In the chapter on melodic dictation in *Aural Skills Acquisition*, Gary Karpinski notes that accuracy in melodic dictation is

²In this article I will refer to all scale degrees using movable-*do* and *do*-based minor solfège.

³Michael Rogers, *Teaching Approaches in Music Theory*, 2nd ed. (Carbondale and Edwardsville: Southern Illinois University Press, 2004), 114.

dependent on the innate mechanisms that govern the encoding of melodies in memory. Citing the relevant music perception literature on the subject, he writes, "Such reports point to evidence for two separate memory encoding mechanisms: one that encodes the contour of a melody—its direction and step-versus-leap shape—and another that encodes specific pitches, at least of starting notes of stepwise groups."⁴ By "specific pitches," Karpinski is here referring to scale degrees within a diatonic context, and the basis of this model for melodic memory lies in numerous cognition studies conducted by W. Jay Dowling, Carol Krumhansl, and others.⁵ The watershed moment in this regard seems to be Dowling (1978), which established the model of melodic memory and processing that is based on contour and scale degree. In this paper Dowling synthesizes several experiments and observations, ranging from ethnomusicological research to experiments conducted by Helmholtz in the 19th century to contemporary experiments, including several conducted by Dowling himself, in order to arrive at his model. Subsequent studies confirmed and refined his findings, including Yi (1990), which extends the concept of "contour" from pitch to rhythm in order to show their interdependence in the memory and processing of melody.⁶

In his 1978 study Dowling uses the term "scale degree" to denote the mental process of assigning meaning to a given pitch within a tonal context, but this term refers not to a mental construct, but to a product of that construct. Therefore within cognition literature the preferred term for this phenomenon is now tonality, which means the mental construct by which we orient ourselves toward a single pitch and hear other pitches as being related to it in a hierarchical relationship.

To be fair to the importance of intervals in melodic memory, there is evidence pointing to the fact that some melodic processing is in fact based on intervals, as such. Dowling (1986) shows that experienced listeners employ a combination of strategies when asked to compare melodies in terms of difference, identity,

⁴Gary S. Karpinski, *Aural Skills Acquisition* (New York, London: Oxford University Press, 2000), 66–7.

⁵See the bibliography at the end of this article for a list of resources.

⁶Current thinking in this regard is summarized in Schmuckler (2009), in which melodic processing is presented as involving two basic organizational structures, tonal structure and melodic contour, the very elements established in Dowling (1978).

or similarity, including both tonal structure (i.e., scale degree information) and purely intervallic information. However, such studies differ with the concerns of the aural skills classroom in that what is asked of aural skills students transcends simple measures of similarity and difference. These students are asked to accurately assess and engage complex technical aspects of melodic notation and structure. Furthermore, the occasional use of intervals in order to understand or identify melodic events does not negate the importance of tonality, which remains a more fundamental system.⁷

The type of tonality at work in the currently accepted model of melodic processing is also reflected in the three types of musical memory discussed by David Huron in *Sweet Anticipation*, namely episodic, dynamic, and semantic. Huron describes episodic memory as “a sort of autobiographical memory that holds specific historical events from our past.”⁸ In the case of music, this type of memory is at work any time we recognize a bit of music that we have heard more than once and has been encoded in long-term memory. This is music that becomes known to us, or familiar. By contrast, dynamic memory is akin to short-term memory in that it allows us to process the unique events that occur within a single piece, as we are hearing it. Although these are both important parts of melodic memory, the most important type of memory for the purposes of this paper is semantic memory, which relies on established mental schemas. “Schemas are generalizations formed by encountering many exemplars.”⁹

I have already mentioned that one of the two fundamental schemas in the processing of melody is tonality, and numerous studies confirm both the existence of and our reliance on such schemata as scales and modes in order to organize our perception of pitch. Krumhansl & Keil (1982) elucidates three stages in the acquisition, or acculturation, of a scale. “The developmental pattern was one in which the acquisition of the tonal hierarchy proceeded in an orderly manner, with the first distinction made being that between the scale and non-scale tones. Once the possible

⁷For more on the importance of intervals see Dowling & Bartlett (1981). For a view on the pedagogical importance of intervals see Lake (1993).

⁸David Huron, *Sweet Anticipation: Music and The Psychology of Expectation* (Cambridge, Massachusetts: MIT Press, 2006), 220.

⁹Huron, *Sweet Anticipation*, 225.

pitches of the tonal system were isolated, finer differentiation was made within the set of scale pitches.”¹⁰ This “differentiation” was manifested in demonstrable preferences for diatonic scale degrees over chromatic ones, and for members of the tonic triad over other diatonic scale degrees.

In addition to the difference between their function within our processing of music, there is yet another fundamental difference between episodic and schematic memory, which is that we have direct access to events held in episodic memory, but we do not have total access to schematic memory. In other words, we can actively recall a melody that has been encoded in long-term memory, but there really isn’t a way to directly engage the underlying tonal schema within which it operates. To be sure, we can activate schemas and can be aware of them at arm’s length (so to speak), but the memories themselves are of a different kind and function, residing in the background of our mental processing.¹¹ Dowling (2002) makes this clear when referring to knowledge of this kind as implicit. “Neither the knowledge base itself nor the cognitive processes through which it is applied are entirely accessible to consciousness.”¹² The exercises described in this article therefore ought to be understood as a method for giving students awareness and deliberate reinforcement of their schemas for diatonic pitch space, even if direct access isn’t possible.

In summary, the C+T model asserts that the two essential aspects of melodic processing and memory are contour and tonality, with the latter being a type of schematic memory. Therefore, aural skills students will benefit from systematic exercises that directly engage their schema for the diatonic scale. This is possible only by focusing their attention on the identity of individual elements within that schema and what follows is a set of exercises that do just that.

¹⁰ Carol L. Krumhansl and Frank C. Keil, “Acquisition of The Hierarchy of Tonal Functions in Music,” *Memory & Cognition* (1982) 10/3: 249.

¹¹ This may seem counter-intuitive at first, because one may object that of course we can sing a scale, or sing *do*, and so on. However, to sing a scale or to sing *do* is not to access the schema itself. Rather, these activities are possible *within* or *because of* the schema, which is operating in the background, giving meaning to what we sing.

¹² W. Jay Dowling, “The Development of Music Perception and Cognition,” in *Foundations of Cognitive Psychology: Core Readings*. Ed. by Daniel J. Levitin. (Cambridge, Massachusetts: MIT Press, 2002), 482.



Example 2: Four versions of a single motive.

PLAYING WITH MOTIVES: THE BASICS

The exercises that I refer to as *Playing With Motives* (PWM) require that students focus on scale degrees in a way that traditional melodic dictation does not.¹³ This is because in PWM melodic contour is a (near-)given, thereby isolating scale degree as the indeterminate variable. Example 2 provides four permutations of a single motive, labeled A, B, C, and D, respectively. These four versions of a basic contour will constitute all of the melodic material that is used in this exercise—at least in the initial stages.¹⁴

The exercises of PWM are based on the employment of brief melodic contours, such as those given in Example 2, because they provide the student with a ready musical “object” that can be learned quickly and positioned within diatonic space with relative ease. A motive lies between a full melody, which is too unwieldy

¹³I use the term “motive” in this article to refer to melodic contours, a usage which is not original to me. The following passage from Pearsall and Schaffer (2005) is representative: “In this article, we advocate a return to analysis based on ordered motives long advocated by such theorists as William Benjamin, Jonathan Bernard, and Richmond Browne. Building on the ideas of these theorists, we propose an approach to analysis and aural skills that emphasizes germinal melodic ideas, ideas that form the basis for musical organization within individual pieces, yet transcend the boundaries of the various isms and schools. We will refer to these germinal ideas as motives. While motives can take on a number of different forms ranging from abstract ideas to highly-prescribed pitch/rhythm designs, defining motives according to shape (contour) and intervallic content alone produces quite rich results when applied analytically and aurally to twentieth-century music.” (58)

¹⁴The relationship between these motives is derived from standard twelve-tone operations, which are themselves derived from the treatment of thematic material in 18th-century counterpoint: motive B is the retrograde of motive A (R of P), motive C is the inversion of motive A (I of P), and motive D is the retrograde of the inversion (RI of P).

for the purposes of these exercises, and a single pitch, which lacks even a modicum of melodic interest. It is also for the sake of melodic interest that I use four closely related versions of one basic contour. To be clear: the motives are not the point of this exercise. However, it is only while working with an object such as a motive that the student can activate his or her schema for the diatonic scale, which is the point. The core concept of *PWM* is the free transposition of a motive within the diatonic scale for the purpose of focused and deliberate practice in the recognition and recall of each scale degree, as such.

The first step in this exercise is to have students establish a secure sense of tonic. This can be done in two different ways, which can be thought of as the active and passive forms of tonal orientation. The passive form is that familiar routine in which the instructor plays a brief chord progression at the piano, such as I-IV-V-I, which students listen to in order to orient themselves to the given tonal center. I call the second type active orientation because it requires students to sing a brief prepared melody that orients them to the tonal center of their choice.¹⁵ When students are first learning such melodies they need to be sung out loud, but they should also learn to audiate them (i.e., to sing them “in their heads”).¹⁶

After establishing a secure tonic, the instructor proceeds by using a set of motives, such as that given in Example 2, in the manner of a dictation or in the manner of a singing exercise. When conducting a singing exercise, the instructor declares which form of the motive students are to sing, then tells them the scale degree on which they are to begin. After a brief pause, which allows students time to recognize the form of the motive they are to sing and to audiate the starting scale degree, a clear direction (e.g., some kind of conducted downbeat) is given by the instructor and students sing the requested motive. This exercise can be done with just one student, a small group of students, or an entire class. It is advisable that all three of these arrangements should be used. While having the entire class sing in unison is the most efficient way of giving everyone the

¹⁵ For more thoughts on this process see Edward Klonoski, “Teaching Pitch Internalization Processes,” *Journal of Music Theory Pedagogy* 12 (1998), and Karpinski, *Aural Skills Acquisition*, pp. 151–154.

¹⁶ The term “audiate” is taken from Gordon (1976), and is analogous to “visualize.” Both terms refer to the mental representation of a sensation that is not physically present. Karpinski’s term for this skill is “auralize,” and it has precisely the same meaning.

opportunity to practice, having students sing individually prevents them from simply copying what they hear others singing. Note that during singing exercises the feedback to the student is virtually instantaneous as they can compare what they sing with what they audiated just before they began singing, in addition to what they might hear from classmates in the moment.

When conducting *PWM* as a dictation exercise, the instructor plays various forms of the motive at the piano at various diatonic pitch levels while students write down which version they hear and the scale degrees on which it begins and ends. Based on feedback from students, my own practice has been to play each prompt twice, and to leave a fair amount of time between prompts. In addition, I project the four motive forms at the front of the room, thus avoiding the need to memorize the label for each version, although an argument could be made for the value of having students memorize them.

The answers provided by the student can take several forms. One type of response could consist of writing out “A, *mi-sol*,” indicating that the student heard the A form of the motive starting on *mi* and ending on *sol*. Note that the order of these two pieces of information is given in the most typical order of recognition; during dictation students readily recognize the form of the motive before they are able to situate it in diatonic space. A second type of student response would be to notate the answer on staff paper within a given key, just as one would during a melodic dictation exercise. Finally, a student could simply give a verbal response.

The orienting activities mentioned above ought to be repeated throughout the lesson, as necessary, in order to refresh the student’s sense of tonal orientation. As the time since the most recent orienting activity increases, the student’s memory for *do* fades, which is why exact transpositions of a motive are apt to confound the beginning student during dictation. For example, the A form of the motive given in Example 2 is intervallically identical when it begins either on *do* or on *fa*, so the student must distinguish between these two answers based solely on their sense of tonal orientation. The goal, of course, is for student performance in this aspect of *PWM* to improve with time and practice, requiring fewer orienting activities for the same number of prompts.

Anecdotal evidence from students suggests two strong tendencies while taking part in these exercises. First, when listening to dictations, students report paying more attention to the last note

than to any others in the motive. This is because they typically audiate a stepwise motion from that last note back to *do* in order to determine its identity. This “gap-fill” technique provides a very reliable measure because students identify *do* with greater speed and accuracy than any other scale degree. Karpinski supports this technique for identifying scale degrees, saying that it allows students to go “from the unknown to the known.” He also notes that “as listeners become more familiar with the tonal functions of the pitches they traverse, they can begin to identify the scale degrees of pitches on that more meaningful and immediate basis.”¹⁷

The second general tendency among students occurs when they are asked to sing the motive at various diatonic pitch levels. In that context students report paying special attention to the first pitch, then singing the remaining notes by tracing the contour of the motive in diatonic space. In the process of doing this students learn that some scale degrees are audiated more quickly than others. The pattern is predictable, with *do*, *mi*, *sol*, and *ti* being scale degrees that students are able to audiate quickly. Scale degrees *re*, *fa*, and *la* require more time, or even the audiation of a stepwise relationship from one of the more stable scale degrees, in order to be located reliably.¹⁸

Under certain circumstances students will have to be aware of the need to switch from one octave to another while singing. As always, range considerations come to bear when singing these exercises, and because students tend to follow the path of least resistance—a phrase which here means that students always choose the smallest interval from one scale degree to another—it is possible for them to be lead into a vocal range in which they are no longer able to produce the motive correctly without first transferring it to an adjacent octave.

This exercise should also be done in melodic minor, which presents certain challenges with regard to scale degrees $\hat{6}$ and $\hat{7}$. When used as a singing lesson, melodic minor requires students to anticipate whether the raised or lowered version of those scale degrees would be most appropriate. That decision often depends, of course, on the direction of the line. Example 3 is a guide to usage for the motive given in Example 2, with the most typical responses

¹⁷ Karpinski, *Aural Skills Acquisition*, 51.

¹⁸ See Krumhansl, *Cognitive Foundations of Musical Pitch* (New York, London: Oxford University Press, 1990), 16–76, for more on defining and representing the tonal hierarchy.

A, in C minor

fa me fa sol le sol fa sol la ti le/la sol la ti do te/ti la ti do re do ti do re me

B, in G minor

me re do ti do re do ti/te la ti do te le sol le te le sol fa sol le sol fa me fa

C, in D minor

re me re do ti do re do te le ti do te le sol la/le te le sol fa sol le sol fa me

D, in A minor

me fa sol le sol fa sol le te le sol la ti do ti/te la ti do re do ti do re me re

Example 3: Sample interpretation of a motive in melodic minor.

given in both notation and solfège syllables. Because it isn't always clear which version of the scale degree should be used, two options are occasionally given, signified by accidentals in parentheses and alternative solfège syllables separated by a slash. Note that the motives in this graphic are not necessarily meant to be sung in the order given.

Regarding the design of a motive, there is an inverse relationship between the number of discrete scale degrees in a motive and the difficulty it poses to the student, especially in dictation exercises. Whereas we might think that a simple neighbor motion would be easier than the motives provided in Example 2 (possibly because fewer notes means fewer things to think about), the reality is that a motive with fewer discrete scale degrees reveals less information that students can use as they try to situate it within tonal pitch space. When tonally orienting figures are provided infrequently students are required to retain the sound of *do* mentally. Failing that, they revert to listening for half-steps and whole-steps, using the arrangement of those intervals in the motives they hear in order to guess at the identity of scale degrees. Therefore one of the easiest melodic segments to work with might be a perfect fifth that has been completely filled in with steps, due both to its simplicity and to the fact that it contains enough scale degrees (i.e., half-steps and

whole-steps) to be almost conclusive with regard to its position within the scale. After that, a motive containing four scale degrees (such as the one given in Example 2) might be appropriate, and then a three-note motive would be even more challenging.¹⁹

Example 4: Three graded motives.

Example 4 provides three graded motives for use as students progress in their accuracy. Within diatonic space, the beginning motive contains two transpositionally equivalent (i.e., “real,” as opposed to “tonal”) pairs for each version of the motive: A, *do-fa* has the same intervals as A, *sol-do*, and A, *re-sol* has the same intervals as A, *la-re*. The three remaining transpositions are unique, giving beginning students a relatively low number of opportunities for confusion.²⁰ The intermediate motive has three transpositionally equivalent pairs: (1) A, *do-mi* and A, *fa-la*, (2) A, *re-fa* and A, *la-do*, and (3) A, *mi-sol* and A, *ti-re*. A, *so-ti* is the only unique transposition of version A.²¹ The difficult motive has three identical sets: A, *do* is the

¹⁹ The concepts and techniques of PWM can also be extended into post-tonal (i.e., fully chromatic) space. In order to do so, students could be asked to recognize and/or sing various permutations of a given ordered set (e.g., simple transposition, inversion, and/or retrograde).

²⁰ Note that the “beginning” motive contains five discrete scale degrees, but not as a simple stepwise scale segment. That is because such a scale segment wouldn’t produce four unique motive forms, as does the motive provided.

²¹ Versions B, C, and D each contain the same number of transpositionally equivalent pairs.

same as both A, *fa* and A, *sol*; A, *re* is the same as A, *la*; and A, *mi* is the same as A, *ti*. The difficult motive has no unique transpositions.

Thus far I have presented the basics of *PWM*, which consists of using four versions of a single motive as either a dictation exercise or as a singing exercise. With guided practice of no more than five or ten minutes a day, students quickly come to recognize which scale degrees they struggle with and which ones they can recall and audiate without difficulty. This metacognitive information should guide students in their practice and study.

PEDAGOGICAL STRATEGIES

There are various techniques for structuring an exercise in such a way that it is relatively easy or relatively difficult. For example, students easily recognize stepwise connections between one motive and the next. If a student is asked to sing the A form of the motive given in Example 2 starting on *do*, the motive will end on *mi*, so the easiest way to continue would be to have students sing the A form again, starting on *mi*. This not only repeats scale degree *mi*, but also repeats the A form of the motive. To increase the level of difficulty you can have the next motive be a different form and/or have it start on a scale degree that is just one step away from *mi*, *re* or *fa*. The variables here are versions of the motive and stepwise connections between successive motives. These variables can be used independently or in combination.

1. A, *do-mi* 2. B, *fa-re* 3. A, *mi-sol* 4. B, *la-fa* 5. B, *fa-re*

6. B, *re-ti* 7. A, *la-do* 8. A, *ti-re* 9. B, *re-ti* 10. A, *la-do*

Example 5: Sample singing lesson no. 1.

I will now turn to several sample lesson plans (many of which were used with my sophomore class in the spring of 2012) in order to show how all of this might be put to real use.²² Example 5

²² Unless it is specifically mentioned, these lesson plans assume that the instructor is periodically singing or playing a tonally orienting figure. Also, these lesson plans are designed using the motive forms given in Example 2.

provides an ordered list of motive forms and scale degrees for use in a singing lesson. Motive identifiers and solfège syllables are given above the staff, while the notes to be sung are given in the key of F. This lesson is designed as a beginning or even introductory one. As such, only two motive forms are used, one ascending and the other descending, and they are deployed in such a way that each motive begins on or within one step of the note that ended the preceding motive. Furthermore, note that nos. 1–4 trace an ascent from *do* up to *sol* and the *la* just above it, that nos. 4–7 trace a descent to the *la* an octave below, and that nos. 7–10 remain in the lower portion of that octave. These three embedded sets lend coherence to the entire exercise and help students assimilate the essentials of PWM while also appreciating the overall melodic shape.

Example 6: Sample singing lesson no. 2.

Example 6 provides a second, more challenging singing lesson. The greater difficulty of this lesson derives in part from the diversity of motive forms (all four are used), as well as the leaps between ending and beginning scale degrees. Furthermore, some of those leaps are to scale degrees that are unstable, and therefore more difficult to audiate. For example, no. 8 ends on *mi* and no. 9 begins on *la*, which can present challenges within a single uninterrupted line, let alone when combined with a mental break and the additional task of preparing to sing a new motive form. The transition from no. 5 to no. 6, in which *la* is followed by *mi*, serves as a sort of preparation for the later and more difficult leap in the opposite direction.

A second challenge involved in singing lesson no. 2 can be found in the octave shifts required by motive no. 7. Notice that motive no. 6 ends on *do* and that in order keep no. 7 within a singable register sopranos and tenors might need to sing no. 7 an octave above the notated register. As a result, the *ti* that ends no. 7 would lead

most closely to the *do* an octave above that given in no. 8, bringing sopranos and tenors up to a high F#. Hence, a second and more awkward octave shift would most probably occur between nos. 8 and 9, as sopranos and tenors begin no. 9 on the *la* below the *mi* on which no. 8 concluded. For the same reason, altos and basses would probably need to sing nos. 9 and 10 an octave below the notated register.

The image shows a musical score for a dictation lesson, labeled 'Example 7: Dictation lesson no. 1.' It consists of two staves of music in bass clef, with a key signature of two flats (B-flat and E-flat). The music is divided into ten numbered prompts, each with a vocal range and a solfège syllable in parentheses. The prompts are as follows:

- (T)1. C, *do-la*
- (T)2. B, *sol-mi*
- 3. A, *fa-la*
- (T)4. C, *sol-mi*
- 5. B, *fa-re*
- 6. D, *la-do*
- (T)7. C, *re-ti*
- 8. D, *do-mi*
- 9. A, *re-fa*
- 10. B, *la-fa*

The notation uses eighth and quarter notes to represent the intervals between the scale degrees. The (T) prompts are marked with a 'T' in parentheses, indicating they are to be played or sung as orienting progressions.

Example 7: Dictation lesson no. 1.

A dictation lesson is given in Example 7. Although this example is given with direct stepwise connections between motives, it is also possible to displace some of them by an octave, thereby reinforcing the octave equivalence of scale degree function. Notice also the symbol (T), which here serves as a prompt for the instructor to either play or have students sing an orienting progression. Since these motives are most typically dictated on the piano, the most efficient option is to play an orienting progression at these points in the lesson.

If all prompts are to be answered before the correct answers are announced by the instructor then the feedback students receive is somewhat removed from the event. The student must wait for all of the prompts to be heard and answered before learning of their success or failure on the very first one. However, it is possible to turn such a problem into a pedagogical opportunity. One rather effective way of gradually introducing greater difficulty into a single set of prompts is to give fewer opportunities for tonal orientation as the set progresses. For example, in a ten-prompt dictation set the instructor might play an orienting progression before nos. 1, 2, 4, and 7 (as shown in Example 7), thereby requiring students to maintain the sense of tonic for a longer amount of time and across an increasing number of prompts. This effectively divides the ten-prompt set into mini-sets of gradually increasing size and difficulty. As with many of the variables in these exercises,

the frequency of orientation is ultimately at the discretion of the instructor, so it is advisable that advanced classes should hear an orienting progression less frequently (e.g., only before nos. 1 and 5).

1. C, do-la 2. B, sol-mi 3. A, do-mi 4. D, fa-la 5. B, ti-sol

6. A, do-mi 7. D, re-fa 8. A, ti-re 9. C, fa-re 10. B, mi-do^[sol]

11. C, do-la 12. B, sol-mi 13. A, do-mi 14. D, fa-la 15. B, ti-sol^[do]

16. A, do-mi 17. D, re-fa 18. A, ti-re 19. C, fa-re 20. B, mi-do

Example 8: Singing lesson no. 3, with modulation.

ADVANCED TECHNIQUES

One of the most obvious and natural extensions of PWM is in the practice of singing modulations. Example 8 provides a sample singing lesson that consists of a ten-motive set that is sung twice through (no. 1 = no. 11, etc.), with modulations at two points in the lesson. The modulations are shown as pivots in the solfège syllables while the notation simply reflects the change in key with a new key signature. In order to effect these modulations students may sing an orienting melody out loud. In advanced courses they may audiate an orienting melody, after which they should attempt to sing nos. 11 and 16 out loud.

Several details in this lesson are worth mentioning. First, these modulations will be relatively easy to perform because the pivots between keys involve the two most stable scale degrees, *do* and *sol*, both of which are easy to audiate. Second, each of the motives that is to be sung after modulating begins on the new *do*. Third, the tonal path of this lesson is from A $\flat$ to D $\flat$ and back to A $\flat$, which can provide an excellent opportunity to check the accuracy of the student/class in holding pitch from the beginning of the lesson to

the end. Finally, students will immediately notice that nos. 2 and 3 both end on *mi* and will instinctively use that information to gauge their success. ("I recognize that note because the last one ended on it too.")

It is worth observing that the ability to hear and recognize scale degrees that are held in common between exercises is exactly the type of pitch connections that we encourage our students to make as a natural part of musicianship. A greater facility with the recognition of scale degrees can only serve to enhance a student's ability to recognize medium- and long-range pitch connections within a given piece and such observations are integral to a complete analysis.

Example 9: Singing lesson no. 4, with difficult modulations.

A far more challenging take on this basic modulation exercise is given in Example 9. Several elements have been altered in order to raise the level of difficulty in this lesson, one of which is the frequency of the modulations. The most challenging aspect, however, involves the scale degrees on which the pivots take place. The first modulation asks students to reinterpret *do* as *mi*, a pivot that effects a modulation to a chromatic submediant ($\flat$ VI). This is a difficult modulation to audiate, but it is mitigated somewhat by the fact that the next motive begins on the new *do*, providing a stable scale degree on which to commence the new key. The modulation following no. 16, however, provides no such stability. Not one of

the three scale degrees involved (the last note of no. 16, the scale degree that pitch is to be reinterpreted as, and the first note of no. 17) is a member of the tonic triad.

A lesson on modulations need not be as elaborate as those provided in Examples 8 and 9. A simpler take on this skill would be to have the class sing any form of the motive on *do* in C major (as established using a piano, if the instructor does not have perfect pitch), and then have them sing that motive again on the same scale degree, but in a different key. One could explore the closely related keys of F major and G major, or explore more remote relationships, such as D major or A $\flat$ major. In addition to being simpler to plan, this technique has the advantage of taking up less class time.

A second extension of *PWM* is to include various chromatic inflections of these diatonic scale degrees. It would be a simple thing to introduce chromatic neighbor tones into this exercise, but consider also the employment of *fi*, which implies a motion to the dominant through V/V harmony, *le*, which engages modal mixture when it appears within the major mode, and *ra*, which signifies Neapolitan harmony. These are just a few of the obvious possibilities that result from integrating *PWM* with relatively basic chromaticism. Another idea is to extend *PWM* into the careful study of the diatonic modes. A third idea is to do these exercises with arpeggiated triads or seventh chords, requiring students to recognize the scale degrees within each chord and to provide its Roman numeral.

It would also be possible to employ *PWM* in simple call and response lessons. In its most basic form, such a lesson would include students simply repeating what you sing, perhaps supplying the solfège that you omitted. Another form would be to have students work in pairs where one of them sings a motive and the other responds with the same motive, but a step below or above the original. These exercises would improve not just schematic familiarity with the diatonic scale, but pitch matching skills and facility with solfège. Furthermore, these exercises can be taken as an introduction to improvisation, the study of which frequently begins with call and response exercises.

Yet another extension of *PWM* would be to employ it as a part of keyboard skills. Students could be called upon to play various motive forms at various diatonic pitch levels in a given key, or they could work in pairs in a call-and-response exercise. Non-pianists would benefit from being able to focus on a single line (perhaps

played by both hands, an octave apart) as they gain familiarity with the topography of the keyboard and with transposition skills. Moreover, this exercise would be invaluable to all students because working at the keyboard provides an experience that is visual, aural, and kinesthetic, thereby reaching various cognitive processing centers all at once.

Each one of the exercises described above engages the core concept of *PWM*, which is the recognition and recall of diatonic scale degrees that are realized in the form of brief melodic figures. Although these exercises are more than enough to keep a class busy and learning, especially given all of the other skills that need to be practiced on a daily basis, the reader should by no means consider this coverage exhaustive. The core concept of *PWM* is remarkably flexible and allows for almost limitless variations on the basic singing and/or dictation model. No doubt the reader has thought of at least one novel adaptation while considering the options I have provided and instructors are encouraged to be creative in the ways that they choose to implement these exercises in their own classrooms.

SUMMARY & CONCLUSIONS

Music cognition research has established contour and tonality as the two fundamental schemas involved in the processing and memory of melodies. As such, these two areas are worthy of focused attention as students work to improve not just their performance on melodic dictation exercises, but also their metacognitive skills as musicians. The exercises described in this article are designed to focus on tonality in general, and the recognition and reproduction of scale degrees specifically. Given the importance of repetition in the acquisition of learning (through a process known as statistical learning) it is clear that students will benefit from the carefully controlled environment of *PWM*, during which they can give full attention to engaging and reinforcing their existing schema for the diatonic scale.

Deliberate training in aural skills enables students to make detailed and meaningful observations about music, whether these observations are for the enhancement of a performance or for analysis *per se*. Returning to the student error shown in Example 1b, the original point was that the true nature of the error was a failure to recognize *re*, as such. To take it a step further, though, a

failure to recognize *re* further prevents the student from hearing the structural ascent that occurs in the first three downbeats, in which *do* ascends through *re* on its way to *mi* (Example 10). An observation such as this provides students with a melodic scaffold, enabling them to fill in details around these structural tones.



Example 10: Reprise of Example 1a, showing stepwise ascent on the first three downbeats.

Furthermore, as Michael Rogers writes, “Success in melodic dictation does not depend on mastery of intervals or other fragments. ... The goal in melodic hearing is to comprehend the local movement of pitches through a system of structural points of reference.”²³ This type of musical comprehension is enhanced by *Playing With Motives*, which improves student familiarity with the topography of the diatonic scale and provides a valuable step in the direction of mature and thoughtful musicianship.

²³ Rogers, *Teaching Approaches*, 110.

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Serving Musicians With Visual Impairment in the College Classroom: Building Bridges Toward Understanding

BY JEFFREY L. GILLESPIE

INTRODUCTION

Music instructors at the college level are often at a disadvantage when teaching students who have disabilities, because we tend to lack sufficient knowledge and training in how to best serve their needs. Training is likely to come through trial and error in the classroom or through personal experience with family members or friends who have disabilities. With an ever-increasing number of students with disabilities entering our classrooms, it is crucial that we learn as much as possible about the pedagogical issues surrounding such students. I was unprepared several years ago when two students with visual impairment (VI) joined my theory and aural skills classes in the same year.¹ I soon realized just how little I knew about teaching a musician with VI and was immediately motivated to learn more, to be better prepared the next time a visually impaired student entered my classroom. I have spent the last several years gathering information, resources, and advice from a variety of sources. This article represents the highlights, and though it focuses specifically on musicians with VI, broader application may be extended to our teaching of all students. It is particularly important for music theory instructors to be informed, because some of the greatest challenges related to accessibility are likely to occur in the theory classroom.

¹To avoid confusion of terminology, for this paper, the term “visual impairment” (abbreviated “VI”) will be used most often, describing all degrees of vision loss, including all persons whose visual limitations require accommodations beyond eyeglasses in order to read. The term “blind” will be used in some instances, primarily when quoted persons or titles of sources use the term. A variety of terms are often used to describe vision loss: partially sighted, legally blind, totally blind, blind, low vision, limited vision, and visual impairment. For definitions of terms, see: “Visual Impairment, Including Blindness: NICHCY Disability Fact Sheet 13,” National Dissemination Center for Children with Disabilities, November 2012, <http://nichcy.org/disability/specific/visualimpairment>.

METHODOLOGY AND FIELD SOURCES

My methodology for gathering information was through field study and interviews from 2008-2013 with 36 experts: music students and instructors with VI, sighted instructors of students with VI, administrators and staff of several leading schools for musicians with VI, and other authorities. Most interviews were connected with visits to two schools: The Summer Institute for Blind College-Bound Musicians, and The Filomen M. D'Agostino Greenberg Music School of Lighthouse International.

In the summer of 2008, I visited the Summer Institute for Blind College-Bound Musicians, a week-long program housed at the Overbrook School for the Blind in Philadelphia. The goal of the Summer Institute is to prepare musicians who are visually impaired for music study at the college level. The students receive training in the braille music code, technology needed for working with music transcription, and the basics of music theory and aural skills. The Summer Institute has been offered annually since 1996, and its director David Goldstein is also Director of the National Resource Center for Blind Musicians, a division of Neighborhood Studios of Fairfield County in Bridgeport, Connecticut. During my week at the Summer Institute, I not only conducted interviews and observations, but I also served as an assistant in a variety of ways and became a part of the community. There were six students enrolled that summer. Two students were incoming high school seniors, two were recent high school graduates, and two were already in college. There were four blind instructors and one sighted, and I was one of four additional sighted assistants. Our entire group lived in a dormitory on the Overbrook campus, and we socialized, ate meals, and worked together in community during that week. As one of five sighted people living with 10 blind, I was in the minority. My immersion in this remarkable community helped me gain a greater understanding of the challenges, the joys, the pace, and the lifestyle of people with VI.

In March of 2009, I spent a week interviewing and observing at the Filomen M. D'Agostino Greenberg Music School of Lighthouse International, in New York City, under the direction of Dr. Leslie Jones. The Greenberg Music School is a community arts school for all ages, offering private lessons on various instruments, composition, music technology, jazz improvisation, and braille music instruction, plus group classes in dance and movement,

percussion improvisation, and choir. About the Greenberg Music School, Jones states: "Vision loss plays an integral role in the approach and accessibility that is employed in learning and teaching, but vision loss is secondary to music making. Music education standards and the high quality of teaching/performing are never compromised because of the disability."² During my stay, I interviewed both instructors and students, and I observed lessons and classes for all ages and levels of expertise.

All 36 interviews were conducted in person with the exception of four e-mail interviews, one video conference, two phone interviews, and several follow-ups by phone or e-mail. Of the 36 interviewed, 25 were instructors and administrators. Of these 25, 11 were sighted and 14 had varying degrees of VI. The instructors taught classes in braille music, technology (related to composition and transcription), music composition, jazz improvisation, percussion, choir, aural skills, and music education for young children; plus private lessons in piano, flute, voice, trumpet, clarinet, and guitar. In addition to interviews, I observed private lessons and classes taught by these instructors. A total of 11 students with VI were interviewed, including three adults, one of whom earned a Ph.D. in music education. The other two adult students were involved in choir as amateurs. At the time of the initial interviews, the remaining students may be described as follows: two college juniors not majoring in music; two college sophomores majoring in music; two recent high school graduates, ready to enter college as piano majors; and two students entering their senior year in high school, with plans to be college music majors. I also conducted follow-up interviews with three of these students several years after the first interview.

Appendices A and B provide the lists of questions for the instructor and student interviews, respectively. Despite the predetermined questions, interviews were conducted with considerable flexibility. For some interviews, questions were omitted or others were added according to the needs of the discussion. In some cases, interviewees shared information not prompted by any questions from the interviewer.³

² Leslie Jones, e-mail message to author, March 10, 2010.

³ Specialized questions were asked of administrators and several others interviewed, and those questions are not reproduced here.

INFORMATION AND ADVICE FROM EXPERTS

The heart of this project is the wealth of information and advice shared by people who know this subject best – musicians who have lived their lives with visual impairment, who teach musicians with visual impairment, or who have administrative experience leading schools for such musicians. All persons interviewed were eager to offer recommendations to help college music theory teachers provide the best instruction to students with VI. We begin with a discussion of literacy issues, followed by the importance of inclusion, basics of disability law, the need for advance preparation by the instructor, several success stories, and advice on a variety of other pertinent topics.

LITERACY ISSUES

The Illiteracy Problem. To be prepared to teach college students with visual impairment, first we must be knowledgeable of literacy issues that may create challenges at the college level. In addition to the literary braille code, there is a braille music code. (See the Bibliography for relevant sources.) We cannot assume a blind college student will be fluent in either of these codes. According to the National Federation of the Blind (NFB), 90 percent of children who are blind are not being taught to read braille, even though braille is still the only equivalent to print for a blind person. According to the NFB, the three primary reasons for this problem include a shortage of braille teachers, a lack of adequate teacher training, and an attitude from many educators that braille instruction is not necessary.⁴ This situation is fueled in part by the increased availability of electronic screen readers, which allow a person to hear a text rather than read it. Although schools for the blind have braille teachers (including teachers of the braille music code), in recent years such schools have begun serving primarily students with multiple handicaps, while capable blind students are mainstreamed into schools where braille teachers are not available. As a result, students who are capable of attending college and perhaps becoming professional musicians are not as likely to have received training in braille music as they would have years ago in

⁴“Braille Initiative,” National Federation of the Blind (NFB), 2013, <http://nfb.org/braille-initiative>.

a school for the blind.⁵ Richard Taesch, prominent music educator, certified braille transcriber, and braille music instructor, explains that while technology has created an increase in the production of braille music scores, and while “braille music has been on a dramatic upswing for at least two decades now,” there still are not enough teachers or courses available to provide training in braille music to those who need it.⁶

Bill McCann, founder of Dancing Dots Braille Music Technology, describes what he calls a scenario that happens all too often:

A young student who reads literary braille wants to join the school band or other ensemble in the fourth or fifth grade. We will call him/her Star. Nobody at Star’s local school, where Star is likely the only blind student, knows that there is even a system for reading music in braille or, if they do know about it, they are far too apprehensive and overworked to consider introducing the system to the young student. Usually, the student is invited to listen to the other members of the flute or trumpet section and, because Star has an excellent ear (usually perfect pitch), combined with a very good memory and motivation to be part of the group, Star excels. Pretty soon, Star is playing solos and receiving lots of positive feedback from parents, teachers and classmates. Sometime during Star’s junior or senior year of high school, a forward-thinking teacher or other professional takes Star aside and says something like: “Star, you should consider studying music in college after graduation. There is a system

⁵ Braille music literacy challenges are discussed in the following sources: Anne Marie De Zeeuw, “Teaching College Music Theory Classes That Include Blind Students,” *College Music Symposium* 17/2 (Fall 1977): 92. Shersten Johnson, “Notational Systems and Conceptualizing Music: A Case Study of Print and Braille Notation,” *Music Theory Online (MTO)* 15/3-4 (August 2009): Section 3, <http://www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.johnson.html>. David Pacun, “Reflections on and Some Recommendations for Visually Impaired Students,” *Music Theory Online (MTO)* 15/3-4 (August 2009): Section 16, <http://www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.pacun.html>.

⁶ Richard Taesch, e-mail message to author, February 18, 2012.

for reading braille music and we think you should learn it so that you can do well in college.” Now what is Star to think? For all these years, everyone has been telling Star how gifted he/she is, and Star has never had any music in braille. Star decides that braille music is not a good investment of time and effort.

Star auditions for admission into a college music program and wows the committee with a strong performance. All agree that Star should be admitted as a music major. Nobody asks Star how he/she will meet the requirements for reading music and for writing music down in class. Star does not know enough to realize that the fact he/she cannot read or write music could make or break his/her chances to obtain a music degree. Class begins. Star’s teachers want Star to read printed music and notate responses. The dedicated teachers who can give Star extra time try to invent ways for Star to read and write music. Star cannot devise an effective coping mechanism and falls even further behind in course work.

At this point, three possible scenarios unfold:

1. Star changes majors.
2. Star withdraws entirely from school.
3. Star rethinks his/her approach and decides to learn some braille music skills and technology skills that will allow her/him to succeed.

Option 1 is disappointing as Star loves music and has talent. But at least, Star is still working toward a degree and a career goal. Option 2 is potentially devastating to Star and really tragic as, again, Star loves music, has talent and motivation. Lack of planning, preparation and understanding has had a devastating effect. Option 3 has worked for a number of people but it is not simple, adds stress and expense, and can sometimes be too little, too late.⁷

⁷Bill McCann, e-mail message to author, February 25, 2012.

Braille Music Training Opportunities. There are two primary challenges to mastering braille music and avoiding a scenario like the one McCann describes: 1) Finding a teacher or a class that offers training, and 2) Starting early enough with this training, so a serious music student will be literate by college. According to Goldstein, the Summer Institute was started in 1996 because musicians who had earned praise in high school were “getting stuck” when faced with sight reading music, and there was no available program in place to help them transition from high school into college.⁸ In recent years, other programs have emerged, such as the Braille Beats Fine Arts Program in Lapeer, Michigan. Braille Beats provides a variety of experiences for ages nine through young adults, including classes in braille music, ear training, and performance opportunities. This week-long summer camp added a post-secondary component in 2010 to support college and career-level students. Berklee College of Music, in Boston, offers a course on assistive music technology for blind students, in conjunction with its five-week Summer Performance Program.⁹ (See the “Music Camps and Summer Programs” section of the Bibliography.)

While these music camps and training opportunities are clearly making a difference in better preparing musicians with VI for serious music study, they primarily provide an introduction to braille music and do not result in fluency, nor do they serve the needs of all students. Goldstein indicates he still receives phone calls “maybe six or seven times a year” from panicked teachers, students, or parents who need advice because the student is not prepared for studying music in college, or the teacher does not know what to do about the situation.¹⁰

What we can do as teachers is to advocate for early training and to guide any serious music students we encounter to receive braille music training as early as possible. Sighted instructors can even help with the training. Excellent books by Bettye Krolick and Richard Taesch, listed in the Bibliography, are available in braille and printed formats for one-on-one training, so a sighted instructor may help even a very young student learn the code. According to McCann, schools may contract with his Dancing Dots company for phone training with an individual student at a specified time during the school day. During a session, the teacher and student

⁸David Goldstein, phone interview with author, February 23, 2010.

⁹David Goldstein, “Music Camps and Summer Programs,” Music Education Network for the Visually Impaired (MENVI) Newsletter 36 (2012), <http://www.menvi.org/newsletters/news36.html>.

¹⁰David Goldstein, e-mail message to author, February 9, 2012.

read from the same book, performing melodies and rhythms while connected with a Dancing Dots consultant.¹¹

McCann is presently developing and testing the Music Touch series, a forthcoming project from Dancing Dots, which utilizes Talking Tactile Tablet hardware to teach braille music along with music fundamentals. The Talking Tactile Tablet connects to a computer and allows a user to touch symbols and regions of a raised drawing and receive audio feedback.¹² The first entry of the Music Touch series presents lessons and exercises from Taesch's *An Introduction to Music for the Blind Student* in a multimedia format.¹³ Students are introduced to topics such as scales and chords while learning how these constructs are represented in braille music. When a braille symbol is touched, audio provides information on its musical meaning. For example, when a dotted half note is located, there is an audio explanation of how dotted half notes are built in braille music. Interactive activities allow students to answer a variety of questions about music and the braille music system. Some questions require written responses via a special braille keyboard that is included, and the student is given audio feedback on whether the response is correct or incorrect. The program also reports the student's score for an activity by listing the number of correct answers and the number of attempts. Other activities include reading a brailled scale while audio provides the solfège and sounding pitches of that scale. After listening to the audio representation of the pitches, the student then reads the melody and sings with solfège or scale degree numbers, while the audio provides an accompaniment. By listening first and then singing along, both literacy and aural recognition skills are developed. The program also includes a tactile simulation of a piano keyboard, built from full braille cells that are arranged to create the black and white keys. With this tactile keyboard, the student is then instructed to play up and down various scales. Hand position and fingering for playing scales are not addressed, since the Talking Tactile Tablet can only accept one press at a time. Though this is no substitute for playing a real piano, this keyboard feature reinforces other concepts being introduced. The Music Touch series should

¹¹ Bill McCann, e-mail message to author, February 25, 2012.

¹² For more information on the Talking Tactile Tablet and other tactile devices, see the website of Touch Graphics, Inc., www.touchgraphics.com.

¹³ Richard Taesch, *An Introduction to Music for the Blind Student* (Valley Forge, PA: Dancing Dots, 2000).

have great potential for instruction in braille music and basic music fundamentals.¹⁴

Other agencies and individuals offer training in braille music as well, and they may be located through online searching or by consulting contacts listed in the Bibliography. The key is to find a means in which training can occur, and to start as early as possible, for it will take considerable time to become a fluent reader.

Braille Music Literacy – Is it Necessary? Braille music fluency may not be a necessity in some music professions, as explained by Chi Gook Kim, who teaches the assistive music technology class for visually impaired students at the Berklee College of Music. Though he is an advocate for braille music literacy, Kim states that professionals who compose or work in audio production can achieve success without knowing braille music. Jazz or pop musicians who rely on improvisation and interpretation skills may be able to function well through listening alone, without knowledge of braille music. This is especially the case with rhythm section players (piano/bass/guitar/drums) in smaller ensembles that play jazz standards. Kim emphasizes, however, that braille music literacy is helpful for jazz/pop instrumentalists who play specifically notated parts in larger ensembles, such as woodwind or brass players in a big band. Kim revealed that he began learning braille music in first grade and used it with early piano study, but in college, the only time he used braille music was during ear training classes. He still believes that braille music helps musicians to understand music concepts better, particularly concepts related to rhythm.¹⁵

According to Taesch, a musician who does not read music has limited means for personal interpretation. He states, "To learn solely by using the finished product (pre-recorded music) as a model, denies students access to their own unique interpretive process. There must be a vehicle separate from the finished product. The medium itself must be flexible and capable of varied application." Taesch goes so far to claim that learning "by listening only is merely a form of plagiarism."¹⁶ In Taesch's view, the listener is essentially stealing another performer's interpretation of the printed score,

¹⁴ Bill McCann, video conference with author, February 18, 2013.

¹⁵ Chi Gook Kim, e-mail message to author, November 29, 2012.

¹⁶ Richard Taesch, "The Literacy Movement – What Does Braille Music Have To Do With It?" 1993, http://www.blindmusicstudent.org/Articles/taesch_literacy.htm.

leaving little or no room for original interpretation. Taesch does not mention that in jazz and rock, for example, performing another musician's interpretation or improvisation is accepted practice.

Jake¹⁷, a Summer Institute student I interviewed, arrived at the Institute having memorized an entire Mozart Flute Concerto movement from repeated hearings of a single recorded performance. Though Jake had been studying braille music for three years, he was not a fluent reader and had no access to the printed Mozart score. Not only had Jake learned another performer's interpretation of the music, but he also had learned numerous errors. Some of these errors were the result of mishearing on Jake's part, and others were ornamentation and rhythm errors in the recorded performance. With the braille score finally in hand during the Summer Institute, Jake was able to make practical use of his braille music skills to correct the errors he had learned and to begin to make his own interpretive performance decisions apart from the recording.

Karen Gearreald, a braille music instructor at the Summer Institute, states, "The more serious students are about music, the more they need braille music to add to their arsenal. If a student argues, 'Well, I have a good ear'... We aren't taking your ear away, but adding to your arsenal, by teaching you braille music. Some students will be better braille music readers than others. You still should study it to the max."¹⁸

Literacy Across Braille and Print Systems. In order to teach a student who uses the braille music system, it is not necessary for sighted instructors to be able to read braille music, but it is crucial to have a basic understanding of the significant differences between braille music and printed music. For example, in braille music there are no staves or clefs. Instead, a single six-dot braille cell indicates the pitch class and rhythmic value, and a separate cell indicates the octave designation number for that pitch. It is important for instructors to know these details so that in the classroom, language may be used that the blind student understands. Also, braille music is a linear system in which all aspects of the printed score are represented in cells that are read one at a time from left to right. While pitch and rhythm are included together in one cell,

¹⁷For this document, a first name pseudonym is used for any person who has not granted permission to use the real name.

¹⁸Karen Gearreald, in-person interview with author, July 12, 2008.

separate cells provide information on meter, dynamics, tempo, articulation, fingering, text, harmonic structures, and numerous other details. Instructors must understand that while both fingers and eyes may read fluently, the manner in which they read is quite different. Articles by de Zeeuw and Johnson¹⁹ provide excellent details on notational differences as well as pedagogical issues to consider when working with students who use braille music. Johnson includes an insightful discussion of a brailled Bach fugue score and the peculiarities of alignment that are typical for music with multiple lines.²⁰ De Zeeuw discusses the overall “picture” of a musical line that a printed score provides a sighted reader, a picture that a braille music reader cannot obtain by reading a linear braille score.²¹

A blind student should have at least some understanding of the symbols and layout of printed music. Kim explains that this knowledge is helpful when communicating with sighted musicians and when arranging or composing music with notation software.²² McCann stresses that after completing studies at the college level, a blind musician may have the opportunity to teach a sighted student and will need to be able to communicate to that student using the language of printed music.²³ Stephanie Pieck, a prominent blind pianist, composer, and teacher based in Schenectady, New York, explains that blindness is a “low-incidence disability – there aren’t a lot of cases of it in the general population. So, if blind musicians expect to function in mainstream musical society, they will have to deal with sighted musicians.” Pieck reveals that 98 percent of her students are sighted, and of these, 90 percent arrive with no music background. She states that if she is not capable of explaining to sighted students what they need to be looking for on the printed page, or if she is unable to understand a symbol that a student is describing to her, then she “can’t teach them, or the quality of my teaching suffers.”²⁴ To teach blind musicians about print music symbols, some teachers utilize tactile materials, such as boards with

¹⁹ See the Bibliography and earlier citation.

²⁰ Johnson, “Notational Systems,” sections 18-19.

²¹ De Zeeuw, “Teaching College Music Theory Classes,” 91.

²² Chi Gook Kim, e-mail message to author, November 29, 2012.

²³ Bill McCann, video conference with author, February 18, 2013.

²⁴ Stephanie Pieck, e-mail message to author, June 15, 2013.

raised lines and figures, so that they may gain an understanding of printed notation by feeling the symbols. David Pacun has creatively used such tactile materials as Velcro to illustrate notation symbols, masking tape for conceptualizing phrasing and harmonic progression, and Lego blocks to diagram rhythmic concepts.²⁵ McCann has plans to expand the goals of his Music Touch series for the Talking Tactile Tablet, discussed earlier, to include tactile images of the printed music score. He even includes a few printed music symbols, such as a treble clef, in the first level of the series.²⁶ The best resource Pieck has found that provides access to raised-line drawings of printed notation is Eric Taylor's *AB Guide to Music Theory, Part I and Part II*, available in braille with workbooks and supplements through the Royal National Institute of Blind People (RNIB).²⁷ According to Pieck, the supplements are particularly useful because they contain clearly labeled, raised drawings that show placement of basic symbols such as stems and flags on notes, the arrangement of sharps and flats in key signatures, as well as complex figures such as Baroque ornamentation. Pieck also recommends the books themselves because they provide detailed explanations of printed music symbols. The Taylor sources are especially recommended for college students or music teachers (private or classroom instructors, choral or band directors) who need resources to help clarify particulars of printed scores.²⁸

INCLUSION

As teachers we strive for full participation and engagement from all students in the classroom. If a task involves visual analysis of a score, we expect each student to be studying with score in hand. When sight singing in aural skills class or rehearsing in an ensemble, we expect all students to participate fully. It is very easy for blind students to be excluded from any number of classroom

²⁵ Pacun, "Reflections," sections 10-11.

²⁶ Bill McCann, video conference with author, February 18, 2013.

²⁷ Eric Taylor, *The AB Guide to Music Theory: Part I and Part II* (London: Associated Board of the Royal Schools of Music, 1989-91). Braille versions with additional diagram supplements available through the Royal National Institute of Blind People (RNIB), <http://www.rnib.org.uk/Pages/Home.aspx>.

²⁸ Stephanie Pieck, e-mail message to author, June 15, 2013.

activities for a variety of reasons, most likely because we don't know how to fully include them. By educating ourselves on how to better facilitate inclusion, we are more likely to provide as rich an educational experience for the blind student as for other students.

Sabrina, a Summer Institute student, shared with me that she felt excluded from a sight reading activity during high school chorus, because she did not know the braille music code. She managed to learn the choir's performance repertoire by listening to recordings, reading the brailled text, and relying on the director's verbal explanations of pitches and rhythms.²⁹ This methodology did not work for the sight reading task, because spontaneous reading was required, and Sabrina could not read. If a well-informed music teacher had encouraged her to learn the braille music code a few years earlier, she could have been included in this sight reading activity with braille music in hand.

After completing several years of college, Sabrina shared some valuable information for sighted instructors regarding in-class score reading. It is not enough simply to provide a student who is literate in braille music with a braille score at the time it is needed in class. Sabrina described a music history class in which an accommodating teacher provided her with braille music scores. She had difficulty during class because the teacher expected her to relate large sections of music with other sections and expected her to mark the scores. The teacher seemed to think that because Sabrina could read braille music and had the scores in hand, she could keep up like the other students.³⁰

Not only do we need to provide braille music scores to a student who is literate in braille music, but we have to be sure our class lectures and the tasks we assign students to complete during class are designed to allow the student to participate productively. If extensive score study is planned for a class session, it is important to provide the student with the score and the questions in advance, or perhaps provide that student with only the necessary portions of the braille score to minimize the need to search for passages within a larger score. Pacun strongly recommends simplifying scores as much as possible for the blind student in theory classes and on exams.³¹ He also suggests beginning with species counterpoint

²⁹ Sabrina, in-person interview with author, July 15, 2008.

³⁰ Sabrina, phone interview with author, December 17, 2011.

³¹ In a later section subtitled "Equity," fairness and maintaining high

as a way to merge the complexities of braille music reading with beginning theory concepts. He mentions that notation software programs allow for modification of score complexity, so that a simplified version of a score passage may then be transcribed into braille for a student to easily manage. Pacun also recommends "teaching techniques that will enable the student to learn and digest musical scores quickly. Here, theory proves directly relevant: motivic and harmonic principles and concepts provide precise methods for students to 'chunk' scores into constituent parts. Hence, theory becomes a means to learn music, not simply analyze it."³² Though these recommendations are specific to teaching blind students, such pedagogical strategies can benefit every student in the theory classroom.

The Summer Institute's "Touch and Sing" class, which models a college aural skills class, illustrates how to successfully accommodate and communicate with visually impaired students. In the Touch and Sing class, students put to practical use the braille music reading skills they have been learning during the week, as they sight sing melodies transcribed into the braille music code. Students also practice completing melodic dictation exercises by brailleing the melody they hear, using a simple brailleing device students already use for note taking. Since instructor Melissa Wagner and all the students were blind, this was not an example of inclusion. However, the necessary steps required for successful inclusion were in evidence. All the students were supplied with braille music in advance, they had the necessary equipment to type braille responses, and they had an instructor who knew what the students needed and how to communicate with them. In a typical aural skills classroom, a quick pace is desired to accomplish a variety of tasks. Instructors are likely to utilize the board or document camera to quickly project melodies for sight singing or a basic grid for a dictation exercise. With these visual aids, we can clearly disseminate information and also save time from excessive speaking. Also, students are able to get out of their seats and do board work, stand to sing, or arrange themselves into small groups. The same is true for written theory courses. In the Touch and Sing class, there was no chalkboard or screen with visual information, and Wagner had to verbalize all instructions to prepare students

standards will be addressed as they relate to accommodations and skills assessment for visually impaired students.

³² Pacun, "Reflections," section 22.

for melodic dictation exercises, such as indicating key, meter, and number of measures. This required a slower pace than I was accustomed to in an aural skills class. Also, the students had to remain seated at their desks for all activities. Wagner did have an advantage over a sighted instructor, because she was teaching students who were blind like herself. Also, as a braille reader, she could easily circulate and read each student's dictation work. To immediately check work, a sighted instructor would simply have to ask the student to verbally describe what was brailled.

In order for us to successfully include one visually impaired student in a class of sighted students, perhaps we should imagine our class was comprised of all visually impaired students, like the Touch and Sing class. In this way, we would have no choice but to communicate effectively with the blind student in our class. In reality, we will be teaching both visual and non-visual learners. We cannot ignore the needs of either type, but we are more likely to forget about the VI student without continually reminding ourselves. We should provide information on the board for visual learners, but we need to verbalize for those who benefit from hearing. Lesson plans, lecture notes, handouts, additional information provided visually during class – all this information must be provided to the VI student before or after class in electronic format so the student can read through a screen reader. An assigned note taker can be helpful, particularly if there is new information presented in class that is not communicated electronically to the student. We should also be sensitive to the mobility limitations of the student when we ask the class to engage in activities that require relocating, such as board work or small group activities, because that student may easily become disconnected from the rest of the class. Since the degree of individual attention we can provide during class is limited, we should also arrange to meet with the student for one or two private sessions per week.

DISABILITY LAW

Along with discussion of inclusion and accommodation, our responsibilities to the law should be stressed. Section 504 of the Rehabilitation Act of 1973 states that “no qualified individuals with a disability in the United States shall be excluded from, denied the benefits of, or be subjected to discrimination under” any program or activity that receives Federal funding.³³ Section 504 also states that

³³ “A Guide to Disability Rights Laws,” U.S. Department of Justice,

“a recipient (such as a postsecondary school) shall take such steps as are necessary to ensure that no handicapped student is denied the benefits of, excluded from participation in, or otherwise subjected to discrimination under the education program or activity operated by the recipient because of the absence of educational auxiliary aids for students with impaired sensory, manual, or speaking skills.” Title III of the Americans with Disabilities Act of 1990 (ADA) states that “a public entity shall furnish appropriate auxiliary aids and services where necessary to afford an individual with a disability an equal opportunity to participate in, and enjoy the benefits of, a service, program, or activity conducted by a public entity.”³⁴ As instructors we are obligated to examine all in-class activities, homework assignments, projects, exams, and course materials for accessibility, including textbooks, online resources, music notation software, ear training software, and supplemental software that accompanies textbooks. If there is a barrier to access, then some means for removing that barrier must be developed so that effective communication can take place.

We must make every effort to determine alternative methodologies to meet course objectives, and we cannot simply waive a course component because of its inaccessibility to the visually impaired student. However, a modification is not required if it would “fundamentally alter the goods, services, or operations of the public accommodation,” according to Title II of the ADA.³⁵ For example, a postsecondary school is not required to modify degree requirements to accommodate a disabled student if such modifications would compromise crucial components of that degree. Within the music theory curriculum, however, reasonable modifications should be attainable for visually impaired students without compromising course content.

The recent rise in online courses, hybrid courses, and online resources that supplement traditionally-designed courses has led to a dramatic increase in inaccessibility for people with visual

July 2009, www.ada.gov/cguide.htm.

³⁴ “Auxiliary Aids and Services for Postsecondary Students with Disabilities,” Office for Civil Rights (OCR), U.S. Department of Education, revised September 1998, last modified November 16, 2011, <http://www2.ed.gov/about/offices/list/ocr/docs/auxaids.html>.

³⁵ “Title III Highlights,” Disability Rights Section, Civil Rights Division, U.S. Department of Justice, accessed July 15, 2013, <http://www.ada.gov/t3hilight.htm>.

impairment.³⁶ Since online resources are often a component of music theory courses, we need to be aware of this growing problem, because we are obligated by law to provide access for all students or a comparable alternative for the disabled student. It would be wise to think about accessibility at the beginning stages of course design or when software options are being considered, so that roadblocks can be prevented instead of corrected later. There are resources and organizations available to help with designing accessible online material, such as AccessIT (the National Center on Accessible Information Technology in Education) and WebAIM (Web Accessibility in Mind).³⁷

It is the responsibility of the university's office of disability services to educate faculty members on the purpose of accommodations and our legal obligations. Complaints of unfair treatment or questions about accommodations may arise from a disabled student or a nondisabled peer, and instructors must be prepared to explain the decisions we make to accommodate the disabled student. To prepare ourselves for questions, we must educate ourselves on the basics of disability law and we must have a good working relationship with our school's office of disability services. It should be noted, however, that not every university provides exemplary disability services. When Janna Saslaw sought help teaching a new transfer student who was blind, she discovered that her university's Academic Resource Center did not have experience with music-related accommodations for blind students, nor did the largest local university in her area. Saslaw concluded, "The disability services offices of many universities are not well-equipped to advise music teachers on how to conduct the practical aspects of their classes with visually impaired students."³⁸

³⁶ Marc Parry, "Colleges Lock Out Blind Students Online," *The Chronicle of Higher Education*, December 12, 2010, <http://chronicle.com/article/Blind-Students-Demand-Access/125695/>.

³⁷ See these websites: National Center on Accessible Information Technology in Education (AccessIT), 2013, <http://www.washington.edu/accessit/webpslegal.html>. WebAIM: Web Accessibility in Mind, 2013, <http://webaim.org>.

³⁸ Janna Saslaw, "'Teaching Blind': Methods for Teaching Music Theory to Visually Impaired Students," *Music Theory Online (MTO)* 15/3-4 (August 2009): Section 5, <http://www.mtosmt.org/issues/mto.09.15.3/mto.09.15.3.saslaw.html>.

ADVANCE PREPARATION

Taesch advises students to “contact the campus at least one semester in advance of your enrollment, to touch base with the disabilities resource office, provide them with your documentation, and begin discussions about the accommodations you will require in order to be successful.”³⁹ Truthfully, at least a year of preparation time is needed for a school to be ready for a blind music student. As previously discussed, assessment of literacy skills must take place well in advance of the student’s admission into a college music program, in case remediation is needed. In addition, considerable time is needed for print materials and technological resources to be prepared to accommodate the student’s needs. We should also remember to include the student in the planning process. Michele Atterson, Director of Student Disability Services of Butler University, encourages us to “bring the student into the conversation. Ask the student, ‘Is this manageable for you? Do you have ideas to make this work?’”⁴⁰ This open communication with the student should continue beyond the initial planning stages, because further adjustments will likely be necessary as the student progresses.

Preparation for Braille Readers. Gearreald provides valuable information about the process of locating and preparing braille scores. She teaches braille music transcription for certification and teaches the braille music code to people who are both blind and sighted. Gearreald says teachers must let the student know what printed materials are needed as far in advance as possible, if that student requires braille. She recommends keeping the student involved in the music searching process, so that the student can learn to find materials independently of the teacher. According to Gearreald, the best resource for locating and accessing music scores and books is the National Library Service for the Blind and Physically Handicapped (NLS), through the Library of Congress.⁴¹ Another

³⁹ Richard Taesch, “A Blind Music Student’s College Survival Guide” (rev. 2008): 11. Free download available at: www.menvi.org/links.html.

⁴⁰ Michele Atterson, phone interview with author, April 26, 2013.

⁴¹ The NLS music collection contains more than 30,000 audio, braille, and large print music scores and texts, including many in electronic format. See “NLS Factsheets: Music Services for Blind and Physically Handicapped Individuals,” National Library Service for the Blind and Physically Handicapped (NLS), Library of Congress, June 2010, <http://>

excellent source is the Louis Database of Accessible Materials for People who are Blind or Visually Impaired (the "Louis Database"), maintained by the American Printing House for the Blind.⁴²

If music is not already transcribed into braille, a certified transcriber may be contacted to request transcription of a score or portion of a score. There are fewer than 40 certified braille music transcribers presently working in the United States⁴³, and the expense of transcription is approximately \$5-\$6 a braille page.⁴⁴ According to Goldstein, "sources and procedures for funding transcribers vary from state to state, school to school, and student to student. In theory, the school should foot the bill, but not all can, or they find that the services are much more expensive than anticipated and a limit is reached toward the middle of the school year." Goldstein explains that some state rehabilitation agencies, which help with college funding if they believe the student's major shows potential for a successful career, will include transcription funding into the student's financial package. Unfortunately, many students end up paying for transcription services themselves.⁴⁵ It is important for theory instructors to be aware of the potential burden placed on the institution and particularly the student, when determining what brailled repertoire we require the student to have. Requesting just a few bars of music will save time, energy, and money, if an entire composition is not needed.

Theory instructors should also be aware that not every published theory textbook is available in braille, and those that are available may not all be recent editions. If a request is made to transcribe a textbook into braille, it may take a year before that book is ready for the student. Thus, we need to know what is already available and

www.loc.gov/nls/reference/factsheets/music.html.

⁴² The Louis Database contains information on nearly 200,000 titles in accessible formats including braille music and textbooks, large print, sound recording, and electronic files. "Louis Database of Accessible Materials for People who are Blind or Visually Impaired," American Printing House for the Blind, 2012, <http://louis.aph.org/catalog/CategoryInfo.aspx?cid=152>.

⁴³ The current list of braille music transcribers is available through the National Library Service for the Blind and Physically Handicapped (NLS) at this link: <http://www.loc.gov/nls/music/circular4.html>.

⁴⁴ Karen Gearreald, in-person interview with author, July 12, 2008.

⁴⁵ David Goldstein, e-mail message to author, July 26, 2013.

how quickly materials can be obtained. In addition, we should be flexible enough to allow the student to use an older edition of the desired textbook if it is already available in braille, or even consider allowing the student to use a different textbook already brailled. Instructors should also find out what anthologies and scores are currently available in braille before making decisions about class repertoire.

For braille music readers, software is available for transcribing braille into printed music and vice versa. Dancing Dots offers the widely used GOODFEEL software suite that facilitates this process with quick turnaround time. The software is most useful for short score examples and homework exercises involving music notation. A sighted instructor first scans the score using the SharpEye scanning program or enters the notation manually using a notation software program. If SharpEye is used, a sighted musician must check for notation errors that are likely to occur through the scanning process. After editing, the GOODFEEL software creates the braille transcription, which can be embossed or e-mailed to the student. The GOODFEEL suite also provides the means for students to compose, edit, and print music composition assignments in a readable format for a sighted instructor. Notation software accessible to visually impaired musicians are Lime and Sibelius, although Sibelius is more problematic and less user-friendly. It is important to have a sighted musician on staff, trained in the use of this software, to manage all transcription work. We also must know where to find experienced consultants who can help our students and schools obtain these essential resources.⁴⁶

Preparation for Low Vision Readers. Assessing a student's needs can be particularly difficult for a partially-sighted student. Nathan, a piano instructor and recent college graduate, reported that in his undergraduate music classes, teachers incorrectly assumed because he had some vision and could "get around" on his own, he did not need extra assistance. Nathan did not communicate his needs to his instructors and instead relied on his classmates to keep him oriented.⁴⁷ We cannot assume that a partially-sighted student can

⁴⁶ Up-to-date details on available software and consultants may be found at these websites: National Resource Center for Blind Musicians, January 23, 2013, <http://www.blindmusicstudent.org/>. Dancing Dots, 2005, <http://www.dancingdots.com/main/index.htm>.

⁴⁷ Nathan, in-person interview with author, March 2009.

grasp everything discussed in class, even if the student does not have mobility challenges.

For a student with enough vision to be able to read printed music, there may be challenges with fluency of reading, depending on the degree of vision loss. If a score has to be significantly magnified, the student likely will be able to view only a small portion of it at one time. The student will need more time than sighted students to read the score and understand larger structural components of the music. Simply finding a specified location in a score will take extra time, and the student may become disoriented or lost in the searching process. The instructor should number every measure of a score, rather than just the first measure of each line, before a student with low vision is expected to read it.

For a student who reads from enlarged music scores, one challenge may involve maneuvering large sheets of paper as the music progresses, either in listening or in performance. Recent technology has been designed to help musicians with low vision overcome this challenge of reading multiple pages of enlarged music when performing from a score. The Lime Lighter device allows the performer to advance the music that is displayed on an electronic screen by pressing a foot pedal, while both hands are free to play an instrument.⁴⁸ Though this information is not directly applicable to the music theory classroom, the Lime Lighter could find its way into the theory classroom in the future. Plus, we may have opportunity to share this information with students, ensemble directors, and even disability service offices.

SUCCESS STORIES

With sufficient planning and resources, successful accommodation and inclusion are possible for a student with visual impairment. The following illustrations provide good models for what can be achieved.

I observed a rehearsal of an exemplary choral ensemble comprised of adults with visual impairment at the Filomen M. D'Agostino Greenberg Music School of Lighthouse International, as the group prepared for an upcoming concert at the Metropolitan Museum of Art. The singers used a variety of tools for learning the music prior to rehearsal and for reading the music during rehearsal. Of the nine singers using braille, seven were reading braille music

⁴⁸ For details on the Lime Lighter, contact www.dancingdots.com.

and text, and two were reading just braille text. Other singers read from large print copies of the scores. Most singers, if not all, had recordings to study at home in between rehearsals.⁴⁹ Through this combination of aural and score study, singers were able to learn the music extremely well. Though every singer was visually impaired, they each had differing needs for accommodation, and those needs were supplied effectively. Whether an entire class or ensemble is filled with students in the same category of disability, or a class has just one student with a disability, the key for success is knowing and providing what each student needs.

Recently at a large state institution, a student with visual impairment successfully completed the two-year music theory sequence required for music majors. I spoke with two of her theory instructors and one graduate assistant about their experiences with Molly. She was already a braille music reader, and because of her excellent aural skills, she received exemption from aural skills classes. Accommodations were needed for Molly's written theory courses, but there was some initial difficulty in receiving support for these needs from the music school. Gradually an excellent support system was provided through additional student aides and technology that allowed for braille transcription of music scores. A computer station was set up in the library specifically for Molly's use.

Throughout the theory sequence, assistance was provided by student aides in the classroom and during exams, technology aides (also students), and additional meetings with the primary instructor outside of class. A technology assistant was necessary each semester to transcribe printed music into braille and vice versa, using software described earlier, and to prepare braille text when needed. Since the technology assistant was a braille music reader, there was no need for the theory instructor to be literate in braille music. In-class student assistants were also employed most semesters to take class notes and assist during exams.

In the first year of Molly's theory sequence, the greatest challenge was getting brailled materials to her in advance of class, since there was more planning and preparation involved. In addition, the instructor had to adjust his teaching style by playing more musical examples on the piano and being more explicit verbally when indicating the location of passages being discussed. With more than 100 students in the class, it was sometimes a challenge to maintain these inclusive measures for Molly without slowing the pace. The

⁴⁹ Leslie Jones, e-mail message to author, March 12, 2010.

instructor met individually with Molly on a regular basis to provide additional guidance. In some cases, adaptations were needed with score annotations, because of software transcription limitations. For example, pivot chords could not be effectively labeled using braille. In these private sessions with Molly, the instructor would have her verbally indicate where pivot chords were located in the score.

With an increase in score study for the second year of music theory, more support was needed for Molly. A graduate work-study student knowledgeable in the braille music code worked 20 hours per week specifically managing score transcriptions for Molly, which often included proofreading for errors in transcription. A second aide (working 10 to 16 hours per week most semesters) helped prepare text materials, provided in-class guidance, and also met with Molly twice a week for one-on-one instruction. Though text materials were given to the aide at the start of each of the three to five units of the semester, sometimes there was a slight lag until everything was prepared. If an assigned text could not be transcribed into braille immediately, the second aide would transfer the text into a Word document and integrate prose descriptions of score examples or diagrams to give to the student. Thus, along with audio recordings for study, Molly was provided with a combination of braille music, brailled prose descriptions of score examples and diagrams, and brailled text.

Exams and assignments were modified for Molly in the second year because of the time-consuming demands involved with braille score study, while still maintaining objectives and assessment similar to the other students. Sighted students were required to complete separate written and listening exams, with both known and unknown scores. Molly was given a single exam heavily focused on listening, with all scores prepared in advance. The only unknown exam items were a few listening examples with general questions. Approximately 90 percent of the exam was prepared material. Exams were administered in a separate room with an aide present, and there was no time limit for completing the exam. Instructors modified homework assignments to allow Molly to respond in ways that were better for her, using her strengths in aural skills, composing, and piano. Molly was successful in her music theory courses, not only because of her own efforts, but because an effective team was working creatively to design an individualized plan for her success. When something was not working effectively, they tried other methods until something proved successful. They

also had funding and staffing to provide additional support for Molly, which may not always be available at every institution.

When Molly's sophomore theory instructor was asked if he would do things differently the next time, he revealed that he would not be so flexible with due dates on assignments. He found that Molly started taking advantage of this flexibility. For the final semester of theory, the instructor stated that he tried during the first half of the semester to keep things the same for Molly as for other students regarding score study and assignments, but it proved too cumbersome and time consuming for her to read so many brailled scores. Eventually, assignments were modified to allow for working and demonstrating at the piano, as well as composing pieces to show mastery of topics such as set theory. The instructor reported that the next time a blind student is in his theory class, he would make such modifications earlier in the semester, instead of focusing on keeping assignments the same as for other students. The instructor also noted that there was no resistance from administration, other teachers, or students after adapting assignments.⁵⁰

Though all our institutions may not have the full resources afforded to Molly and her teachers, a successful model such as this one can provide us with an ideal for which to strive. It is clear that even with a wealth of resources, Molly's teachers encountered unanticipated problems with assignment and exam format. When this happened, they treated Molly as an individual and made modifications regarding delivery of information (both questions and answers), so that she could thrive despite her visual limitations. The key for all of us is to work as a team to create an individualized plan for teaching and assessment that is most appropriate for the student with a disability. Then we must continue to be flexible and modify that plan when needed.

⁵⁰ All information regarding this student was received through in-person interviews with one theory instructor and a student aide on June 4, 2008; a phone interview with an additional theory instructor on March 12, 2010; and additional e-mail correspondence from that additional instructor on February 4, 2013. For reasons of confidentiality, the name of the institution and the names of the aide and two instructors are not revealed.

EQUITY

Many people interviewed have stressed the importance of insisting on the same high standards for students with visual impairment that we set for other students. Dave Simpson, instructor of computer applications at the Summer Institute, states we need to “be as firm with the blind student as with others.”⁵¹ Pieck states, “High expectations should be there for every student, including those with disabilities.”⁵² Pieck remarks, “If a blind kid has a little more than average musical aptitude, people will often fall all over themselves saying how wonderful and amazing the kid is for doing things that are barely considered passable for sighted kids in the same situation.”⁵³ She states, “College teachers need to be honest when assessing their students, and their blind students in particular. Just because someone sings beautifully or plays really fast and is blind does not make them a natural music major! It also does not make them more talented or gifted than somebody else.” According to Pieck, such students “have become accustomed to being at the top. People have told them they’re wonderful and then they get to college...where they will be just another person with a music degree. Helping students come to terms with their actual capabilities and developing with them realistic expectations for their futures is important.”⁵⁴ These are strong statements coming from Pieck, who is herself a blind musician.

McCann recommends that before a student with any disability is admitted into a college music program, the student’s literacy skills and study techniques be discussed and evaluated. He suggests asking the student how certain tasks might be accomplished. “It seems to me that it is not unfair or discriminatory to ask a prospective student how he/she plans to satisfy the requirements of a certain field of study. For example, ‘Our music students are given a book of melodies and asked to sing them in class. How will you accomplish that task?’ Or, ‘In some classes, teachers will play or sing music and require the students to write it down in notation.

⁵¹ Dave Simpson, in-person interview with author, July 13, 2008.

⁵² Stephanie Pieck, e-mail message to author, July 24, 2011.

⁵³ Stephanie Pieck, e-mail message to author, April 6, 2012.

⁵⁴ Stephanie Pieck, e-mail message to author, July 24, 2011.

How will you do that?"⁵⁵ Unfortunately, what likely happens is a student is accepted into a program without any such discussion.

Preliminary evaluation of the student's skills should result in an honest and individualized plan for the student's success. McCann mentions several possible routes for VI students, including expanding a typical four-year program into five years or delaying admission into the music program of the university until a student's literacy and technical skills are sufficient.⁵⁶ The crucial step in this process is the thorough assessment of the student's literacy and technical skills, along with musical talent, and the honest communication with the student about what is required to be successful in a college music program. In order to thoroughly assess the student's skills, we have to be knowledgeable about the skills that need assessing when working with a student who is visually impaired. We also must hold the student accountable for learning the required skills, even if it means delaying admission or delaying certain coursework until such skills have been mastered. There may be some students who are resistant to learning to read music, if they have managed well thus far without that skill. Great care should be taken in how these requirements are communicated, because the student could claim prejudice if requirements are mistaken for unfair treatment.

Equity is also important in determining accommodations for VI students, because we do not want such students to have an unfair advantage over sighted students. If we allow a braille music reader unlimited time to complete an exam because of the extra time it takes to read a braille score, is this fair to the sighted student who is extremely slow at reading bass clef, who receives no extended test time? If we have a blind student who is not a braille music reader, is it fair to allow that student to rely solely on listening skills and bypass learning to read, when we require literacy of the sighted students? A blind student is unable to remediate blindness, but we can still require literacy. However, when the disability presents a barrier to communication, prevents access, or hinders full participation, we are obligated by law to provide reasonable accommodations that will remove these roadblocks. We must be careful, though, not to provide additional advantages that are unrelated to the student's disability. As we instructors wrestle with

⁵⁵ Bill McCann, e-mail message to author, February 25, 2012.

⁵⁶ Bill McCann, e-mail message to author, March 14, 2012.

these complicated issues, we must rely on our institution's office of disability services for guidance.

EQUIPPING WITH SKILLS

After assessing the skills of an incoming college music student and committing to individualized instruction, we must also commit to helping the student develop as many skills as possible to the highest level of ability. Those interviewed emphasized this numerous times. Simpson states, "Any musician, blind or sighted, should have as many tricks in the music bag as possible for learning and performing, including the ability to read and write music, a great ear, and, ideally, skill in improvisation. To some degree, the musician who lacks skill in reading music may be able to compensate with strength in another, but only to limited degree. Blind organists, for example, might choose to learn the ephemeral music—the hymns and anthem accompaniments that change every week—by ear, thereby conserving the great deal of time and energy needed for memorizing major recital pieces. This is the path I chose, because I wanted my concert repertoire to draw upon absolute accuracy and scholarship in my interpretation, and a score is the closest thing we have to a letter from the composer. Furthermore, to argue that one need not learn to read and write music if he/she can play by ear, is like arguing that it isn't necessary to learn to read or write if one can speak a language."⁵⁷

Jones emphasizes, "The total package is important—behavior and all—for preparing a student for a music career." She explains that a blind musician sometimes has developed physical mannerisms that can be a distraction for audience members watching a performance. According to Jones, it is the responsibility of the applied teacher and the ensemble director, along with the disability services office, to work with the student on any physical mannerisms that may be problematic in performance.⁵⁸ Goldstein explains, "Blind students think people will judge them by what they hear, but [job] interviewers will also judge by what they see as well." The teacher should make sure the student understands what is visually acceptable and what is not, according to Goldstein.⁵⁹ Though these

⁵⁷ Dave Simpson, e-mail message to author, April 14, 2012.

⁵⁸ Leslie Jones, in-person interview with author, March 2009.

⁵⁹ David Goldstein, phone interview with author, February 23, 2010.

remarks are not directed to the music theory instructor, we should not excuse ourselves from responsibility. Whenever we include presentations in our music theory classes, we may be assessing “stage presence” (delivery) in addition to content and organization. If so, we should consider devoting some class time for discussing effective presentations or at least spend time with the blind student outside of class, helping with delivery.

EMPOWERING INDEPENDENCE

According to Wagner, instructor of the “Touch and Sing” class at the Summer Institute, “a student can have all the accommodations in the world and also have a good teacher, and still not do well. The student’s success is largely influenced by the initiative and independence of the student. Unfortunately in high school, teachers do not teach students with visual impairment to be independent, so they often are not prepared for college.” With a degree in music therapy under her belt, Wagner recounted several obstacles she had to overcome as an undergraduate. She had to convince one of her music professors that she really did know how to read braille music. Over time, that teacher began providing her with braille music scores, but Wagner had to be persistent to get what she needed. Also, the quality of service Wagner received from the disability services office was less than desired. “The guy in charge of disability services was also the girls cross country coach. I had to talk directly to professors instead of the office of disability services. Also, the disability office itself was hard to find for a blind person or for anybody. I learned to do things myself because the office would not help me.”⁶⁰ If Wagner had not persevered, she might not have succeeded in completing her degree.

Teachers should be informed and ready to be proactive, so we can guide the student to be independent and to know the resources available. We cannot assume the student already knows all the resources or where to find them, nor can we assume that someone else (the disability services office or some other teacher) will know. Whitney, a college student working toward a music education degree at the time of my interview, states, “Teachers need to make sure students get accommodations they need. Students need to speak up and tell teachers what they need. When you get into the real

⁶⁰Melissa Wagner, in-person interview with author, July 11, 2008.

world, you will not have any help from anybody else.”⁶¹ Whitney is charging teachers with the responsibility of helping transition the student from college into professional life. Pieck echoes this charge to college instructors by stating, “Advocacy skills are not always taught, so once again, this falls to college teachers. Academic advisers can help here, but often, it will be the student’s primary instrument instructor who will develop the closest relationship with them.”⁶² In a follow-up phone interview with Whitney several years after my initial interview, she explains, “You have to prove yourself more as a blind student. Do not let anyone tell you that you cannot achieve something because of your disability. Advocate for yourself.”⁶³

Simpson states, “The blind student has to be more resourceful than his peers, on average. When classmates arrive on campus, they simply get the list of books for a given course and go buy them at the university bookstore, whereas the blind student must contact the professors three to six months in advance of a course, get a list of required materials (often the professor has not even decided what to use at that time), and go off on his/her own to locate them, or find a volunteer transcriber to produce them. Occasionally, the blind student encounters a professor who is not willing to change the way he/she has taught a course for the past 20 years, and who expects the student to come up with all of the answers.”⁶⁴ Such disregard for disability law among faculty is disappointing, but it does happen. As instructors, we must be willing to help students as needed, but more importantly, to steer them toward resources that will allow them to become independent self-advocates.

MENTORING AND TEAM BUILDING

It is crucial for an assembled network of college mentors and teachers to be informed and ready to be there for the student, because the student may need this support. McCann offers this advice: “Join with other professionals...to formulate and execute a plan for any student with a disability to give that student the best chance of success in your school’s music courses. Team members

⁶¹ Whitney, in-person interview with author, July 11, 2008.

⁶² Stephanie Pieck, e-mail message to author, July 24, 2011.

⁶³ Whitney, phone interview with author, December 14, 2011.

⁶⁴ Dave Simpson, e-mail message to author, April 14, 2012.

might include someone from the disability services office or Dean of Students office, the student's rehabilitation counselor from a state rehabilitation agency, a technology consultant, a traditional braille music transcriber, or former teachers of the student. Consult with the student throughout the process."⁶⁵ Because of the music reading and transcription skills needed in music theory and aural skills classes, it is crucial for a music theory instructor to be a part of such a team. In fact, we should be ready to gather a team together if no one else has stepped forward to do it. If our professional demands are already too great for us to take on the added responsibility of gathering a team, perhaps we can facilitate smaller connections between advocates. We cannot work in isolation. As stressed earlier, this team gathering should begin as soon as we know a student is planning to attend our school as a music student. If we wait until after the student arrives, we may be too late.

Goldstein, Director of the Summer Institute, is not a musician himself but is a champion for young musicians with visual impairment. He says one problem his students with visual impairment may have is social. According to Goldstein, most students are alone – schools may not give them roommates because they need space for their equipment. Unless the students are in the band or choir, or taking part in a production of some sort, they may end up leading very solitary and often depressing college lives.⁶⁶ More important, peers may not realize that a student's lack of eye contact or the appearance of not being outgoing is the result of that student not being able to see that there are other friends close by. In a testimonial letter addressed to sponsors of the Summer Institute, the mother of a student writes about the isolation her daughter faced because of her blindness: "It is extremely hard to make friends when you can't catch someone's eye and smile at them or give a nod of recognition when someone you've met before walks into a room, or when you can't see who is sitting at a cafeteria table, so you eat alone."⁶⁷

Goldstein stresses the importance of maintaining a good relationship between student and teacher. He states, "Rather than the teacher try and make every classroom activity work, it is more important to have a good relationship with the student, so that the

⁶⁵ Bill McCann, e-mail message to author, February 25, 2012.

⁶⁶ David Goldstein, phone interview with author, February 23, 2010.

⁶⁷ Valerie Crockett, letter to David Goldstein, February 17, 2006.

student can come to the teacher if something is not working.”⁶⁸ This will likely require a closer relationship than is typical, perhaps even a mentoring relationship, between the teacher and a student with visual impairment.

Josiah, a sighted instructor who had only been teaching students with VI for about six months at the time of our interview, stresses that teachers need to be prepared for struggles that may be extremely personal for the student. Of all the interviews I conducted, Josiah was the only person to stress the need for sensitivity with a student who is gradually losing sight, because that student’s feelings of grief and loss may impact the ability to study and enjoy music.⁶⁹

KNOWING THE RESOURCES

It can be challenging to find the resources and people to help serve the needs of musicians with visual impairment as well as provide their teachers with the appropriate training. Virtually all printed resources that offer advice to teachers consist of online documents, with a few exceptions. Three sources are highly recommended for teachers who are preparing to teach a student with visual impairment. First, the National Resource Center for Blind Musicians should be contacted for their wealth of helpful resources (<http://www.blindmusicstudent.org/>). Second, McCann’s Dancing Dots company not only provides information on technology available to musicians with VI, but it facilitates technology training and provides additional printed resources for teachers. It is also crucial to join the Music Education Network for the Visually Impaired (MENVI), a network of parents, educators, and students who exchange ideas and provide guidance and support for musicians with VI. MENVI membership is free and provides a variety of networking opportunities through an e-mail LISTSERV, a membership list with contact information, and a list of specialists in areas such as braille music, large print, band music, and technology.⁷⁰ Refer to the Bibliography for additional resources, including books on braille music and sources for braille music scores.

⁶⁸ David Goldstein, phone interview with author, February 23, 2010.

⁶⁹ Josiah, in-person interview with author, March 2009.

⁷⁰ See the MENVI website, www.menvi.org, for membership and additional contact information.

BEYOND COLLEGE

Despite the many challenges facing a music student with visual impairment, it is possible to forge a path to a successful career in music. Success depends on the collective effort of the student and a team of support, including mentors and teachers, available to assist the student along this journey. It is not difficult to find evidence of such success. In this article, we have heard from several remarkable professionals who happen to have visual impairment, including Karen Gearreald, David Goldstein, Chi Gook Kim, Bill McCann, Stephanie Pieck, Dave Simpson, and Melissa Wagner. Of the 85 graduates of the Summer Institute between 1996 and 2011, 12 are earning money in the music field as performers, therapists, teachers, studio musicians, or in radio; six are in non-music professions, 22 are presently in college as undergraduates, three are in graduate school, and seven are still in high school.⁷¹ These statistics are impressive when compared with national employment statistics for blind and visually impaired people of working age.⁷²

The road to success may be winding and long for a musician with visual impairment, although this is not necessarily because of the disability. Employment opportunities that are financially sustaining are limited for musicians who are blind or sighted, and we must encourage students to be flexible as opportunities arise and interests shift. Whitney, a Summer Institute participant discussed earlier, revealed in a follow-up interview that she had changed her major from music education to music therapy. A very independent self-advocate, Whitney expressed apprehension for the future as she was preparing for an internship application in music therapy. The internship would require relocating to another state, arranging for support services to accommodate her needs, and proving to a new group of people that she is capable of being successful in this field, despite having a visual impairment. Even with her independent and self-assured personality, she honestly admitted that she will always need extra help from outside sources, and she wondered if people would see her abilities rather than her disability.⁷³ The

⁷¹David Goldstein, e-mail message to author, February 2, 2012.

⁷²Statistics are available through various sources, including the American Foundation for the Blind (<http://www.afb.org/>), although they may not be recent.

⁷³Whitney, phone interview with author, December 14, 2011.

negative attitude of other people can certainly be a stumbling block. Gloria, another college student and Summer Institute participant, states, "The attitudes of people are what is hard. Older adults make it hard to find a place to fit professionally." Reflecting on her experiences as a young adult, she explains, "I was treated as a kid rather than an adult. I was talked down to."⁷⁴ Such negative experiences would most certainly have a detrimental effect on a person's level of motivation, optimism, and general self esteem, unless there are teachers and mentors to offer encouragement.

It is not enough for college instructors simply to teach students and guide them to successful completion of a music degree. Beginning in the freshman year, students – both sighted and blind – need advice and assistance on how to be successful as a professional musician. This transitioning into life beyond college should include helping the student build a network of professional contacts for the purpose of learning about the challenges of job searching, interviewing, and succeeding in the profession. However, sighted instructors should not assume to know about the job market for a blind musician. David Goldstein explains, "Blind students often do not know what jobs there are. They may not be exposed to everything, to know what is involved with transportation to a gig, for example. Also, it may not be realistic to have all one's goals centered on being in an opera company on a regular basis, for example, but several performers have had outstanding major performing roles, give concerts, and have a steady income from teaching." Goldstein, with his dry sense of humor, states, "It is harder for blind musicians to wait tables between jobs."⁷⁵ Our best method of preparing the student is to connect that student (and ourselves) with other professional musicians who are blind, because they have first-hand experience and can offer the best advice.

CONCLUSION

In "A Blind Music Student's College Survival Guide," Taesch provides several "Tips for the Sighted Professor," including these comforting statements: "You do not need special skills to teach a blind student. As long as he or she is in possession of the music that you are requiring, and has been properly trained and informed,

⁷⁴ Gloria, in-person interview with author, July 14, 2008.

⁷⁵ David Goldstein, phone interview with author, February 23, 2010.

it is the same as with any student.”⁷⁶ With sufficient training and information, we should be as confident about teaching a student with visual impairment as teaching any student. Furthermore, most of the advice shared in this article on teaching students with visual impairment may be applied more broadly to teaching all students.

Literacy. We must promote high standards of music literacy for all students aspiring to a career in the music field. It is not uncommon for a sighted college freshman to have poor music literacy skills, such as a weakness in one or more clefs, or very slow reading ability in general. A student who is not a fluent music reader as an incoming freshman must receive honest assessment and be required to gain fluency as soon as possible. Without a high degree of music literacy, accessibility to music scores both in and out of the classroom will be hindered and the student’s progress in any coursework involving score reading and analysis may be affected.

Accessibility. We as teachers are charged with providing the tools necessary to facilitate the best learning environment for each student. Such tools may include visual aids in the classroom, supplementary resources for study, tutoring options, sufficient office hours, and a variety of other creative means for connecting students with the subject we are teaching.

Inclusion. As teachers, we must strive continually to include and engage every student. We should work for inclusion by involving all students in class discussion, by thoroughly assessing each student’s comprehension of the information we share, and by providing a supportive and encouraging classroom environment.

Expectations and Honesty. We must be honest with each student we teach. Our standards and expectations must never be compromised because of the individual needs or circumstances of a student. If a student is not reaching the standards necessary for future success, or if the student has significant gaps or shortcomings in knowledge or skills, we must guide the student toward remediation or toward a different career path. If we do not communicate our concerns honestly, we are doing a disservice to the student.

Individualized Instruction. We must teach to the individual student, because no two students have the same strengths and weaknesses, the same learning style, the same background and life

⁷⁶ Taesch, “A Blind Music Student’s College Survival Guide,” 13.

experience, or the same personality. We must be flexible enough to adapt our teaching style to suit the needs of the individual student, whether or not the student has a diagnosed disability. It is crucial that we strive to know students well enough to discover their unique qualities and help them learn to utilize both their strengths and their weaknesses to achieve success.

Equipping With Skills. As Leslie Jones stated previously, “The total package is important – behavior and all – for preparing a student for a music career.”⁷⁷ Musicians need as many highly-developed skills as possible to be a well-rounded artist. The more skilled a musician is, the more chances for success as a musician in today’s job market.

Mentoring and Team Building. It is not just the student with visual impairment who needs mentoring or the help of a team. All students benefit from having faculty mentors, and some students may need a team to provide extra assistance during times of crisis, either academic or personal. We should be alert for signs of struggle and be ready to address needs appropriately. If we fail to pay attention to a student’s needs during a pivotal point in the college experience, that student may fall through the cracks from lack of sufficient support.

Empowering Independence. Mentoring involves preparation for life beyond college, and teachers should be motivated to help all students develop skills for independence as professional musicians, including musicianship skills, organizational skills, research skills, and even interpersonal skills. For example, in the music theory or aural skills classroom, our teaching should include modeling the development of strategies for studying a notated music score or for studying music aurally, without the assistance of a theory teacher or a piano. In aural skills classes, we should model how a musician can construct vocal drills to tackle complex passages within a given melodic line. In training students to design their own pedagogical drills, we are teaching them to be independent thinkers and problem solvers.

Retention. Many of the areas addressed thus far have an impact on student retention. The better attention we give each student throughout the college experience, the better we are able to help each student press on to succeed in college and beyond. As different as students with visual impairment may seem from other students

⁷⁷ Leslie Jones, in-person interview with author, March 2009.

we teach, in reality the students are all the same. They all have goals they hope to achieve, they all strive for success, and they look to teachers and administrators for instruction and guidance.

FINAL THOUGHTS

I was recently asked how this project has affected my teaching of students with visual impairment. At first, I was unable to answer the question, because I had not taught any students with visual impairment in the last several years. Upon further reflection, I realized this project has had a profound effect on my teaching of all students, in every class and at every level. Through this project, I was motivated to reassess my own teaching and to make significant changes. I still find myself striving for higher standards and expectations of students and requiring a stronger work ethic both for myself and my students, because I witnessed such great illustrations of hard work and perseverance within this community of blind musicians. As a teacher with an already well-established reputation for being very patient, I now find myself working for even greater patience. I take more time to notice and validate the small victories achieved by students. I am more motivated than ever to truly know my students, and I try to take more time during the workday to develop deeper relationships with them. In essence, I care more about each student. I have come to understand that the goals of quality teaching are the same for every student, whether or not there is a diagnosed disability. The barriers and challenges that we may think are restricting us from effective teaching gradually disappear when we simply focus on the needs of the individual student.

AUTHOR'S NOTE

The author wishes to thank all those who shared their time and insight through interviews and observations. The remarkable spirit and enthusiasm exhibited by everyone has been inspiring, and their willingness to share advice from their own personal experiences is greatly appreciated. I especially thank Karen Gearreald, David Goldstein, Leslie Jones, Chi Gook Kim, Bill McCann, Stephanie Pieck, Dave Simpson, Richard Taesch, and Melissa Wagner, who graciously granted permission to use their names in this article. I have been profoundly affected both as a teacher and as a person by this community of musicians and artists.

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APPENDIX A

Questions for Instructors

- 1) Background/Training – Early interest in music, education (music and otherwise) in high school and beyond, professional experience (music and otherwise)?
- 2) For Summer Institute Staff: Motivation for being involved in the Summer Institute?
- 3) In college (or even high school), did you have a music teacher or teachers (in general) who were most effective regarding their approach in teaching a blind student? If so, please describe.
- 4) Did you have a teacher or teachers who were not effective, and if so, why?
- 5) Describe your approach in “getting what you needed” in school and beyond. Describe accommodations provided by teachers, employers, etc. Were you a strong self-advocate? Independent? Help from parents or mentors? (In other words, “how did you do it?”)
- 6) Did your college provide accommodations? Describe.
- 7) What other factors contributed to your achieving success in college and beyond, that haven’t already been mentioned?

This question is for those who had music theory (or other music courses) in college:

- 8) As a student in college music theory classes (and music classes in general),
 - a. What were the greatest challenges you faced, and how did you overcome them?
 - b. Were adjustments or adaptations made in the curriculum for you?
 - c. Technology used?
 - d. How included were you in the classroom?
 - e. Did instructors provide help outside of class?
- 9) What do college instructors need to know from your perspective, to effectively teach a student who is blind (in music theory classes, music classes, and general classes)?

- 10) How can we better assist students in transitioning from high school to college, or from college to profession?
- 11) How can we achieve a balance between the desire to be helpful and accommodating, and wanting to treat all students equally?
- 12) How essential is it for a blind college music student to know braille music? Do you think it should be required?

APPENDIX B

Questions for Students

- 1) Describe your early interest in music.
- 2) Other music experiences up through high school (band, choir, lessons)?
- 3) Where are you now in your education (what level)?
- 4) Previous music theory training/exposure? If so, describe.
- 5) Any college music experiences so far (for those who have already started college or participated in camps/workshops)?
- 6) How do you learn music that you play/sing? By ear? Read music? How do you learn music from school?
- 7) Do you have perfect pitch?
- 8) How much sight do you have?
- 9) As a student with visual impairment, what have music instructors (high school or college) done to help facilitate learning? Provide braille music scores? Help outside the classroom? Other accommodations?
- 10) What technology have you used in music classes or at home with music? What's been most helpful?
- 11) Has everything worked well for you in high school (and/or college)? Any challenges (especially with music classes)? Has anything not worked well or been problematic to learning?
- 12) Did you ever have a teacher (high school or college) who was not helpful to learning? If so, how?
- 13) Have you had any important music mentors?
- 14) If so, who are they and why do you consider them mentors?
- 15) What advice would you give a college professor on how you would like to be treated, as a student with a visual impairment?
- 16) For those in college: Describe the transitioning

process from high school to college. What was easy? Difficult? What assistance did you receive to help with transitioning/ orientation? Was it sufficient? Were there surprises at college that you weren't prepared for?

- 17) Describe your college journey so far.
- 18) How familiar are you with braille music? If you know it, how did you learn it and when?
- 19) Do you feel it is necessary to learn braille music? Explain. How has it been useful to you if you already know it?
- 20) For Summer Institute students: Why are you at the Summer Institute this week?
- 21) What are your goals for college and profession?
- 22) What are your interests outside of music?



Teaching Elementary Aural Skills: How Current Brain Research May Help

BY PAULA TELESKO

Any college-level instructor who has taught Music Theory or Aural Skills during at least the past decade (perhaps the past century?) has probably lamented: “Our students don’t come in nearly as prepared as they used to.” Not surprisingly, the topic of inadequate preparation resurfaced (as it does from time to time) in the SMT-talk forum in October of 2010, with a thread begun by Timothy Cutler.¹ This often-remarked-upon state of affairs probably obtains at all but the most elite conservatories and music departments, and my institution is no exception. But taking it one step further, I would suggest that the lack of preparation is both quantitative and qualitative.

By quantitative, I mean that students may have had less formal training on an instrument (often, much less) than was the case in the past; by qualitative, I mean that the training they have may be on non-orchestral instruments, and that their previous exposure to music lies mainly in the popular realm, as opposed to what we broadly refer to as the classical realm.² So while this discussion may be (happily) irrelevant for instructors in top-level conservatories and music departments, it may be helpful for high school music teachers, and particularly instructors in two-year and four-year colleges and universities where students are accepted who, through no fault of their own, enter without a rich, or even adequate, musical background.³ This creates challenges for the Music Theory

¹See Timothy Cutler’s post of October 10, 2010: <http://lists.societymusictheory.org/htdig.cgi/smt-talk-societymusictheory.org/2010-October/000877.html>

²Music departments, including my own, are admitting students whose primary instrument is electric guitar, electric bass, or trap set; these students often have little formal musical training, and their previous musical experience often consists primarily of playing in a garage band. I expect this trend will continue.

³Even students who play traditional orchestral instruments, or sing, often have little in the way of formal training, as music programs continue to be cut in many primary and secondary schools. Nevertheless, college music departments may have no choice but to admit weaker students in order to keep their enrollments at an acceptable level.

instructor, but particularly for the Aural Skills instructor. For that reason, this paper will focus on meeting these new challenges in the Aural Skills classroom, though it will limit itself primarily to a consideration of the singing portion of such a class; a detailed treatment of the dictation portion is beyond the scope of this paper.⁴

Notwithstanding the fact that different college and conservatory programs will have different standards of acceptance and achievement for their students and thus must use approaches that best accomplish the intended outcome, all music departments share at least one common goal: to cultivate the musicianship of all their students, enabling each to be a better musician than he or she was upon entering the program. In a general sense, that means increasing the literacy and fluency of all music students. It may, therefore, behoove us to revisit and reevaluate what most of us would probably agree is a standard Aural Skills curriculum (as reflected in many commercially-available college-level Aural Skills texts⁵) to determine whether the model is still as universally valid as it once was, and if not, to consider plausible alternatives. To begin, I present an overview of what I believe to be the general goals and assumptions in such a standard Aural Skills program. I will then present an overview of some of the current brain research that is germane to our topic, and conclude with some recommendations.

Painting with a broad brush, most college-level Aural Skills texts and approaches are based on a set of assumptions about the students who will be using the materials, and the pedagogical underpinning is essentially the same; that is, an Aural Skills class provides a conceptual framework for the musical sounds and patterns that students have presumably already internalized

⁴I plan to deal with this topic in a separate article.

⁵See, for example, Sol Berkowitz, Gabriel Fontrier, Leo Kraft, Perry Goldstein, and Edward Smaldone, *A New Approach to Sight Singing*, 5th ed. (New York: W. W. Norton, 2010); Thomas Benjamin, Michael Horvit, and Robert Nelson, *Music for Sight Singing*, 6th ed. (Boston: Schirmer Cengage Learning, 2012); Gary Karpinski and Richard Kram, *Anthology for Sight Singing* (New York: W. W. Norton, 2007); Joel Phillips, Paul Murphy, Elizabeth West Marvin, and Jane Piper Clendinning, *The Musician's Guide to Aural Skills*, 2nd ed., Vols. 1 and 2 (New York: W. W. Norton, 2011); Robert Ottman and Nancy Rogers, *Music for Sight Singing*, 8th ed. (Upper Saddle River, NJ: Pearson Prentice Hall, 2010); Maureen Carr and Bruce Benward, *Sight Singing Complete*, 7th ed. (New York: McGraw-Hill, 2007).

from years of singing and/or playing an instrument (and perhaps playing in an ensemble), prior to entering college: the patterns of common-practice music, or functional tonality. The Aural Skills class attaches functional tonal labels to these ostensibly familiar melodic and harmonic patterns, and teaches students to map solfège syllables or scale degrees to these patterns, such that those syllables/scale degrees come to act as audibly-identifiable tonal markers within a referential system.⁶ The aim is to increase progressively the skill level of the students, enabling them aurally to comprehend melodic, harmonic, and rhythmic patterns, musical form, and so on, in order to inform their performance⁷ and deepen their understanding of musical style and structure. And, in so doing, the Aural Skills class teaches students to notate these patterns from an aural presentation, as well as to sing at sight music they have never heard or seen before. These are fundamental skills for any musician to possess.

It follows that a critical component of this method would be that the Aural Skills class use music with which the students are already familiar, or music that is drawn from a repertoire syntactically similar to the music the students know; that is to say, music whose vocabulary, grammar, structure, conventions, idioms, turns of phrase, and so on, have already been internalized, or encoded, from years of prior exposure and engagement. The task is to then make explicit the musical norms and syntax contained therein.⁸ This is a crucial point: the cognitive significance of musical conventions, or norms, is that once they become internalized, they influence how a listener hears and organizes music into coherent patterns,⁹

⁶My discussion assumes a moveable-do approach, whereby solfège syllables designate functional scale degrees.

⁷For example, recognizing the difference between tonic and dominant arrivals at a phrase ending enables the student to shape the phrases by making one sound more final than the other; similarly, recognizing a deceptive cadence enables the student to underscore the surprise of it; and of course, good aural perception is essential for improvising.

⁸In *Music, Language, and the Brain* (New York: Oxford University Press, 2008), 241-242, Aniruddh Patel defines musical syntax as “the principles governing the combination of discrete structural elements [tones, timbres, time values, etc.] into sequences,” and points out that the “vast majority of the world’s music is syntactic,” though that syntax will vary across cultures and eras, with but only a few universals.

⁹Patel, *Music*, 242. See also A. Patel, “Language, Music, Syntax,

and they enable the listener to develop expectations about future events. Leonard Meyer explains that syntax “makes possible the existence of complex hierarchic structures,” and establishes “sets of *possible* functional relationships,” making some events “more *probable* than others” (italics Meyer’s).¹⁰ And, many would agree, it is the violation of those probabilities, or statistical regularities (or the delayed or unexpected realization of those expected outcomes), that create affect in music.¹¹

We call the mental representations of these organizational patterns musical schemata. A schema may be thought of as a model, or framework, comprising a network of interrelations into which our brains try to fit incoming sensory information and evaluate that incoming information for goodness of fit (i.e., does it fit our existing schemata). For example, in tonal music, one simple melodic schema is *re-ti-do*. After sufficient exposure to that pattern, hearing *re-ti*, will elicit the expectation for *do* to follow, because that fits our existing schema. An example of a simple harmonic schema is ii-V-I, or even just V-I. A more complex schema, comprising a network of interrelations, would be the combination of the melodic pattern *re-ti-do* with the harmonic pattern ii-V-I.

We have schemata representing our knowledge about all concepts, and, as our knowledge becomes more sophisticated, so do our corresponding schemata.¹² David Huron explains:

and the Brain,” review, *Nature Neuroscience* 6, no. 7 (2003): 678-81; Robert Gjerdingen, *A Classic Turn of Phrase: Music and the Psychology of Convention* (Philadelphia: University of Pennsylvania Press, 1988); and Ray Jackendoff and Fred Lerdahl, “The Capacity for Music: What is it, and What’s Special About it?” *Cognition* 100 (2006): 33–72.

¹⁰ Leonard Meyer, *Style and Music: Theory, History, and Ideology* (Chicago: The University of Chicago Press, 1989), 15-19.

¹¹ For the classic treatment of this topic, see Leonard Meyer, *Emotion and Meaning in Music* (Chicago: The University of Chicago Press, 1956).

¹² For a more thorough account of schema theory, see David E. Rumelhart, “Schemata: The Building Blocks of Cognition,” *Theoretical Issues in Reading Comprehension*, ed. Rand J. Spiro, Bertram C. Bruce, and William F. Brewer (Hillsdale, N. J.: Lawrence Erlbaum Associates, 1980), 33-58. For two excellent accounts of schema theory in music, see Robert Gjerdingen’s *A Classic Turn of Phrase: Music and the Psychology of Convention* (Philadelphia: University of Pennsylvania Press, 1988); and David Huron’s *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge, MA: The MIT Press, 2006).

It is the ability of brains to form multiple schemas that provide the psychological foundation for distinguishing different styles and genres. Without this foundation, baroque and reggae would meld into a single general musical schema. Our experiences with baroque harmony would interfere with our ability to accurately predict harmonic progressions in reggae, and vice versa.¹³

Thus, comprehension of basic syntax and possession of basic musical schemata constitute the essential foundation that make possible further study and continued progress in any given style of music. Not only does this make sense intuitively, but it can now be demonstrated neurologically.¹⁴ The brain develops elaborate, specialized neuronal networks¹⁵ called *feature detectors* that process the individual components of music, such as pitch, timbre, harmony, rhythm, spatial location, and so on.¹⁶ Through constant exposure to the regular patterns and grammar of a given style of music, whether through listening or, even more so, through playing and performing, those networks become more robust, enabling

¹³Huron, *Sweet Anticipation*, 204.

¹⁴For discussions of musical syntax (what it is, how it is acquired, how it informs our perception of music) in the neurological literature, see, for example, Daniel Levitin, *This is Your Brain on Music* (New York: Plume, 2006); Sebastian Jentschke, Stefan Koelsch, and Angela D. Friederici, "Investigating the Relationship of Music and Language in Children: Influences of Musical Training and Language Impairment," *Annals of the New York Academy of Sciences* 1060 (New York: The New York Academy of Sciences, 2005), 231–242; S. Koelsch, T. Grossmann, *et al.*, "Children Processing Music: Electric Brain Responses Reveal Musical Competence and Gender Differences," *Journal of Cognitive Neuroscience* 15, no. 5 (2003): 683–693; Mireille Besson and Daniele Schön, "Comparison Between Language and Music," and Stefan Koelsch, Burkhard Maess, Thomas C. Gunter, and Angela D. Friederici, "Neapolitan Chords Activate the Area of Broca: A Magnetoencephalographic Study," *Annals of the New York Academy of Sciences* 930 (New York: The New York Academy of Sciences, 2001): 232–258 and 420–421, respectively.

¹⁵I use the term "neuronal" rather than "neural," following James Zull, *The Art of Changing the Brain: Enriching Teaching by Exploring the Biology of Learning* (Sterling, VA: Stylus Publishing, 2002), 109, fn 1, who explains that the term "neural networks" has taken on a very specific meaning in cognitive science referring to computers.

¹⁶Levitin, *This is Your Brain*, 103–104; Rumelhart "Schemata," 42.

the brain to quickly process and comprehend pieces with similar grammar and structure. These interrelated neuronal networks are embodied musical schemata, and they develop in response to the kind of music one listens to.¹⁷ Thus, “what you listen to changes how your brain is configured.”¹⁸

And there’s the rub.

While the underlying principle of Aural Skills texts and curricula remains valid—to extract principles from a common body of music whose grammar one already knows¹⁹—the assumption that is no longer valid for many entering college students is their familiarity with that common-practice repertoire. Nevertheless, most Aural Skills texts rely heavily, if not exclusively, on that repertoire for both the singing and dictation examples (or examples composed for the text that replicate that style of music).

If students lack traditional musical training and exposure, these patterns have not been sufficiently encoded (as would have been the result of countless iterations of instrumental or vocal practice over a number of years and/or participating in an ensemble), to allow for the fluency necessary to progress in an Aural Skills class. Thus, learning is inhibited. Such students are not yet able to process music in a way that is consonant with how most Aural Skills texts and curricula are designed. Consequently, we need to further investigate how the brain processes and encodes information and creates new knowledge, how it acquires and develops musical ability, and how it creates musical schemata, which then support further musical development.²⁰

¹⁷Barbara Tillmann, Jamshed J. Bharucha, and Emmanuel Bigand, “Implicit Learning of Tonality: A Self-Organizing Approach,” *Psychological Review* 107, no. 4 (2000): 885-913. See especially p. 892.

¹⁸Eric Jensen, *Music with the Brain in Mind* (Thousand Oaks, CA: Corwin Press, 2000), 10; Elizabeth A. Reynolds Losin, Mirella Dapretto, and Marco Iacoboni, “Culture and Neuroscience: Additive or Synergistic?” *Scan* 5 (2010): 141-158.

¹⁹That this principle is indeed valid is demonstrated by an experiment that will be discussed presently. See Psyche Loui, David L. Wessel, and Carla L. Hudson Kam, “Humans Rapidly Learn Grammatical Structure in a New Musical Scale,” *Music Perception* 27, no. 5 (2010): 377-388.

²⁰The topic of musical ability and its biological foundations is a subject of much ongoing interest and debate among cognitive scientists, neuroscientists, etc. Many (Levitin, for example) believe that musical ability preceded language acquisition, and in fact, provided

Dr. Laurel Trainor (Director of the Auditory Development Lab and the McMaster Institute for Music and the Mind) and psychologist Dr. Erin Hannon write about the acquisition of musical knowledge through two basic processes: enculturation (implicit knowledge, as discussed above), and formal musical experience (explicit knowledge).²¹ This enculturation process “follows a clear developmental trajectory in which universal aspects [consonance/dissonance] are grasped during or before infancy and system-specific aspects [key membership, harmonic knowledge] are acquired during childhood.”²² And, most importantly for our discussion, “throughout development, these networks become increasingly specialized for encoding the musical structure of a particular culture.”²³

But what *is* the music of our culture? We might pause here to consider that children’s songs, folk songs, patriotic and holiday songs, and so on, would have at one time constituted a large part of such a developmental repertoire, along with some of the more “popular” classics. But today, for a number of reasons, there are many children who are not learning this common body of music, either at home or at school, nor are they taking private lessons on piano or orchestral instruments, or participating in traditional

the foundation for the development of language. On the other hand, Stephen Pinker, in *How the Mind Works* (New York: Norton, 1997), 534, claims music is a “spandrel,” a by-product of language. Spandrel is a term borrowed from architecture, defined by Merriam-Webster as “the sometimes ornamented space between the right or left exterior curve of an arch and an enclosing right angle.” (<http://www.merriam-webster.com/dictionary/spandrel>). Levitin points out in his book, *This is Your Brain on Music*, 247-249, that “many spandrels are put to such good use that it is hard to know after the fact whether they were [evolutionary] adaptations or not.” Levitin goes on to discuss a conference presentation given by Pinker, in which Pinker asserted that language was an evolutionary adaptation, and music was its spandrel. Levitin quotes Pinker as saying: “Music is auditory cheesecake . . . It just happens to tickle several important parts of the brain in a highly pleasurable way, as cheesecake tickles the palate.”

²¹ Erin E. Hannon and Laurel J. Trainor, “Music Acquisition: Effects of Enculturation and Formal Training on Development,” *Trends in Cognitive Sciences* 11, no. 11 (2007): 466.

²² Hannon and Trainor, “Music Acquisition,” 468.

²³ Hannon and Trainor, “Music Acquisition,” 470.

school bands, orchestras, or choirs. This is indeed problematical with regard to the process of enculturation to pitch structures of Western tonal music.²⁴ Without sufficient exposure to these pitch structures, the concomitant schemata will not develop adequately.²⁵

For more evidence of this enculturation process, we can turn to the work of neuroscience researcher and musician Psyche Loui. In an effort to tease out the variables involved in how humans acquire knowledge of and preferences for music, with regard to grammar, syntax, and even scale system, Loui conducted a study at the Music and Neuroimaging Lab of Beth Israel Deaconess Hospital and Harvard Medical School. Her discussion begins by echoing Hannon and Trainor, pointing out that people of different cultures become sensitive to the statistical regularities of their own music, and that "experience and exposure are crucial to musical knowledge."²⁶

²⁴ The same can be said about harmonic and rhythmic structures, and timbral identification and associations.

²⁵ We should all advocate for the continued inclusion (or reintroduction) of common children's songs, folk songs, and so on, in elementary school, not only to preserve a multigenerational common body of music, but also because this music serves to establish basic tonal music literacy in children. We might also ponder whether there may be reason to believe that listening to a lot of music in which there is much pitch distortion and lack of differentiation between discrete pitches (somewhat to the exclusion of listening to music with clearly-defined tonal centers and pitches), may actually hinder the encoding of basic tonal structures.

²⁶ Loui et al., "Humans," 377. For a detailed discussion of statistical learning, see Jenny R. Saffran, Richard N. Aslin, and Elissa L. Newport, "Statistical Learning by 8-Month-Old Infants," *Science* 274, no. 5294 (1996): 1926-1928. Saffran et al. explain that "a fundamental task of language acquisition, segmentation of words from fluent speech, can be accomplished by 8-month-old infants based solely on the statistical relationships between neighboring speech sounds. Moreover, this word segmentation was based on statistical learning from only 2 minutes of exposure, suggesting that infants have access to a powerful mechanism for the computation of statistical properties of the language input" (p. 1926). Saffran, Elizabeth K. Johnson, Richard N. Aslin, and Elissa L. Newport, in "Statistical learning of tone sequences by human infants and adults," *Cognition* 70 (1999): 27-52, then examined whether statistical learning would apply to tone sequences as well as language: "We asked whether this statistical learning ability is uniquely tied to linguistic materials. Subjects were exposed to continuous non-linguistic auditory

Loui then discusses three experiments run by her research team.²⁷ They used the non-traditional, unfamiliar Bohlen-Pierce musical scale, and “created finite-state musical grammars from which [they] composed sets of melodies.”²⁸ In the first experiment,

sequences whose elements were organized into ‘tone words’. As in our previous studies, statistical information was the only word boundary cue available to learners. Both adults and 8-month-old infants succeeded at segmenting the tone stream, with performance indistinguishable from that obtained with syllable streams. These results suggest that a learning mechanism previously shown to be involved in word segmentation can also be used to segment sequences of non-linguistic stimuli” (p. 27).

²⁷ I summarize the study below, but it is far more detailed and sophisticated than can be fully taken up in this paper.

²⁸ Loui et al., “Humans,” 377. Loui explains that the Bohlen-Pierce scale “was first proposed by Heinz Bohlen in the early 1970s and [is] designed to be different from Western music, while still giving rise to a sense of tonality. . . . [It] is based on 13 logarithmically even divisions of a tritave, which is a 3:1 ratio in frequency.” The melodies were generated as follows: Two four-chord progressions containing identical chords were created, the first progression comprising chords 1, 2, 3, 1, the second comprising chords 1, 3, 2, 1. Each melody begins on a note contained in the first chord. Any note may progress up or down to another note in the chord, stay the same, or move to a note in the following chord, thereby allowing for six possible successions for each note. Consequently, each note occurs the same number of times in each of the two progressions, but the reordering of chords 2 and 3 in the second progression changes the probability of one note following another compared to the first progression. For example, in common-practice music, a melody line, *do-la-ti-do* (î-ê-î) occurs frequently as part of a I-IV-V-I progression, but those same pitches would appear infrequently as *do-ti-la-do* in a I-V-IV-I progression. The pitches occur the same number of times in each melodic line, but the probability of *la* going to *ti* is much greater than that of *ti* going to *la*.

Loui continues, “the artificial musical system adheres to various rules for a generative theory of tonal music (Lerdahl & Jackendoff, 1983). This makes the system viable as a new compositional tool from which large numbers of melodies can be generated, while being completely unfamiliar to all participants of our studies.” (pp. 379-380) See Appendix 2 for diagrams of the frequencies of the Bohlen-Pierce scale, compared to Western equal temperament; and the transitional possibilities (the probability of one note following another) for each grammar. Audio files of one example melody generated in each grammar are available at <http://sites.google.com/site/psycheloui/publications/downloads>.

subjects with five to fourteen years of vocal or instrumental training (with a mean of 9 years) listened through headphones in a sound-attenuated chamber to a limited number of melodies composed in one of the grammars (five melodies total, each eight notes long, each melody presented a total of 100 times, for a period of 25 minutes).²⁹ The researchers determined that repeated exposure to a limited number of melodies resulted in subjects being able to recognize those melodies, and show a preference for them, but not to recognize new melodies composed in that grammar. Thus, the melodies had been learned, but not the musical syntax; subjects were not learning the underlying structure of the melodic exemplars.³⁰

The second experiment involved new subjects who similarly had five to fourteen years of vocal or instrumental training (with an average of 9.6 years). This experiment was identical to the first except that these subjects were exposed to 400 melodies in the new grammar, without repetitions of any melodies. (The exposure phase lasted 30 minutes.) Loui found that "exposure to a large set of exemplars leads to generalized knowledge of a harmonically based artificial musical grammar, as compared to the more item-based knowledge observed in Experiment 1."³¹

The third experiment replicated the second, except that the new group of subjects had no formal music training. The results for groups two and three were essentially the same, with no significant difference between the musically trained and untrained subjects. Thus, with limited exposure to only a few melodies (experiment 1), musically-trained subjects could not generalize beyond those melodies to extract more abstract rules of scale, grammar, and syntax. But after listening to an abundance of melodies (experiments 2 and 3), both the musically trained and untrained "participants could extract knowledge of a more abstract nature . . . such that they could distinguish melodies composed in their exposure grammar from melodies composed in an alternate but very similar grammar."³²

The results of the above-cited studies are consistent with what

²⁹ Subjects were given the option of drawing on a piece of paper while listening.

³⁰ Loui et al., "Humans," 383.

³¹ Loui et al., "Humans," 383-384.

³² Loui et al., "Humans," 386. The complete set of melodies generated for the experiment may be downloaded from Loui's "Bohlen-Pierce Scale Artificial Grammar Learning Experiment," *Figshare* (2013), http://figshare.com/articles/Bohlen_Pierce_scale_artificial_grammar_learning_experiment/757721.

many of us certainly have intuited and experienced: the greater the exposure and training, the better. But in this paper, we are talking about students who have limited exposure and training, analogous to the limited-exposure subjects in Loui's first experiment. So we must further consider the learning process in order to determine how best to help students progress from their modest entering level of knowledge, skill, and ability, to a much higher level of fluency.

James Zull, biologist and Director of the University Center for Innovation in Teaching and Education at Case Western Reserve University, states that if one is to teach, one has to create conditions that "lead to change in a learner's brain," by which he means setting up conditions for rewiring the brain in ways that support the learning of the new task, new facts, new skills, and so on:³³ "Knowledge . . . is produced by the brain through formation and change in neuronal networks."³⁴ "There is a neuronal network in our brain for everything we know."³⁵

As an example, Zull points out that when someone named Jane sees her name written out, a group of neurons in her visual cortex fires, and that neuronal network will always fire together when she sees her name.³⁶ Similarly, hearing the note middle C would enlist one neuronal network, while the pitch A 440 would engage another.³⁷ Small pieces of knowledge are located in small groups

³³ Zull, *Art of Changing the Brain*, 5, 8.

³⁴ *Ibid.*, 92.

³⁵ *Ibid.*, 98.

³⁶ Moreover, "the physical arrangement of the neurons that fire when we see an object is a map of the physical structure of the object itself." To demonstrate, Zull provides an illustration depicting part of the visual cortex of an actual monkey's brain, imaged while the monkey viewed a projection of a half wheel. The most active neurons replicate exactly the geometric pattern of the wheel. See *Art of Changing the Brain*, 144.

³⁷ *Ibid.*, 100. Tillman, Bharucha, and Bigand in "Implicit Learning," 891, explain that "the auditory cortex displays a tonotopic organization in which cells responding best to different frequencies are arranged in an orderly fashion. In the auditory system, tonotopic organization can be found at almost all major stages of processing (i.e., inner ear, auditory nerve, cochlear nucleus, auditory cortex)." Thomas M. Talavage, Martin I. Sereno, Jennifer R. Melcher, Patrick J. Ledden, Bruce R. Rosen, and Anders M. Dale, in "Tonotopic Organization in Human Auditory Cortex Revealed by Progressions of Frequency Sensitivity," *Journal of Neurophysiology* 91 (2004): 1282–1296, further explain, "Tonotopy is a fundamental organizing principle of the auditory system. Tonotopy

of neurons, and complicated information comprises extensive networks.³⁸ Thus, teachers need to build on existing neuronal networks, or schemata, in order to create more extensive networks that represent more sophisticated knowledge.

It is sensory experience that changes neuronal networks, and lots of it produces “complex and extensive new branching of neurons.”³⁹ Practicing what we already know strengthens *synapses* (the junction between neurons that permits the passing of a chemical or electrical signal, from one neuron to another⁴⁰). As neurologist David Perlmutter points out:

Synapses that are regularly used are nurtured and thrive, while the synapses that are underutilized wither away. . . . If a specific pathway is used a great deal, . . . more synaptic connections [will develop]. . . . Repeated exposure . . . is required to create a permanent connection. If early experiences are not reinforced, the pathways will weaken and the synapses will disappear.⁴¹

arises from mechanical properties of the cochlea and is apparent as a linear arrangement of neurons according to best frequency (BF, the acoustic frequency to which a neuron is most sensitive). In the cerebral cortex, tonotopy is seen as a progressive change in neuronal best frequency with position along the cortical surface—a tonotopic map.” Tonotopy, however, has nothing to do with absolute pitch ability. While tonotopic mapping allows us to perceive differences in pitch or intonation, it does not contribute to the ability to memorize and label pitches according to their frequency (as explained by Elizabeth West Marvin in a private correspondence).

³⁸ Zull, *Art of Changing the Brain*, 98-100.

³⁹ *Ibid.*, 115-116, and footnotes 5 and 8, p. 130.

⁴⁰ *Ibid.*, 117. To vividly and elegantly illustrate the firing of a synapse, conductor Peter Perret calls to mind a beautiful image: that of Michelangelo’s *Creation*. He says, “You can almost see an electrical spark in the tiny space between God’s finger and that of Adam.” Peter Perret and Janet Fox, *A Well-Tempered Mind: Using Music to Help Children Listen and Learn* (New York: Dana Press, 2004), 130.

⁴¹ David Perlmutter and Carol Colman, *Raise a Smarter Child by Kindergarten: Build a Better Brain and Increase IQ Up to 30 Points* (New York: Morgan Road Books, 2006), 15-16. (Perlmutter is a recipient of the Functional Medicine Linus Pauling Award for his work in innovative approaches to neurological disorders.) Perlmutter also points out that this is why, for example, young children love to hear the same stories read to them again and again—repetition is what strengthens their synaptic pathways (p. 16).

To quote an often-used expression in neurological literature, “Neurons that fire together, wire together.”⁴² All of which is a more elegant way of saying, “use it or lose it.”

The importance of synaptic connections and repeated firings cannot be overstated. Education Professors Larry Holt and Marcella Kysilka refer to the research of neuroscientist Susan Fitzpatrick on *long-term potentiation*, explaining that neurons that “fire information across a synapse are encoded exponentially” so that “information is learned multiple times each time it is practiced.”⁴³

Unquestionably, learning is an iterative process. It is also about constantly refining and deepening our understanding of a topic. To quote Zull again:

Learning is about forming the right images when we hear or read language. . . . As we become expert in some subject, our images become more and more exact and complex. . . . When we show that we have a precise and complex image for a word, we demonstrate deep learning. We demonstrate comprehension of the language of our field.⁴⁴

⁴² This theory was first articulated by Donald Hebb in his 1949 book, *The Organization of Behavior; a Neuropsychological Theory* (New York: Wiley, 1949). Hebb states: “The general idea is an old one, that any two cells or systems of cells that are repeatedly active at the same time will tend to become ‘associated’, so that activity in one facilitates activity in the other” (p. 70). See also Perret, *Well-Tempered Mind*, 130, and Zull, *Art of Changing the Brain*, 118-19.

⁴³ Larry C. Holt and Marcella L. Kysilka, *Instructional Patterns: Strategies for Maximizing Student Learning* (Thousand Oaks, CA: SAGE Publications, 2006), 18. They cite this information as coming from an audio recording of neuroscientist Susan M. Fitzpatrick’s presentation, “The Brain, the Mind, and the Classroom,” at the 1996 Association for Supervision and Curriculum Development, Alexandria, VA. Fitzpatrick is an adjunct associate professor of Neurobiology and Anatomy at Washington University School of Medicine and vice president of the James S. McDonnell Foundation, one of a limited number of international grantmakers supporting university-based research in the biological and behavioral sciences.

⁴⁴ Zull, *Art of Changing the Brain*, 169-70.

With just a few word substitutions, many of us would probably agree that we have a good definition of the process of aural comprehension:

Aural comprehension is about forming the right images when we hear or read music. When we show that we have a precise and complex image for a sound pattern, or a precise and complex aural image for a notational pattern, we demonstrate deep learning. We demonstrate comprehension of the language of our field.

Edwin Gordon would refer to this as “audiation.”⁴⁵

To more fully appreciate how one aurally comprehends music, let us consider as an analogy the sonic building blocks of language, beginning with the phoneme. A phoneme may be defined as “any of the perceptually distinct units of sound in a specified language that distinguish one word from another, for example *p*, *b*, *d*, and *t* in the English words *pad*, *pat*, *bad*, and *bat*.”⁴⁶ A phoneme is an irreducible phonological unit and a fundamental component of a language. (We could consider a single pitch as a musical phoneme.) One phonological level up from phonemes are morphemes. A morpheme is defined as “a meaningful morphological unit of a language that cannot be further divided (e.g., *in*, *come*, *-ing*, forming *incoming*),” and “a morphological element considered with respect

⁴⁵ See, for example, Edwin Gordon, *Learning Sequences in Music* (Chicago: GIA Publications, 2007). Similarly, Bruce Benward, in *Sight Singing Complete*, 2nd ed. (Dubuque: W. C. Brown, 1973), vii, says “Experienced musicians often speak of the “hearing eye” and the “seeing ear.” What they are describing is a definition-defying sense of musical awareness, a sixth sense of auditory-visual kindred ship.” Michael R. Rogers, in *Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies*, 2nd ed. (Southern Illinois University Press, 2004), 100, cites Benward’s expression and says, “the sound-into-notes and notes-into-sound transference . . . might even more aptly be described as developing the *understanding ear* and the *hearing mind*.”

⁴⁶ Online version of the Oxford dictionary, Oxford University Press, 2011: <http://oxforddictionaries.com/definition/phoneme>. “There are 44 phonemes in standard modern English, evenly divided between vowels and consonants. The phonemes in a word do not correspond to the letters with which we write it. For example, the word *catch* contains five letters: *c – a – t – c – h*, but only three sounds: *c – a – tch*.”

to its functional relations in a linguistic system.”⁴⁷ Thus, while in-com-ing comprises three morphemes, it comprises more than three phonemes.

And, while the analogy is not exact, perhaps we can nonetheless profitably refer to musical sound patterns, or meaningful musical units, as musical morphemes, or melodic cells.⁴⁸ By this definition, an interval would be the smallest musical morpheme, since a single pitch has no meaning outside of its relationship to another pitch or set of pitches. To continue this analogy, we might consider a scale as an über- or super-musical morpheme, since most of the possible melodic and harmonic patterns in the tonal system are members of the diatonic collection. And it is the asymmetrical nature of any diatonic scale or mode that allows for both the multiplicity and uniqueness of melodic/harmonic intervals within a key. Seen through this lens, then, the major and minor scales constitute the aural basis of our tonal system.⁴⁹

After years of playing and/or singing major and minor scales and scalar patterns, the ideal music student will have internalized the sound and logic of a scale, such that (to use a common example) if you played all but the last note of an ascending scale, the student would immediately desire that tonic note, and very likely even sing it (correctly). But if one has never fully encoded the sound of the scale and each discrete pitch therein, one has not learned the most basic tonal patterns—the critical difference between whole steps and half steps within a key. The awareness of this asymmetrical arrangement (which gives rise to half steps, tritones, augmented seconds, etc.) further enables us aurally to infer a key and hear our way around a tonal soundscape. Consider, for example, the estimate that 70% of all tonal melodies move by unison, half step, or whole

⁴⁷ Oxford online dictionary: <http://oxforddictionaries.com/definition/morpheme?region=us>.

⁴⁸ Perhaps we can adopt a new term, *muneme*, as the musical analogy to a linguistic morpheme.

⁴⁹ From a purely theoretical standpoint, one may view the scale as a cycle of perfect 5ths, brought within the space of an octave; as some combination of pure and/or tempered 5ths and 3rds brought within an octave; as the orderly arrangement of the notes that constitute the three primary triads; etc., but my conceit here is with the scale as the *aural* basis of our tonal system.

step.⁵⁰ If a person is congenitally unable to discern the difference between adjacent half and whole steps, he or she is identified as tone deaf, or *amusic*.⁵¹

As a point of comparison, most people not so afflicted can distinguish differences as small as a quarter tone, and some can reliably distinguish differences much smaller than that.⁵² At the same time, psychologist Lola Cuddy has shown that some people who seem to lack this discriminatory ability are not actually tone-deaf, or amusic, but have simply never thoroughly encoded the basic aural schemata of Western tonal music (presumably due to a lack of adequate exposure and training).⁵³ However, with sufficient

⁵⁰ Krista L. Hyde and Isabelle Peretz, "Brains that are Out of Tune but in Time," *Psychological Science* 15, no. 5 (2004), 357. The authors cite Piet G. Vos and Jim M. Troost, "Ascending and Descending Melodic Intervals: Statistical Findings and Their Perceptual Relevance," *Music Perception* 6 (1989): 383–396.

⁵¹ Different neuroscience researchers apply slightly different thresholds to the categorization of this perceptual defect: Psyche Loui, David Alsop, and Gottfried Schlaug define it as the inability to differentiate between tones smaller than a half step in "Tone Deafness: A New Disconnection Syndrome?" *The Journal of Neuroscience* 29, no. 33 (2009): 10217; while Isabelle Peretz, Julie Ayotte, Robert J. Zatorre, Jacques Mehler, Pierre Ahad, Virginia B. Penhune, and Benoît Jutras define it as the inability to differentiate between tones smaller than a whole step, in "Congenital Amusia: A Disorder of Fine-Grained Pitch Discrimination," *Neuron* 33, no. 2 (2002): 189. Peretz points out that one who cannot distinguish between tones and semitones, the building blocks of the musical scales of most cultures, will be severely impaired musically: "We construe that a faulty perception of pitch might bring the development of the entire musical system to a halt. In this perspective, fine-grained pitch perception might be an essential component around which the musical system develops in a normal brain."

⁵² Peretz et al., "Congenital Amusia," 188. The researchers are not referring to the employment of quarter tones or microtones in some musical system, but rather the ability of people to discern that two successive notes, at a distance of a quarter tone or less, are different pitches. To see what such a test is like, visit <http://www.musicianbrain.com/pitchtest/>, from the Music and Neuroimaging Laboratory at Beth Israel Deaconess and Harvard Medical School.

⁵³ Lola L. Cuddy, Laura-Lee Balkwill, Isabelle Peretz, and Ronald R. Holden, "Musical Difficulties are Rare: A Study of "Tone Deafness" among University Students," *Annals of the New York Academy of Sciences*

exposure and training (as demonstrated by the above-cited experiments), they may still learn to do so. These are the students we are addressing in this paper.

In an Aural Skills class, we typically evaluate a student's ability to audiate notated music by having the student sing it. In order to do so correctly, the student must first have an accurate mental representation of the tune, corresponding to previously learned musical schemata. If the student cannot sing it accurately, that is an indication that the student has not correctly mapped the music's visual representation to its aural presentation. Similarly, if a student cannot notate a passage correctly after hearing it several times, that student has not correctly mapped this aural presentation to its visual and cognitive representation. Many non-vocalist music majors begin college with underdeveloped vocal instruments (especially if they did not sing much while growing up), and believe for that reason they cannot be successful in an Aural Skills class. Unquestionably, singing is an acquired skill, even at a modest level, but unless students have a compromised vocal mechanism, their lack of a *bel canto* voice will not hinder their Aural Skills progress.⁵⁴ What *will* hinder them significantly is a lack of appropriate musical schemata and an underdeveloped ability to discriminate between and monitor the notes they sing. Accurate singing requires auditory feedback processing, so that any mismatch between intended and actual sound output can be detected and corrected.⁵⁵ That requires that the students possess musical schemata concordant with the music they are being asked to sing or notate in class.

Take, for example, a few common problems arising from this lack of appropriate schemata and / or monitoring systems that most

1060 (2005): 320. See also John A. Sloboda, Karen J. Wise and Isabelle Peretz, "Quantifying Tone Deafness in the General Population," *Annals of the New York Academy of Sciences* 1060 (2005): 255-261.

⁵⁴ Obviously, self-consciousness, embarrassment, tension, and so on, can all play a role, and sitting up straight, breathing correctly, warming up, and so on, can be helpful. But I am considering here a different issue, which unfortunately cannot be corrected by those things, and which can hinder the progress of students with naturally beautiful voices as well.

⁵⁵ Ofer Amir et al. state: "auditory information is used in a closed-loop system which provides moment-to-moment feedback for the control of vocal production." Ofer Amir, Noam Amir and Liat Kishon-Rabin, "The Effect of Superior Auditory Skills on Vocal Accuracy," *Journal of the Acoustical Society of America* 113, no. 2 (2003): 1102.

Aural Skills instructors likely have encountered. When singing in a minor key, students often have difficulty singing *le-ti*, *ti-me*, or *le-fi*. Taken purely in half steps, none is difficult. *Le-ti* is enharmonically a minor third, *ti-me* is enharmonically a major third, and *le-fi* is enharmonically a major second. But it is the diatonic tonal context that makes such patterns difficult. In context, those intervals are not a minor third, a major third and a major second, respectively, and none of those pairs belong to a simple diatonic triad, nor a half-step, whole-step scale pattern. What makes these patterns difficult to sing correctly is the lack of an appropriate musical schema; the students have not yet encoded those patterns within a diatonic context. If students have not listened to and/or played a lot of common-practice music before entering their Aural Skills class, it is possible they would never before have even heard those patterns in a diatonically-tonal context.

Thus, an Aural Skills program should first determine whether students possess adequate schemata and monitoring skills. For those students who do not, their program should begin with extensive listening to and singing of appropriate well-known tunes in the desired musical grammar, to develop the requisite musical schemata.⁵⁶

And herein lies the next roadblock.

MUSIC-READING DIFFICULTIES

All standard college-level Sight Singing texts I am aware of assume a certain level of music reading fluency, and begin with notated exercises to be sung. And once again, that is a valid pedagogy in many if not all music departments, at least to a certain extent. But where does this leave the student with minimal music reading and aural comprehension skills? If a student has never encoded the sound of a major scale, for example, seeing it notated will not help the student to reproduce it vocally, because the student does not have the prerequisite aural image. In this respect, our modern notational system is not so different from that of Guido

⁵⁶ This may need to occur in a remedial class; in a special section that meets more times a week than the other sections; in a summer session prior to the student's first full-time semester; or in some other arrangement determined by the faculty at each institution. Screening for placement could occur on the days students are auditioning for admission to the program.

d'Arezzo, or even from non-diatemetic music, music *in campo aperto*: the notation is merely a reminder of the aural patterns and serves as a roadmap.⁵⁷ We may recall that Guido used "Ut Queant Laxis," the hymn to St. John the Baptist, to teach his students the respective positions of *ut, re, mi, fa, sol, and la* in the hexachord: he recognized that his students needed to bootstrap up from a known melodic pattern in order for his system of solmization and music reading to be effective.

When we ask underprepared students to read music notation (which they cannot do well) for the purpose of audiating, or hearing internally a musical pattern (which they cannot yet hear) so that they can sing it in rhythm (especially while conducting), we place an insurmountable barrier before them; many students give up before they have even begun. Consider again a reading analogy:

[A] child must commit the forty phonemes of [the English] language to memory so that he is able to skip the mental "sounding out" phase and effortlessly jump to visualizing the whole word as he reads. . . . On the other hand, poor readers typically get stuck in the sounding-out phase because, for various reasons, they have not adequately learned their phonemes.⁵⁸

The same applies to reading music. Students who have not yet encoded basic melodic patterns cannot sing them back fluently; they are stuck in the sounding-out phase. They should therefore not proceed in Aural Skills before having the correct aural images and a reasonably developed monitoring ability. Similar to the Suzuki method, or to the acquisition of any language, sound should precede symbol decoding—that is, singing from notation, or sight-singing, should be delayed until students can hear basic musical patterns and sing them back correctly, first on neutral syllables (to focus on monitoring), then solfège syllables (to attach functional significance). And, like Guido, we should start with music that is familiar to the students, to assist in the development of their schemata and monitoring ability.

⁵⁷ The term *in campo aperto* means "in an open field," and refers to early neumatic notation in which there are no staff lines at all, just relative positions of neumes. See, for example, Richard H. Hoppin, *Medieval Music*, (New York: W.W. Norton, 1978), 59.

⁵⁸ Perlmutter and Colman, *Raise a Smarter Child*, 75.

This approach necessitates compiling and grading accordingly a body of music literature that can be used in Aural Skills classes, music that in one way or another pervades our culture, as does “Happy Birthday”⁵⁹ or “Twinkle, Twinkle, Little Star”—music to which most students will have had at least some exposure. This music may consist of children’s songs, folk songs, movie music (for example, “Do-Re-Mi” from *The Sound of Music*), jazz standards, pop music, holiday songs, patriotic songs, and popular, well-known classical pieces (such as the “William Tell Overture,” and Pachelbel’s “Canon”).⁶⁰ As Loui demonstrated in her above-discussed study, by using music that the students already know, musical patterns and principles can be extracted and learned much more readily than when trying to extract principles from unfamiliar repertoire, whose grammar and syntax has not been fully internalized. Well-known children’s songs and folk songs are therefore ideal for establishing the basic scaffolding because they contain multiple iterations of standard tonal patterns, providing the repetition necessary for developing schemata.⁶¹ When Holt and Kysilka discuss effective teaching strategies and say: “Patterns are repeated classification systems,” they are describing schema formation.⁶²

Additionally, it is best to use primarily songs with text (a feature of virtually all children’s songs, folk songs, patriotic songs, and so on), because the processing of text engages a different part of the brain than does music alone, thereby bringing increased

⁵⁹ According to the 1998 *Guinness Book of World Records*, “Happy Birthday” is the most recognizable song in the English language, followed by “For He’s a Jolly Good Fellow” and “Auld Lang Syne.” The song’s lyrics have been translated into at least 18 languages. *Guinness Book of World Records*, (Guinness Publications, 1997), 180. <http://books.google.com/books?id=H-oSAQAAMAAJ>.

⁶⁰ Many of these pieces appear in early method books, so students who have had any lessons on an orchestral instrument or on piano will have encountered a number of them already. I have included a selected list of such songs in Appendix 1 at the end of this article.

⁶¹ There are many song book collections one could use for this purpose, including the two volumes of *Get America Singing . . . Again!* (Milwaukee, WI: Hal Leonard Corporation, vol. 1, 1997; vol. 2, 2000), a project of the Music Educators National Conference, edited by Pete Seeger (who was the Honorary National Chair of the *Get America Singing . . . Again* campaign).

⁶² Holt and Kysilka, *Instructional Patterns*, 20.

brain power to the task.⁶³ Similarly, conducting should be taken up immediately because that engages the motor cortex as well. Conductor Peter Perret, citing the work of neuroscientist Joaquín Fuster, explains that “new tasks and concepts are learned efficiently when instruction involves frequency, intensity, cross-training [of brain hemispheres], and motivation and attention.” He goes on to quote Fuster: “Contiguity, repetition, and emotional load seem to be the most decisive strengtheners of synaptic contact in the making of a cognitive network.”^{64 65}

Another advantage of using such songs (as, for example, “Hot Cross Buns,” “Mary Had a Little Lamb,” “Lightly Row,” “Jingle Bells,” “Little Brown Jug,” “America the Beautiful,” “Auld Lang Syne,” and “Battle Hymn of the Republic,” to name just a few), is that many of them begin on *mi* or *sol* (whereas the beginning exercises in many sight-singing books begin solely on tonic), so students become accustomed to that immediately, as a normal course of events. And, because they already know the song, they automatically hear a tonic and tonal context in their head before they even begin to sing the text—they do not have to first establish a tonic and then find *mi* or *sol*, as they would in an unfamiliar song. It is a much more holistic process.

⁶³ This continues to be an effective strategy when introducing more difficult topics, as, for example, chromatic passing and neighbor tones.

⁶⁴ Perret, *Well-Tempered Mind*, 136, quoting from Joaquín M. Fuster, *Cortex and Mind: Unifying Cognition* (New York: Oxford University Press, 2003), 11-16, 82. Fuster is Professor in the Department of Psychiatry and Biobehavioral Sciences at the School of Medicine, Director of the Cognitive Neurosciences Laboratory in the Neuropsychiatric Institute, and Member of the Brain Research Institute, at the University of California, Los Angeles. The term “emotional load” may be understood to refer to the level of emotional arousal being experienced by an individual.

⁶⁵ Pertinent to our discussion, a 1969 study that divided 144 sixth-grade children into two groups found that the “group which showed the greatest gain in accuracy of scale-singing was that which practised [sic] selected songs, rather than scales.” Quoted in Graham F. Welch, “Poor Pitch Singing: A Review of the Literature,” *Psychology of Music* 7, no. 1 (1979): 54-55. While there was no discussion of it in the study, perhaps the use of text in the songs and/or the use of engaging melodic patterns contributed to more robust learning than just singing scales.

A few simple examples illustrating this approach should suffice. As a beginning exercise, students could tap and sing, then conduct and sing, "Hot Cross Buns" (learning it by rote if they did not already know it). The simultaneous tapping/conducting and singing of text engages the motor- and text-processing parts of their brains (the so-called hemispheric cross-training referred to above),⁶⁶ thereby creating a more robust neuronal network than would be possible by singing just the pitches. Next, students should sing the song on a neutral syllable, allowing them to focus solely on singing the correct pitch, without the distraction of a text.

Once the desired tonal patterns have been learned aurally, moveable-do solfège syllables or scale degrees should be substituted for the song's lyrics, so that students consciously encode the associated functional syllables or scale degrees with the melodic cells (in this case, *mi*, *re*, *do*, and *do*, *re*, *mi*).⁶⁷ In the early stages, the instructor should sing the song on solfège syllables and have the students echo-sing it.⁶⁸ Eventually, the students should determine the syllables themselves and progress directly from singing the text to singing on functional syllables. Students should be monitoring their output carefully right from this beginning stage; it is critical that these patterns (and all subsequent patterns) be encoded correctly.⁶⁹

⁶⁶ Other physical actions, such as the use of Kodály hand signs, may also be incorporated. Kodály adapted his hand signs from John Spencer Curwen, who himself borrowed from an earlier music teaching system known as Norwich Sol-fa, devised by Sarah Glover. An informative and accessible online site for information about Kodály is the *Classics for Kids* site: <http://www.classicsforkids.com/teachers/training/handsigns.asp>.

⁶⁷ We should bear in mind that this may well be the first time these students engage in any formal musical activity in which they are consciously associating pitches with scale degree functions, especially where sound precedes symbol. If students had prior experience singing in a choir or playing in a band or orchestra, they likely read from a score but never knew what their part sounded like before someone sang or played it for them, or they themselves played the notes on their instruments.

⁶⁸ We should remain mindful of the fact that having memorized the melody of a simple children's song, even with syllables attached, does not mean a student understands the actual mapping of syllables to pitches, as we saw from the experiments described above (Loui et al., "Humans"). There needs to be a sufficient number of exemplars, sung with syllables, for each pattern to be encoded.

⁶⁹ If students are having difficulty, they can try singing with the piano, or singing along with the instructor. The instructor should also model

Finally, students should look at a notated version of the song while singing it on solfège syllables, thereby attaching a visual representation to their now-accurately-encoded aural representation. This now engages both the text-processing and the more abstract symbol-decoding parts of their brains, in addition to the auditory and motor cortices. It is helpful to repeat this exercise in several keys so students practice associating this aural image to several notated versions, increasing their fluency reading in different keys. After completing several examples this way, students can be given short exercises to practice the newly-introduced melodic cells, and finally be given similar patterns to sight-sing in various keys.⁷⁰

Similarly, to learn, for example, “la” in relation to “sol” in a melody, one can first practice singing “Twinkle, Twinkle Little Star,” “Shortnin’ Bread,” “Looby Lou,” “Frère Jacques,” or “Happy Birthday” (or other similar songs) before incorporating that pattern into an unknown piece. For ascending and descending tonic triads, one can first practice “Taps” and “Row, Row, Row Your Boat,” and so on. At a somewhat more advanced level, students can sing “Sailing, Sailing,” or the beginning of “White Christmas,” for an introduction to chromatic neighbor tones.⁷¹ Even if students have never thought explicitly about the tonal patterns comprising these melodies, likely those tonal patterns or schemata are encoded and can be called upon how to reproduce pitches accurately, by pointing out things like repeated notes, notes returning after a few intervening pitches, and so on.

⁷⁰I have used this approach with great success in a trailer section of Aural Skills 1, in which almost all the students had already failed the course, and almost all came into the course with very weak skills. By the end of the semester, these students, overall, performed better than any Aural Skills 1 course I have taught, and none of them failed. (One class even adopted “Shortnin’ Bread” as its theme song.) I also employed a similar methodology in the dictation component of this class.

⁷¹I have had success introducing chromatic notes in this way, whereas in the past, chromatic notes have always been a terrible struggle for many students. In one class, I had a number of singers who were fans of Broadway musicals, so I used “Bibbidi-Bobbidi-Boo,” “Do-Re-Mi,” and “Sixteen Going on Seventeen.” These students could all sing the melodies quite accurately, so attaching the new solfège syllables was akin to learning a new set of lyrics to a melody they already knew, without even realizing it was chromatic. “Night and Day” also worked well because many of the students sang and played in jazz ensembles and were familiar with this song. Thus, the anxiety that typically accompanies the introduction of chromatic notes was significantly reduced.

easily and used as archetypes for learning future songs. And for those students who might not already know them, these songs can easily be taught by rote precisely given their simplicity, brevity and repetitions.

And brevity leads to the final point.

It is the manipulation of information in short-term, or working memory (i.e., the explicit learning of tonal patterns with functional syllables) to form new relationships with information in long-term memory (previously-learned songs containing those patterns) that creates new knowledge: we build upon extant neuronal networks to create newer, more complex networks.⁷² When teaching, we are working to make the various tonal patterns become part of our students' long-term memory, so we must resist the temptation to overload working memory (which can hold 7 ± 2 pieces or chunks of information⁷³), or we are shoving out pieces of information as quickly as we are shoving more in. The more one tries to hold in working memory, the less ability one has to focus on what is most important.⁷⁴ We need to help our students build a firm foundation, and that requires concentrated attention on their part; thus, we need to allow our students to work with small chunks of information, in order to solidify each one in turn.

⁷² Zull, *Art of Changing the Brain*, 185.

⁷³ George A. Miller, "The Magical Number Seven, Plus Or Minus Two: Some Limits on our Capacity for Processing Information," *Psychological Review* 63, no. 2 (1956): 81-97.

⁷⁴ Zull, *Art of Changing the Brain*, 184, and footnote 2, p. 201. See also Jenny R. Saffran, Richard N. Aslin, and Elissa L. Newport, "Statistical Learning by 8-Month-Old Infants," *Science* 274, no. 5294 (1996): 1926-1928.

CONCLUSION

When incoming students have limited training and exposure to common-practice music, they often have underdeveloped musical schemata for that sophisticated musical vocabulary, grammar, and syntax. We should therefore choose teaching materials that do not depend upon a great deal of familiarity with that Classical repertoire, but rather, materials that are familiar to the students and that can coexist with that repertoire: materials that can teach the patterns, grammar and syntax of Classical music, as well as some of the more popular musical genres that students will continue to encounter (many of which share that vocabulary, grammar, and so on, though not explicitly enough for many students to recognize without guidance). These materials will build a foundation to support more sophisticated learning.

To provide that support, the chosen materials should meet the following criteria:

1. the music should be well-known to the students, so that it has been previously encoded;
2. the musical examples should be relatively short, so as not to overload working memory;
3. the music should contain short, repetitive melodic patterns to satisfy the need for both brevity and repetition;
4. the music should possess text so as to engage linguistic processing as well as audio processing for cross-hemispheric training.

As shown above, children's songs, folk songs, patriotic and holiday songs, and some popular music, can serve as the perfect exemplars for inculcating the basic musical patterns and grammar that are the goals of both the Aural Skills course, and the people teaching it.

APPENDIX 1

What follows is a selection of songs that may be used to support the approach discussed in this paper.⁷⁵ Many other such songs could be used as well.

I have arranged the songs into two basic groups: songs whose melodies are completely diatonic, and songs whose melodies contain some chromaticism (whether decorative chromaticism, chromaticism outlining secondary dominants, modal borrowing, and so on).

For the melodies listed in the diatonic group, some portions of the melody may be appropriate at a beginning level, while other portions may not be, such as when the harmonization contains secondary dominants that would tend to obscure the sense of tonic. Thus, one may choose to use just a phrase, or just the verse, and so on, to practice a specific melodic pattern. For instance, the melody for "Pop Goes the Weasel" is completely diatonic, and the first four measures (the first two lines of text) are ideal as an example outlining the tonic triad (with a passing tone, *re*, between *do* and *mi*). However, the B section of the song contains secondary dominants, so would not be appropriate at this level, but could be used at a more advanced level.

Conversely, some of the melodies listed in the chromatic group have phrases or sections that are entirely diatonic, and those portions would be perfectly suitable at an elementary level. For instance, one may wish to use just the first two phrases of "Deck the Halls" (through the first "fa, la, la" refrain) for basic scale-wise motion, while holding off on the third phrase ("Don we now . . .") until chromatic notes and secondary dominants are introduced.

A final note: In choosing songs, I consider my current students, and try to align my choices with their musical experiences as much as possible, particularly for more advanced examples. Thus, I have included in the list "Sweet Adeline" as a chromatic example including secondary dominants. Initially, that may seem an odd choice, but we recently had a number of students involved in Barbershop singing, so I used that melody with them.

⁷⁵ In cases where two or more songs share the same melodies, or very similar melodies, I have listed them together. These songs may also be used for melodic and harmonic dictation.

I. Diatonic Songs	
A Tisket, A Tasket (It's Raining, It's Pouring; Rain, Rain, Go Away)	Jingle Bells
All the Pretty Little Horses	Lavender's Blue
All Through the Night	Lazy Mary
Alphabet Song (Baa, Baa, Black Sheep; Twinkle, Twinkle Little Star)	Lightly Row
Amazing Grace	Little Brown Jug
America (My Country 'Tis of Thee)	Looby Lou
Amsterdam (Once There Were Three Fishermen)	Mary Had a Little Lamb (Merrily We Roll Along)
Au Clair de la Lune (Pierrot)	Michael, Row the Boat Ashore
Auld Lang Syne	Morning Has Broken
Battle Hymn of the Republic (The Ants Came Marching)	Old King Cole
B-i-n-g-o	Old MacDonald
Do Your Ears Hang Low	On Top of Old Smokey
Down by the Station (Eensy Weensy Spider)	Over the River and Through the Woods
Farmer in the Dell (Bow Wow Wow)	Pop Goes the Weasel
For He's a Jolly Good Fellow (The Bear Went Over the Mountain)	Reuben and Rachel
Frère Jacques	Row, Row, Row Your Boat
Ghost of John	Shortnin' Bread
Gilligan's Island (TV Theme)	Simple Gifts
Go Tell Aunt Rhody	Skip to My Lou
Good King Wenceslas	Scarborough Fair
Greensleeves	Shortnin' Bread
Happy Birthday	Supercalifragilisticexpialidocious (<i>Mary Poppins</i>)
Heigh Ho, Nobody Home	Taps
Hot Cross Buns	This Old Man (<i>Barney</i> song)
Hush Little Baby	Three Blind Mice
I Have a Dog	Wheels on the Bus
I Saw Three Ships	Yankee Doodle

II. Songs Containing Chromatic Notes	
A Spoonful of Sugar (<i>Mary Poppins</i>)	Night and Day (Cole Porter)
A Whole New World (<i>Aladdin</i>)	Norwegian Woods (The Beatles)
All of Me	One Hand, One Heart (<i>West Side Story</i>)
America (<i>West Side Story</i>)	Over the Rainbow (<i>Wizard of Oz</i>)
America The Beautiful	Sailing, Sailing
Bibbidi-Bobbidi-Boo (<i>Cinderella</i>)	Sesame Street (TV Theme Song)
Chim Chim Cher-ee (<i>Mary Poppins</i>)	Seventy-Six Trombones (<i>The Music Man</i>)
Crazy (Willie Nelson)	Sixteen Going on Seventeen (<i>The Sound of Music</i>)
Deck the Halls	Somewhere (<i>West Side Story</i>)
Do-Re-Mi (<i>The Sound of Music</i>)	Sound of Music, The (<i>The Sound of Music</i>)
Down by the Riverside	Star Spangled Banner
Flintstones (TV Theme Song)	Sunrise, Sunset (<i>Fiddler of the Roof</i>)
For the Longest Time (Billy Joel)	Sweet Adeline
Frosty the Snowman	Take Me Out to the Balgame
Glow Worm	Tonight (<i>West Side Story</i>)
Hey Jude (Beatles)	White Christmas
Maria (<i>West Side Story</i>)	Yankee Doodle Boy

APPENDIX 2

Figures 1 and 2 (including their respective captions) from Psyche Loui, David L. Wessel, and Carla L. Hudson Kam, "Humans Rapidly Learn Grammatical Structure in a New Musical Scale," *Music Perception* 27, no. 5 (2010): 377-388. © 2010 by the Regents of the University of California. Published by the University of California Press, and used by permission.

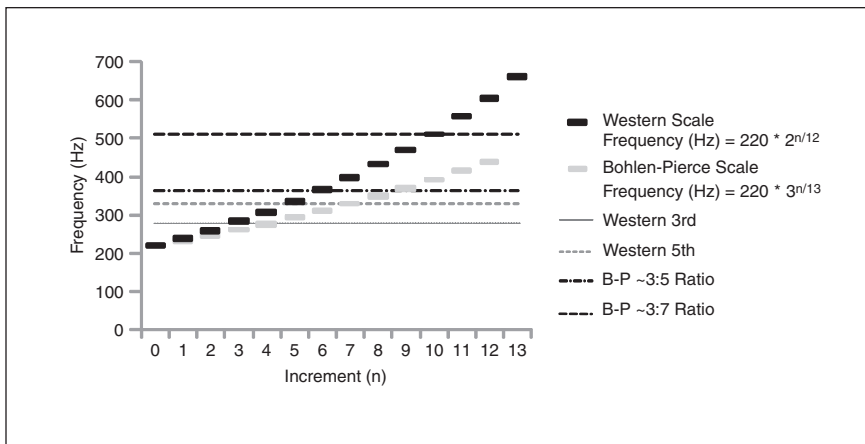


FIGURE 1. Frequencies along the Bohlen-Pierce scale compared to the Western scale. One cycle of each scale is shown in the figure. The starting point of the two scales is the same (220 Hz) and both scales are equal-tempered, thus making them analogs of each other except for the intrinsic differences in base and recurrence ($2^n/12$ vs. $3^n/13$). The horizontal dotted and dashed lines represent major third and perfect fifth intervals in the Western scale and approximate 3:5 and 3:7 intervals in the Bohlen-Pierce scale.

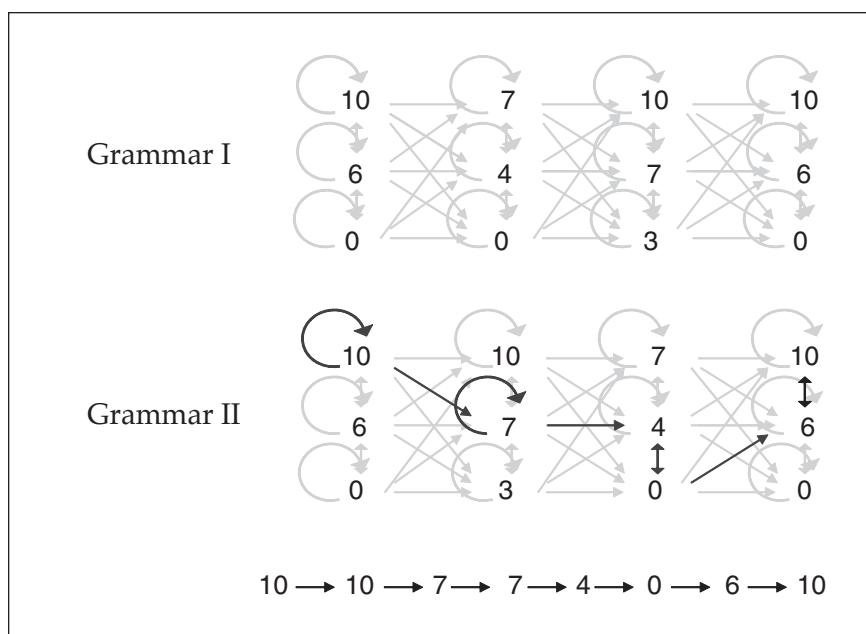


FIGURE 2. (A) A diagram of the finite-state grammar illustrating the composition of melody from harmony. Each number represents n in the Bohlen-Pierce scale formula in Figure 1a. Legal paths of each grammar are shown by the arrows. (B) The derivation of one melody from one of the two grammars. Dark arrows illustrate the paths taken, whereas light arrows illustrate other possible paths that are legal in the grammar. The resultant melody is shown at the bottom of the figure.

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Report on the 2013 Workshops in Music Theory Pedagogy

BY KRISTEN WALLENTINSEN

Over sixty participants gathered at the University of Massachusetts Amherst from Monday, June 24th to Friday, June 28th to take part in the third triennial Workshops in Music Theory Pedagogy, hosted by Gary S. Karpinski and the UMass Amherst Department of Music and Dance. Over the course of the week, workshop participants attended presentations on various topics from five distinguished pedagogues: Elizabeth West Marvin, Steven Laitz, Peter Schubert, Matthew Santa, and Gary Karpinski. Topics included approaches to teaching undergraduate harmony, counterpoint, form, aural skills, and fundamentals, as well as the role of music cognition in the classroom.

GARY S. KARPINSKI

Throughout the week, Gary S. Karpinski presented a cognitively-based pedagogical approach to aural skills training. He began by asking where the curriculum should begin, advocating that instruction should start with the most basic elements in the temporal domain. He demonstrated various aspects of rhythm and meter by introducing a simple exercise: clapping along with a musical passage. This activity provides an experiential basis for understanding, using students' various responses to illustrate basic temporal features, including pulse, meter, and rhythm. From there, he introduced protonotation, which provides a solid foundation for the beginnings of metric and rhythmic dictation.

Turning to pitch, Karpinski stressed the importance of scale-degree function in musical understanding. He argued that tonal thinking relies on function, and cast doubt upon the practice of acontextual interval training, stating that it does not accurately reflect how we hear tonal music. Karpinski advocated the use of a solmization system that models tonal functions within a key, such as moveable-do solfège or scale-degree numbers. However, Karpinski continued to explain that a functional solmization system should not interfere with the system of naming pitches (such as fixed-do solfège), so he advocates using two separate systems:

one to get at function, and one to name pitches. Once solmization systems are chosen, it is important to drill students extensively in them: only then can these tools become fully useful to students.

With the temporal and pitch domains firmly in place, Karpinski discussed his approach to dictation. He introduced his four-phase model of music cognition for dictation: hearing (or attention), memory, understanding, and notation.¹ He explained that dictation can help to improve each of these phases: It requires the ability to attend to a melody, encourages development of short-term and extractive musical memory, requires the understanding of the melody's tonal and metric features, and the ability to properly notate the melody.

Interaction between the teacher and the student during each of these four phases also helps teachers identify problems with dictation. Karpinski noted that simply examining the notation phase will not necessarily determine the causes of a problem, so he outlined various methods for diagnosis and remediation of difficulties at each phase. For example, he advocated assessing memory problems by having students sing back a melody on a neutral syllable, rather than complicating it by introducing understanding (solmization) and notation.

Karpinski suggested that many teachers give students too much information including the number of measures, the meter, and extramusical tonal cues prior to the beginning of a dictation. If a teacher hands over this much information, they'll never be able to assess whether students can properly perceive these cues on their own. He advocated supplying only the bare essentials needed to notate a melody: the clef, the note value assigned the beat, and the note name of the tonic. This technique reveals the students' ability to perceive important musical cues.

In addition, Karpinski discussed aspects of grading dictations, and introduced pedagogical approaches to teaching fundamentals.

ELIZABETH WEST MARVIN

Elizabeth West Marvin focused on music cognition and its pedagogical implications. She introduced various cognitive topics including Gestalt psychology, statistical learning, aspects of absolute pitch possession, and intrinsic motivation in students.

¹ Gary S. Karpinski, *Aural skills acquisition: The development of listening, reading, and performing skills in college-level musicians* (New York: Oxford University Press, 2000), 64–91.

Marvin began by illustrating the grouping principles that form the basis of Gestalt psychology. Such grouping criteria include proximity, similarity, symmetry, good continuation, and common fate (or commonalities in motion). Grouping, Marvin explained, is crucial to musical memory because it allows one to group, or “chunk” musical components, facilitating our remembrance of longer melodies. Chunking helps to expand the limits of short-term memory, which are 7 ± 2 bits of information.² By teaching students to group musical information into larger units like chord progressions or scalar patterns, they are able to understand and remember longer passages.

Regarding statistical learning in music, Marvin stated, “our brains are at work tracking distributions and probabilities” based on our previous musical experiences. This process informs our expectations, and “shapes the knowledge that freshmen bring to our theory classes.” Studies indicate that perception of pitch collection and key is correlated with tonal context.³ Marvin stated that it is our job to make this implicit knowledge more explicit through practice and training. She advocated teaching tonal patterns, in order to get students to comfortably and quickly recognize such paradigms as a descending $\hat{3}-\hat{2}-\hat{1}$ pattern when they encounter it in musical contexts. Marvin also covered beat entrainment and metric perception, and their roles in learning meter. Marvin advocated an experiential approach, asking students to tap different levels of pulse with their hands and heels to understand the relationships that create meter.

Marvin defined absolute pitch (AP) as the ability to produce either the name or frequency of a tone without any reference. She discussed two hypotheses regarding the acquisition of AP: The nature hypothesis posits a genetic basis, whereas the nurture hypothesis posits a critical period for acquisition based on early exposure.

² George Miller, “The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information,” *Psychological Review*, 63, no. 2 (1956): 81-96.

³ David Temperley and Elizabeth West Marvin, “Pitch-Class Distribution and the Identification of Key,” *Music Perception: An Interdisciplinary Journal*, 25 no. 3 (2008): 193-212; David Huron, *Sweet anticipation: Music and the psychology of expectation* (Cambridge, Mass: MIT Press, 2006); Carol L. Krumhansl and Edward J. Kessler, “Tracing the dynamic changes in perceived tonal organization in a spatial representation of musical keys,” *Psychological Review*, 89 no. 4 (1982): 334-68.

Marvin also introduced a related concept called “heightened tonal memory” (HTM), which is associated with early learning and a memorized template. She explains that the memorized template results from a learned association between pitches and their labels as a result of early musical exposure, and that this can account for errors with mistuned or timbrally different pitches that don’t match the memorized template. Marvin noted that musicians have long been interested in the mysteries of AP, as it is often associated with the notion that “AP makes for a ‘better’ musician,” or a better ability to perform in aural skills classes. However, relative pitch is also important to an AP possessor’s musical development. As such, she strongly advocated using a functional solmization system such as scale degree numbers (making sure not to conflict with any concurrently-used fixed system). She also advocated singing away from notation, as well as singing in C-clefs that many (both AP and non-AP) students are less familiar with. Above all, Marvin stressed that one should not single out AP possessors in any way: they should not feel punished for having AP any more than non-AP possessors should feel punished for not having it.

Marvin closed with a discussion of motivating students. She cited work on intrinsic motivation by Deci and Ryan, stating that “motivation develops from within us, grounded in our basic human needs to develop our skills and capacities.”⁴ However, the academic requirements of typical theory courses often stifle such intrinsic reward. Marvin presented five ways to rekindle such intrinsic motivation: comprehensive musicianship, discovery learning, a “switching it up” approach involving a flipped classroom, spiral learning, and combining analysis with performance.

STEVEN LAITZ

Steven Laitz urged participants to keep the theory curriculum relevant for students. He stressed beginning with the music, modeling his own presentations on this approach throughout the week. Laitz advocated that theory teachers should not introduce any new concept without explaining its implications for performance. In doing this, students learn to support the choices they make in performance, allowing them to turn their musical intuitions into analytically-based musical choices. Laitz also advocated the use

⁴ Edward L. Deci and Richard M. Ryan, *Intrinsic motivation and self-determination in human behavior* (New York: Plenum, 1985).

of more than just piano literature, emphasizing that many students are not pianists.

Laitz drew from Gestalt psychology to discuss normative and deviant structures. He argued that students' labels must reflect their perception of the music. Laitz asserted that vertical chord labeling does not accurately reflect the true workings of the music. He advocated separating the systems of figured bass, Roman numerals, and inversions in order for students to properly understand the structure behind the passage. He also explained the need to understand normative structures, in order to identify and eventually help to explain deviant ones. Norms set up generic expectations based on Gestalt perception and statistical learning, whereas deviants purposely frustrate those expectations in order to heighten musical drama and create a narrative. Laitz noted that grasping these concepts is necessary for an understanding of things like musical humor and allusion.

Laitz continued by discussing students' concerns about analysis, listing two main complaints: that analysis will "ruin" a piece, and that analysis involves "just labeling stuff." So Laitz asks students the following question: "Why do analysis?" He then leads them to a list of very convincing reasons:

- It reveals structures that musicians may otherwise miss.
- It explains motivating factors behind odd passages that are sometimes difficult to explain let alone project in performance.
- It shows a work's unique structure, and places the work in the context of other works.
- It focuses interpretation and practice.
- It allows for the development of a musical narrative.
- It allows for verbal communication about the piece.

Laitz stressed that performers should not feel they must project what they find in a piece, for it can result in a forced and unmusical interpretation, but an awareness of the compositional process can open the doors to new interpretational choices.

Laitz used non-harmonic tones as an example of how analysis, not just theory, can lead to theoretical understanding. He argued that the presentation of non-harmonic tones usually occurs in a very dry fashion, often resulting in a long list of acontextual terms. Laitz once again advocated beginning with the music, using the second movement of Mozart's Piano Sonata in F Major, K. 332, in his presentation. Exploring non-harmonic tones in their natural

habitat shows students how they work in context to heighten the intensity and drama of a composition.

Finally, Laitz discussed ways to incorporate linear analysis in the undergraduate core curriculum. He introduced the phrase model, and discussed the expansion of phrase sections through the use of intermediary contrapuntal chords, stressing their hierarchical importance. He then introduced the fundamentals of graphic analysis, the goal of which is to represent our hearing of melody, outer-voice counterpoint, and harmony. Laitz advocated using only five symbols when introducing graphic analysis: the stemless note head, the stemmed filled note, the stemmed open note, the slur, and the flag. He asserted that, in creating a graph, students gain a better understanding of the deeper-level connections within a piece, which can then influence their interpretation.

MATTHEW SANTA

Matthew Santa's sessions focused on his approach to teaching form. He began by discussing goals for a course in the analysis of form. According to Santa, students should be able to identify sequence types, modulations, phrase endings and cadences, formal sections, and extend these ideas to the form of an entire work, both with and without a score. By teaching students to listen to and identify these things without a score, Santa reinforces aural skills and musical attentiveness.

Santa explained that an understanding of tonal paradigms is necessary when listening to music without the score. For example, he advocated position-finding techniques that situate one within a tonal context that permits immediate cadence identification. He also suggested focusing on bassline motions, given their importance in articulating formal functions. According to Santa, it is important for students to use their knowledge of common cadential formulas and tonal paradigms to guide their hearing. His approach to aural analysis relies on a firm understanding of characteristic tonal trajectories within formal sections. For example, when listening for the second theme of a movement in sonata form, Santa explains that students should expect the appearance of the medial caesura, a structural rhythmic and textural break most commonly on the dominant of the secondary key. Students must be able to support their interpretations in formal decisions.

Santa also presented samples of various homework assignments

that illustrated his approach to various forms, including binary, ternary, sonata, and rondo. These assignments include a partially-completed form diagram for students to identify events such as cadence points and types, formal section labels, and specific locations of important events. In order to master techniques for listening without the score, Santa advocates using similar exercises during class. He plays a recording several times, instructing students to conduct along and count measures as they fill in the blanks on the diagram. He encourages students to use their homework assignments to practice without the score as well, gently reminding them that such abilities will prove useful for their final exam.

Santa used what he calls an “economy of terminology” in order to facilitate memorizing the formal sections that students need to listen for. He emphasized the importance that students be able to communicate ideas about form with other musicians, so he advocated refraining from using new or specialized terms, instead looking to those used most widely by applied faculty. However, Santa also advocated teaching synonymous terms in order to facilitate fluency when communicating with musicians trained in other systems.

PETER SCHUBERT

Peter Schubert used the week to explain his views on teaching counterpoint and improvisation. He began by asking, “Why teach counterpoint?” and followed the rhetorical question with the crucial point that contrapuntal thinking is fundamentally different from harmonic thinking. He also noted that pedagogical approaches to counterpoint fall into one of two camps: style-based and astylistic. Schubert argued that astylistic counterpoint pedagogy is abstract, unmusical, and skeletal—focusing on commonalities and arriving at repertoire only eventually. Style-based counterpoint, on the other hand, is based in repertoire, and is therefore more complete, more specific, and focuses more on the unique aspects of a work rather than the skeletal commonalities of the astylistic approach. Schubert explained that, beyond teaching normative models, astylistic counterpoint is more difficult for students to use in their daily musical activities, and it is more difficult for students to make the connection between their counterpoint exercises and the “real” music that they encounter elsewhere. Clearly, stylistic counterpoint serves students better than astylistic counterpoint.

Schubert incorporates stylistic improvisation into his counterpoint pedagogy and his undergraduate harmony curriculum, arguing that studying improvisation develops a number of skills, including musicianship, confidence, memory, embodiment, visualization, and intuition. As such, he makes certain that each student has multiple opportunities to improvise in classes. He cited an old Confucian proverb: "I hear and I forget, I see and I remember, I do and I understand." Only by performing counterpoint can students apply and therefore internalize their understanding of the principles.

As he does in his classes, Schubert asked several workshop participants to engage in improvisation activities during his presentations, including singing a fauxbourdon over the chant "Conditor Alme Siderum," and singing *contrapunto fugato*, *stretto fugato*, invertible counterpoint, and canons. He also advocated using a comprehensive approach, stating, "We expect that if we talk about $\hat{6}$ in B major, you will be able to write it, recognize it on the page, recognize it when it is played, sing it, play it, and use it in a sentence." Schubert took participants through his various harmony exercises by using video clips available on his YouTube channel.⁵ In addition to improvisation, Schubert advocates including a number of composition projects in core courses, culminating in a "rounded-binary dance in vaguely 18th-century style, in only two parts but with figured bass." Engaging students in all of these ways can help to ensure that they will retain what they have been taught, and be able to use it during the course of their careers.

ADDITIONAL ACTIVITIES

In addition to the presentations, workshop participants also took part in various other activities. On Monday, participants enjoyed an ice cream social. Karpinski entertained participants with a lively music quiz show on Tuesday evening. On Wednesday, new UMass Amherst faculty member Stefan Love gave a presentation on integrating jazz into the undergraduate curriculum, and Karpinski gave a formal paper entitled "The View from the Aural Skills Classroom" (originally presented at the 2011 meeting of the National Association of Schools of Music). In addition, the faculty joined together for two panel discussions, the first dedicated

⁵ Peter Schubert, "Peter Schubert Music," Youtube, last modified September 20, 2012, accessed July 26, 2013, <https://www.youtube.com/user/peterschubertmusic>.

to publishing textbooks, and the second answering a range of participant questions.

Throughout the week, the five pedagogues presented their views on teaching music theory, using their expertise to address how to make the theory curriculum more relevant to today's students. In their unique ways, they provided participants with tools needed to give students a more enriching and rewarding experience in the music theory classroom, and participants left the conference on Friday inspired to do just that.

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Review for *The Journal of Music Theory Pedagogy*

Miguel A. Roig-Francolí, *Understanding Post-Tonal Music* McGraw-Hill, 2008. ISBN 978-0-07-293624-7 [387 pages] and the accompanying *Anthology of Post-Tonal Music* McGraw-Hill, 2008. ISBN 978-0-07-32502-6 [214 pages]

Edward Pearsall, *Twentieth-Century Music Theory and Practice*, Routledge, 2012 ISBN 978-0-415-88896-7 [299 pages]

REVIEW BY JANE PIPER CLENDINNING

This review examines two recent textbooks intended to introduce students to twentieth-century music theory and analytical techniques through an upper-division undergraduate or general graduate semester-length course: *Understanding Post-Tonal Music* by Miguel Roig-Francolí (University of Cincinnati) and *Twentieth-Century Music Theory and Practice* by Edward Pearsall (University of Texas-Austin). In selecting a music theory textbook for any introductory course, significant consideration should be given to the types of topics and musical examples that are included, content organization among and within chapters, connections made to listening and performance, up-to-date theoretical content, and clear, step-by-step presentation of theoretical concepts and analytical techniques. Other desirable features include an accessible writing style, page design and content layout that is visually appealing, exercises for student assignments, and other aids to learning, such as lists of terms and review questions at the ends of chapters, boxes or sidebars for essential concepts, inclusion of musical example recordings, and a glossary of terms. In addition, a textbook for a twentieth-century theory and analysis course has a challenging task: introducing students to musical styles that might be unfamiliar and intimidating, thereby helping them understand and appreciate great music literature of the last century to the present through engaging it analytically. All of these elements will be considered in turn in this review.

TOPICS AND MUSIC REPERTOIRE

Understanding Post-Tonal Music is comprised of fourteen chapters, arranged in a sequence that is roughly chronological, but also grouped by topic: the first eight chapters are focused on post-tonal musical styles prior to 1945; the remaining six on selected compositional practices in music from 1945 into the twenty-first century. According to the Preface (pp. vii-ix), Roig-Francolí considers the chapters on pitch-class set theory (Chapters 1-4) and twelve-tone serialism (Chapters 7-8) to be the core of the book; those on other topics, such as neoclassicism (Chapter 5), musical borrowing and “ultramodern” composition (Chapter 6), and the post-1945 chapters (Chapters 9-14) including later styles of serialism, rhythmic and metrical developments, aleatoric and sound mass music, postmodernism, minimalism, and motivic practices in recent music, are indicated as being optional, and can be dropped out for time concerns. Not surprisingly, the chapters deemed essential are focused on pitch processes, while those indicated as optional address rhythm, form, texture, timbre, and other musical aspects. The optional chapters, however, are the most original parts of the textbook, engaging some pieces and topics that other twentieth-century theory books do not. An epilogue, set-class list, bibliography, acknowledgements, and subject/author and musical example indices complete this volume.

The chapter topics in Pearsall’s *Twentieth-Century Music Theory and Practice* are more narrowly focused on analytical tools developed for Second Viennese School composition, with seven of nine chapters engaging pitch and pitch-class theories (Chapters 1-6) and serial procedures (Chapter 8). The remaining chapters address rhythm and contour (Chapter 7) and texture and sound color (Chapter 9). Though the topics are restricted primarily to pitch-class set and serial theories, Pearsall draws on a variety of composers and styles, including a diverse assortment of brief musical examples, and he emphasizes recent theoretical terminology and concepts. Following Chapter 9 is an aural skills supplement (pp. 254-270), with information regarding accessing an online aural skills trainer designed and programmed by John Wm. Schaeffer. The aural skills materials focus on three “streams:” unordered pitch and pitch class intervals in trichords, tetrachords, and melodies; combining intervals and contours; and rhythmic variation and overlapping motives. The online software is intended for student practice, and

has an examination function made accessible to the teacher by emailing the textbook author. Teachers of pitch-class set theory often want the students to become aurally familiar with pitch-class sets, but these aural skills materials seem to be a bonus feature—though useful, they are limited in their topic coverage and are not well integrated with the text.

Experienced teachers of twentieth-century music theory will find many familiar post-tonal musical examples treated in detail in both of these books, including Debussy's "La cathédrale engloutie" (allocated six pages by Pearsall and ten pages plus the complete score in the Anthology for Roig-Francolí); Bartók's "From the Island of Bali" (both include a substantial excerpt in assignments); Webern's *Five Movements for String Quartet* Op. 5, No. 3; Berg "Schlafend trägt man mich" Op. 2, No. 2; and the first eleven measures of Schoenberg's Op. 11, No. 1, a work so indispensable to teaching pitch-class set theory that it is included in almost all textbooks engaging that topic. Because most examples in *Twentieth Century Music Theory and Practice* are very short and appear in only one location, any pieces with a longer excerpt or multiple references stand out, including those listed above, Stockhausen's *Kreuzspiel* (five pages); Crumb, *Madrigals* Book 3, No. 1, "La noche canta desnuda sobre los puentes de marzo" (three pages); and Schoenberg's "Nacht" from *Pierrot Lunaire* (three pages).

While one might expect *Understanding Post-Tonal Music* to have a wider range of musical examples based on the chapter topics, most of the prose focuses on a narrower selection of two or three featured works in each chapter, though there are some short examples as well. The overall selection of examples represented reminds how indebted we are to Charles Burkhart's *Anthology for Musical Analysis* (currently published by Cengage, 7th edition) and *Introduction to Post-Tonal Theory* by Joseph N. Straus (currently published by Pearson, 3rd edition), from which generations of music theorists learned the early twentieth-century repertoire: many of the featured examples in both books other than the most recent pieces appeared in one or more editions of those books. There are some less typical choices, however. In examining the listings of repertoire in the indices for these books, I was initially surprised to see that both included George Root's "Battle Cry of Freedom" and Paul Dresser's "On the Banks of the Wabash," which seemed unusual examples for a textbook on twentieth-century theory and analysis until I remembered that they are quoted in Charles Ives'

The Things our Fathers Loved, a featured work in both books (four pages for Pearsall and for Roig-Francolí two pages in the text and the complete song in the Anthology). The post-1945 examples provide the most diversity and divergence in selections, including pieces by women composers—Ellen Taaffe Zwilich, Nam June Paik, and Barbara Kolb for Pearsall and Kaija Saariaho and Augusta Reed Thomas for Roig-Francolí, while both include part of the *Diaphonic Suite* of Ruth Crawford Seeger.

Understanding Post-Tonal Music is intended to be used with its accompanying anthology with 41 pieces by 26 composers—all but nine analyzed in detail in the textbook; the remaining pieces are included for student assignments. Most of the anthology selections are complete works or movements, though an extended excerpt is provided for longer works such as Ligeti's *Ramifications*, Andriessen's *De Staat*, and Rochberg's *Music for the Magic Theater*. The anthology selections composed prior to 1960 are primarily standard teaching examples as mentioned above, but more recent composers include not only the expected Berio, Reich, and Pärt, but also Thomas Adès, Augusta Reed Thomas, and Saariaho, bringing some very recent pieces into the mix. Unfortunately, the music typesetting and editing of the anthology selections is not consistent. It appears that many of the selections were scanned from the original scores, reflecting the typesetting conventions of the original publishers, but the process of scanning brought in several types of problems: the notation in some passages is unfocused, blurry, or with breaks in the staves (for example, Stravinsky's *Agnus Dei* from the *Mass* and Messiaen's *Turangalîla Symphony*); large-format scores (Lutosławski's *Jeux vénétiens*, Berio's *Sinfonia* movement 3, and Adès' *Asyla*) were reduced in size until they are too small to be legible, and the notation for other scores is unusually large (such as Schoenberg's *Klavierstück* Op. 33a). In addition, measure numbers are given at the start of each system for some examples, intermittently in squares for others, and were inserted for every measure in others. These inconsistencies in the appearance of the scores, especially illegible notation and the lack of consistent measure numbers, make some examples in the anthology challenging to use.

CONTENTS OF A TYPICAL CHAPTER

Most chapters in *Understanding Post-Tonal Music* are built around detailed analyses by the author of two or three pieces, for which scores are provided in the Anthology. Roig-Francolí describes this approach in the Preface (p. vii): “rather than presenting theory and then illustrating it with examples, the process followed in this book is that of presenting music and deriving or applying whatever theory is needed to understand the music.” The result of this approach is extensive prose that reads like a transcript of a class lecture, complete with rhetorical questions, and a “garden path” approach where the “gardener” draws notable “flora” and “fauna” to the visitor’s attention in the order they catch his eye while meandering through the garden.

For an example of this discursive presentation of topics, consider the analysis of Debussy’s “La cathédrale engloutie” in Chapter 1 (pp. 13–23). Following a brief history of and introduction to this piece, there is a text box “reviewing” basic formal concepts—cadences, motive, phrase, section. For the purposes of this book, the content is not really a review because it introduces a new topic—what these terms might mean in a 20th-century context—but without providing examples. (There is a similar review of rhythmic and metrical concepts later in the chapter, and an earlier one on identifying non-functional pitch centers.) An overview of the form of “La cathédrale engloutie” starts the analysis proper, which seems premature, because there has been no exploration yet of the musical elements of the movement on which to base formal decisions. Motives are explored next, including an informal introduction of pitch class and pitch-class sets, with a quick explanation of how to derive a prime form label—though a fuller explanation of pitch class and sets, including enharmonic and octave equivalence, the clock face, pitch-class integers, and other concepts necessary for understanding these procedures is not introduced until Chapter 3 (as the author notes on p. 15). The following topic is scales and harmony, which includes pointing out a pentatonic collection, isolated quartal and quintal harmonies, three themes, some pitch-class sets, added-note chords, voice-leading details including diatonic and chromatic planing, discussion of centricity specific to the piece, “tonics” and “dominants,” and a reductive sketch showing the tonal plan. Next is a long digression on the golden section (what it is, how to compute it, detailed renumbering of measures based on tempo of

sections). Finally the presentation culminates in a reconsideration of the overall form of the piece, with which this analytical excursion began.

The analytical passages in other chapters proceed in a similar fashion. Throughout, general analytical procedures are woven into the narrative along with details that are specific to the piece, without providing a clear distinction between the two for students, for whom all of this information is new. Terms introduced in the context of each piece are indicated by bold type, but for most, no general definition is provided. This approach results in analytical essays that gradually reveal details of a completed analysis by the author, but may not teach students the tools and techniques in a way that would prepare them to complete an analysis on their own. The musical examples included in the prose tend to be lightly annotated, missing an opportunity to reinforce the main points visually; instead, students are often expected to read through the prose and label the examples themselves to find the items being discussed. There are few boxes, sidebars, or other visual devices to emphasize the important concepts. Though the analyses are musically sensitive and highlight interesting aspects of the pieces as they are encountered, contemporary students, who tend not to read carefully and have little patience for discursive prose, may have great difficulty using this book effectively because of the way the information is presented.

Each chapter of *Understanding Post-Tonal Music* ends with a list of examples for further listening, terms for review, and chapter assignments. According to the author, there are three types of exercises: 1) "theoretical", which focus on mechanics such as writing out scales, pitch-class sets, or rows and identifying specific features acontextually; 2) "analytical", including both "directed analyses" with detailed instructions and more common "freer analysis" where students respond to general questions with an essay or brief paper; and 3) composition exercises, which provide a list of musical elements that students are to explore in a composition "in the style of" one examined in the chapter. The assignments are not formatted into worksheets, but are to be written on the student's own staff or manuscript paper. The number and types of exercises per chapter in each category vary, with at least one analytical and one composition assignment in every chapter except Chapter 3, which introduces pitch-class set theory and has only theoretical exercises, none of which are linked to musical contexts. Later chapters tend

to have only analytical and compositional exercises; earlier ones include more theoretical “drill and practice.” Scores are provided either in the textbook or the anthology for a few of the assignments for each chapter, but for most the student or teacher must locate the score from an outside source.

In *Twentieth-Century Music Theory and Practice*, the first element of each chapter is a list of terms, which the author states in the Preface are intended to “help organize class discussion” (p. x). The ways the lists are to organize class discussion is unclear; perhaps the intent is to alert students to unfamiliar terms found in the chapter, or possibly the lists warn teachers of terms that might not be expected based on the chapter title. The chapters are organized through presentation of individual topics, most with one or more short musical examples. The emphasis throughout this book is primarily on terminology—locating, identifying, and naming elements—with less concern for making a connection between the named elements and a musical example’s sound and structure. Like *Understanding Post-Tonal Music*, terms appear as they might in a class lecture—that is, they seem to be mentioned as they come to mind, but with the lecture focused on a general topic rather than an analysis of a musical example.

In the case of Chapter 2 (Pitch and Interval) the topics are many and wide-ranging. The first subject heading is Integer Notation, which includes the following concepts: enharmonic equivalence (though the term is not used), integer labels for pitch classes and intervals, octave equivalence, the distinctions between pitch and pitch class and between pitch-space and pitch-class space, and Acoustical Society of America pitch letter names. This passage also includes an idiosyncratic numbering system for pitches that assigns middle C as 0 and numbers pitches with positive numbers for the half steps above middle C and negative ones for pitches below middle C. It is not clear to me, at least, what the utility is of this system, which could have been a passing reference except that there are exercises using it. The next subject heading is Inversion, which includes the terms complement (defined as “the element or group of elements that together with another forms a balanced or complete set” on p. 47), axis of inversion, pc inversion, mirror symmetry, and index [number] for inversionally-equivalent pairs of pcs. All of these relatively advanced terms and concepts appear in a span of less than 3½ pages, prior to consideration of the basic types of pitch and pitch-class intervals—information students will need

first to understand these inversions and symmetries. Other topics under the subject heading Intervals include contours and contour inversion (revisited in Chapter 7), motives, and total interval-class content (without mention of the interval vector, which is in Chapter 5). The following subject heading Interval Cycles introduces the terms aggregate, compound interval cycles, multi-aggregate cycle, fragmentation into partial cycles, and transpositional combination. Most of the terms above appear in chapter order in the terms list, but only some are given a clear definition in the text with others used in a prose context but not defined. While there is no perfect ordering for presenting terms and concepts associated with pitch-class set theory, at least some of these terms and concepts would not be expected in this order, or in a chapter with this title.

In *Twentieth-Century Theory and Practice*, each chapter ends with exercises ranging from three to eleven pages (most are 5-7 pages) laid out like worksheets but not perforated. Tearing out these pages to submit assignments would result in lost chapter text pages from the preceding or following chapter. The use of white space in the worksheets is uneven—some pages have little content on them, and others are quite crowded; page layout is also an issue in some of the chapters, but is more pronounced in the exercises. In Chapter 2 referenced above, all of the exercises are acontextual (i.e., no examples from music literature) and involve naming, labeling, or listing. Most other chapters include at least one exercise explicitly connected to music literature, plus some where the prompts look like excerpts from a score but the piece is not named.

For most exercises engaging music literature, the excerpt in question is included, though it may be as an example in another part of the book where students will have to turn pages to locate it. The exercises for the first and last three chapters include more engagement of music literature with multiple pieces referenced as examples of various scales, rhythmic procedures, rows, and textures; yet the tasks are often quite specific and involve locating a single technique or applying one of a series of terms to very brief excerpts. Even the longer analytical assignments primarily focus on surface aspects. For example, most of the questions for “La cathédrale engloutie,” the only exercise in the final chapter of the book, involve naming surface features, such as quintal harmonies, referential collections, and planing. This textbook ends similarly to the beginning of Roig Francolí’s.

CONCLUSIONS

Teachers select books for upper-division and general graduate classes to provide a framework and organization for the class content, including sequencing of topics, appropriate musical examples, and effective assignments. The main emphasis in *Twentieth-Century Music Theory and Practice* is identifying and labeling elements, while at the core of *Understanding Post-Tonal Music* is the examination of completed analyses. In both books the frameworks the authors have chosen to organize the chapters lead to problematic sequencing of topics, resulting in terms and concepts arising in the prose prior to basic explanatory information and conceptual groundwork students need to understand the topic. Simple matters such as providing clear, general (not piece-specific) definitions of terms where they can be easily located—either in a glossary or in boxes within the text—and grouping together all information needed to understand a concept would enhance the clarity of the presentation.

The ultimate goal of a twentieth-century theory and analysis course is to enable students to begin analyzing music on their own, using appropriate tools and terminology. Both authors claim that their primary focus is helping students engage and understand music literature, yet the choice of acontextual exercises for chapters introducing theoretical approaches that can seem abstract to students, such as labeling intervals or pitch-class sets, represents a missed opportunity: the same tasks students are asked to do could have been contextualized so that completion of the task yielded analytical information relevant to a specific musical example, which then could lead into a more comprehensive analysis. The detailed featured analyses in *Understanding Post-Tonal Music* engage musical examples in more depth, present interesting models for students wishing to prepare their own analyses, and come across as more “musical,” to me at least, than those in *Twentieth-Century Music Theory and Practice*, though the latter also includes some interesting examples worthy of study.



There's an App for That: Music Theory on the iPad, iPhone, and iPod

BY NATHAN FLESHNER

As we progress into the twenty-first century, we face increasing challenges in the methods and means of delivery for music theory instruction. The ubiquity of smartphones and tablets in the hands of our students has created exciting new possibilities for music theory instruction. In fact, I recently closed a sight-singing class by writing their assignment on the board. I watched in amazement as, rather than writing it down, the entire class took a picture of the assignment on their phones before they left. I realized that every member of that class possessed technology that had great potential to aid in their instruction. In response to this quickly emerging market of pedagogical opportunity, numerous applications are now available for drilling concepts covered in undergraduate music theory classes.

Anyone owning a smartphone or tablet has likely experienced the following frustrating scenario: you buy an app for \$.99 (or more) with the justification, "Well, it's only \$.99 (or more)," followed soon after by the wish that you had your money back. Unfortunately, the vast majority of music theory apps appear to be created by those who have not been involved in the daily tasks of music theory teaching. This review highlights some of the best, most promising applications currently available on iOS platforms. The 200+ music theory apps for iOS can be divided into four primary categories: fundamentals, ear training, rhythm, and post-tonal. As the selection of post-tonal apps is quite small and only offers calculations readily available on the internet, this review focuses on apps that will help students learn ear training, rhythm, and fundamentals skills in a way that utilizes technology that is a regular part of their lives.¹

EAR TRAINING

Many ear training apps have a less-specific pedagogical orientation than is typical of standard undergraduate theory curricula. One way this general approach is shown is that aural objects—such as

¹ I would like to thank my colleagues at Ithaca College for their support of this project, particularly Interim Dean Craig Cummings for a generous grant for the purchase of the apps reviewed.

intervals, triads, and seventh chords—are often presented and tested with no contextual orientation, i.e., without relating them to scale degrees within a key. Tonic-related exercises develop a student's ability to name the scale degrees that form the interval as well as the interval itself, and this scale degree orientation translates well into melodic dictation. However, for the courses that do assign value to developing the ability to recognize these sonic objects as discrete elements, apps like *Pocket Ear Trainer* (Polemics Applications LLC), *Do Re Mi Ear Training* (David Charlton), *Harmonic Ear Trainer* (John Lay), and *Aural Expert* (David Berriman) will be useful. The other issue with many ear training apps is that of terminology. Many apps draw on jazz/pop terminology in various ways, such as calling a first-inversion mm7 chord a “major triad with an added 6th” and including the “sus4” as an actual sonority. Students may find this confusing or contradictory, so the instructor is advised to vet the terminology carefully. *Note-a-lator* (Electric Peel, LLC) is one of the few apps that utilizes labels such as “half-diminished seventh;” however, its simplicity is too great to recommend it in this review. The following apps provide a contextual orientation and nomenclature closer to that of classical-style voice-leading taught in many theory programs.

Right Note – Ear Trainer (Marcin Jachmann, Orange Qube) is an app with great utility. The sounds—unfortunately electronic rather than recorded acoustic instruments—are the clearest of all the apps I examined. The interval drills are presented in a very user-friendly manner, although they are not contextualized within a key. In “Intervals,” students may practice intervals sounded alone, both melodically and harmonically. However, in “Intervals in Context,” extra notes are played before and after the interval that must be identified. The exercise's name is deceiving, as the purpose of these extra notes is not to place a given interval within a diatonic context, such as establishing tonic and then playing the desired interval. Rather, the extra notes in “Intervals in Context” bear no tonal relationship to the interval played. The user is instructed to ignore these notes, as if the added notes are distracters that increase the complexity of the task. While potentially too challenging for beginning aural skills students, this exercise could be quite useful in an upper-level course that included pitch-class set identification or for advanced students needing an extra challenge in interval identification.

Right Note – Ear Trainer has a fantastic melodic quiz function. A

melodic fragment is played, and the user responds by playing it back on a virtual keyboard either with the pitches sounded in real time or input silently. Silent mode requires the user to rely on his/her inner ear, a practical and necessary skill in dictation exercises. The fragments range in length according to level, and other features can be varied such as whether the first note is shown and whether the note lengths are all of the same duration or of randomly different lengths. Unfortunately, the resulting rhythms are occasionally so artificial and odd that they are not effective dictation exercises to use alongside the classical repertoire taught at many colleges and universities. The range of melodies from beginner through advanced levels covers the scope of the curriculum found at most colleges and universities. Beginning melodies are presented in major keys and stay within an octave. At the beginning level, students notate melodic fragments that are presented outside a metric organization. Advanced melodies add a rhythmic component but are not necessarily in a particular musical style; some of them seem to be comprised of randomly generated intervallic patterns—even to the point of not being discernibly tonal. While challenging, the pitch and rhythmic components of the most advanced melodies are likely only useful within a post-tonal ear training course. Even though the pedagogical scope of the app addresses beginning tonal to later post-tonal theory courses, the app lacks metric and melodic organization at the intermediate levels. An increased focus on these factors would greatly enhance this app.

Hear It! Note It! (Appatta Ltd.), along with *Right Note – Ear Trainer*, is one of the few apps with melodic dictation exercises that combine rhythm and pitch. The goal of the app is to get the highest possible “music IQ” score. Users may choose from three levels of questions. Questions at more difficult levels are worth more points; scores fluctuate as points are accumulated for correct responses or deducted for incorrect answers. The simplest level includes questions like adding the correct accidentals to a scale that is played and dictating short, mostly stepwise, melodic fragments with simple rhythmic values. The middle level introduces leaps into the melodic fragments. The advanced level features longer fragments with greater rhythmic complexity. At all levels, students are able to hear a fragment again before submitting an answer, but not after beginning to input their answers. This mimics a classroom activity I call “no hands” dictation, where students are not allowed to write anything until after the final hearing. The Graphical User

Interface is very accessible. The user drags notes, rests, accidentals, slurs, and bar lines onto the staff much like music notation software such as Sibelius and Finale. Pitches can be moved up and down freely, and rhythmic values as well as accidentals are adjusted by pressing above or below a note.

The contextual orientation of *Ear Trainer* (Thoor Software, Dev4Phone) is the most practical, although the simplicity of its format and its use of chord progressions outside of the repertoire covered in most traditional music programs renders it less challenging than many teachers may desire. In "Chord Progressions," users hear a harmonic progression of 2-3 chords and match that progression to a set of Roman numerals drawn from a multiple-choice list. There are eight choices in the most advanced level: IV-V-I, iv-V-i, ii-V-I, vi-V-I, $\flat$ VI-V-i, dim7-V-I, dim7-V-i, and $\flat$ VI- $\flat$ VII-i. While it is not initially clear, it becomes apparent within the program that "dim7-V-I" refers to $\text{vii}^{\text{o}7}/\text{V-V-I}$. The multiple-choice list reduces the activity to listening for chord quality within a tonal context, which is an element not offered by most other apps. The app could greatly benefit from an additional advanced level, which would remove the multiple-choice element and challenge students to input chords from a less predetermined list of harmonies. Other exercises move students toward associating pitches within a tonal system, such as identifying the specific note in a chord (a chord is played and then one of its pitches) and naming the second pitch of a sounded interval, above or below the first pitch. Depending on the pedagogical orientation of the school, these tasks could serve as intermediary steps before tones are placed within the context of the complete diatonic system. In addition, the keyboard can be turned off, so that the student would have the additional challenge of audiating. *Ear Trainer* also has non-contextual exercises, such as chord and interval quality identification, making it one of the most versatile ear training apps. Unfortunately, this app has a few notable errors. Uncommon uses of $\frac{6}{4}$ chords and other voice-leading errors abound. A chord was found inexplicably spelled as a $\text{vii}^{\text{o}7}/\flat\text{VII}$, but sounding and functioning as $\text{vii}^{\text{o}6}/\text{V}$.

Ch!Ear (Lars Peters) is the app that conforms most closely to harmonic dictation exercises in a traditional undergraduate theory curriculum. Progressions are presented in sequences of four chords. The first twelve levels progress through diatonic triads and seventh chords; level thirteen adds altered dominants and "Sus4." These altered dominants are the only chromatic chords in the app. For the levels that

test harmonic progressions, the user enters the Roman numeral and bass scale degree. In each of the levels, the user can press the “Chord” button to hear the chord again as a block chord or can swipe the button to hear an arpeggiated version. The app keeps various statistics on accuracy, making the app useful for class assessment. Statistics include progressions, chords, chord qualities, chord roots, and bass tones. *Ch!Ear* is the only app that shows a progression fully notated in all voices after the user completes an exercise.

A number of problems are also present in *Ch!Ear*. The most prominent is that the bass scale degrees are also shown in Roman numerals, potentially confusing the user with notations such as I/III, a hybrid of Roman numeral and jazz/pop symbols, instead of the conventional I⁶ or even I/ $\hat{3}$. Additionally, the progressions include many voice leading errors such as voice crossings, parallel 5ths, and odd leading-tone resolutions. The number of voices is inconsistent, changing from three to five voices within the same progression, thus contradicting SATB chorale harmonization practice. These pedagogical pitfalls negate many of the positive components of the app. An update that corrects these problems would make this one of the best apps on the market.

RHYTHM

While many ear training apps include a rhythmic element, only a few applications are exclusively dedicated to this subset of ear training. Of those apps, *Rhythm Sight Reading Trainer* (Rolf Steenge, Rolfs Apps) provides an excellent practice medium for both rhythmic dictation and rhythmic performance. Its user-friendly interface presents two- to five-measure rhythmic excerpts (depending on the complexity of the material), an adjustable metronome, and a drum head on which the user taps the notated rhythm. Note values are shown for sightreading practice or hidden for dictation and ear training practice. The levels of difficulty cover all standard undergraduate-level rhythmic concepts from non-subdivided beats to intricate subdivisions, simple, compound, and irregular meters, syncopations, “tuplets,” and rests (an important element absent from many apps). Tempos on all exercises can be adjusted. Individual exercises can be selected from 105 fixed categories that are grouped into pedagogical topics, or the exercises can be presented as randomly selected from these categories.

In *Rhythm Sight Reading Trainer*, accuracy is measured by colored

dots that appear underneath each note at the completion of an exercise: red indicates a tap slightly before the beat, blue indicates a tap slightly after the beat, and green indicates a tap directly on the beat. X's indicate completely wrong taps. Scores are registered within an adjustable margin of error (the default setting is 0.1 seconds before or after the beat) and are shown as percentages of X's, red, green, and blue taps. The deviation of time accounting for early and late taps (red and blue dots) is given with a total figure and an average deviation for the entire exercise. As a result, students who receive 100% are still challenged to increase their accuracy by achieving a lower total deviation of time before and after the beat.

Rhythm Sight Reading Trainer is customizable in several ways, adding to its pedagogical value. Most customizations relate to rhythmic performance, not dictation. The app can measure sustained durations in addition to simply measuring attack points. Another function requires the user to tap the beat with one hand while performing the rhythm with the other. Students can choose an "endurance test mode" in which a perfectly completed exercise is followed immediately by a new one, changing the tempo with each successive exercise to add further variety. "Expert mode" requires faster tempos and greater accuracy. When "Ear Training" mode is selected, the user performs the rhythm without seeing the notation, thus working on memory and dictation skills. Tapping accuracy is not revealed in "Ear Training" mode until after the exercise is completed. Finally, users may email a progress report or even a specific exercise to another user; this feature makes it possible for a teacher to monitor student progress and for students to interact with each other. While *Rhythm Sight Reading Trainer* provides an excellent practice medium for exercises such as those offered in common aural skills books like Rogers and Ottman's *Music for Sight Singing* and Anne Carothers Hall's *Studying Rhythm*, it falls prey to the same issue of contextualization as many of the pitch-based apps discussed above. The act of rhythmic dictation within a melodic context is a much more practical skill, not to mention more salient to a student's ear. The addition of a melodic component would certainly improve the utility of this app.

FUNDAMENTALS

Fundamentals apps offer a variety of features for drilling the components found at the beginning of many freshman-level theory courses. Unfortunately, some of those features may not actually be beneficial. "Chord calculators," in which students input a desired chord and the app generates the spelling of that chord, are the most prevalent of these features. If a student inputs "a^{o7}," the app returns "A-C-E $\flat$ -G $\flat$." Depending on one's pedagogical philosophy, these chord calculators can be viewed as a helpful way to check one's answer or as a potentially detrimental crutch that impedes the mastery of chord spelling. Chord calculators allow students to glean the spelling of a chord without necessarily understanding the structure and organization of that chord or its orientation within the larger tonal system. *Music Theory Toolbox* (Andrew Harper) is exclusively a calculator app. Users input chords via a dial-like user interface, and the chord is spelled using pitch names without reference to a staff. *Jazz Box* (Dave McCalley, De novo Digital, LLC) shows chord contents in both pitch names and staff notation. Wolfram's *Music Theory: Course Assistant* (Wolfram Alpha LLC) spells chords abstractly from a given root and from the Roman numeral in any key. If students are assigned chord-spelling exercises, such as those found in the Kostka/Payne/Almén text and workbook, students could easily cheat with these apps, negating the pedagogical benefit of the exercise. There are also a number of "chord rulers" that essentially function as digital slide rulers to aid in chord spelling. Apps that provide chord spellings are surely useful to some musicians, but their prevalence underscores the imperative that students of music theory must master these fundamental concepts.

One app, *Tenuto* (musictheory.net, LLC), has particularly robust chord calculators as well as many other attractive features. This app is an iOS version of what is available at www.musictheory.net. The chord calculators include one that spells any chord quality from any root and an analysis calculator that spells any Roman numeral in any key, including mixture and applied chords. Other effective and perhaps more pedagogically beneficial exercises in *Tenuto* include note naming, key signatures, and interval/chord identifications; these exercises can be used with reference to staff notation or a keyboard. Identification exercises are visual only, but *Tenuto* does have a series of ear training exercises that cover note,

interval, scale, and chord quality identification. The keyboard note identification exercises work in two directions: naming the note from a highlighted key as well as pressing the key that sounds the note shown on the staff. In addition to showing a keyboard, note and interval identification exercises can be performed with reference to a guitar fretboard; this feature might be useful in music education classes or at schools whose theory curriculum centers on music business and popular music. *Tenuto* is one of the few fundamentals apps to cover inversions of both triads and seventh chords, a skill with which many students struggle. Each exercise generates a progress report in the form of a “virtual sticky note” that can be printed or emailed to a teacher, a feature that makes *Tenuto* useful for extra course assignments.

Music Drills (Rifftech LLC) and *Music Theory Pro* (Joel Clifft) are well organized, pedagogically sound, and user-friendly programs for basic fundamentals drills. Both apps include all types of triads and seventh chords as well as altered dominants and extended tertian harmonies. *Music Drills* covers the topics of notes, intervals, chords, and scales in exercises that require spelling on a staff or a keyboard. *Music Theory Pro* adds options for naming and spelling all three types of augmented 6th chords and has an extended number of scales, including the Greek modes, blues, and octatonic scales. It also contains an ear training component with drills for single chords, intervals, and scales. Users of *Music Theory Pro* may post scores that reflect a percentage of correct answers and the speed of completion; there is also a final video-game-like score that can be viewed locally or shared, an aspect that could be adapted for course use.

Patrick Q. Kelly has created a series of apps on separate topics—notes, keys, intervals, chords, and rhythms—whose quiz results can be reported to an instructor. Two additional apps in Kelly’s series, *Music Theory Basics* and *Music Theory Advanced*, incorporate all five topics into single apps organized by level. Quizzes can be set up to vary the number of questions and attempts, clefs (alto and tenor in addition to treble and bass), and time limits (very useful for speed drilling to gain proficiency). The ways in which the topics are examined can be customized. In the “Notes” topic, students can use ledger lines, answer with staff notation or keyboard, and demonstrate understanding of enharmonic equivalents. The “Keys” topic examines key signatures of major and minor scales as well as modes, and a maximum number of sharps or flats in the

signature can be specified. The “Intervals” topic addresses melodic and harmonic intervals, simple and compound intervals, and root notes that can be set as either fixed or variable for each interval presented. The “Chords” topic can be focused on triads and seventh chords (including altered dominants); the terminology is mostly standard, except for referring to the half-diminished seventh chord as a “m7(b5).” The “Rhythm” quizzes may be modified for tempo, desired note values (including triplets), and the presence of rests. Additional program flexibility permits one- or two-handed responses as well as the possibility to assess the durations of the notes. (The app suggests that the duration requirement be turned off for percussionists.) Rhythms are graded on a scale of correct, almost correct, or wrong. The user may listen to the rhythm prior to performing it. Because this component is not alterable, sightreading is not testable. One other feature of this app allows quiz grades to be password-protected so that they are unique to the user and viewable by the instructor; this would be especially helpful if the classroom had a limited number of iPads that were shared among students.

Of the 200+ music theory apps currently available from the App Store, the apps reviewed here are, in my opinion, the most promising. Constant improvements and updates are being made—*Rhythm Sight Reading Trainer* and *Ch!Ear* were updated during the writing of this review. With the rapid development of portable, handheld hardware and software, it is exciting to imagine its impact on the future of music theory instruction, both in the classroom and for at-home tutoring and exercises.

RECOMMENDED APPS FOR LEARNING
RHYTHM, EAR TRAINING AND FUNDAMENTALS

EAR TRAINING APPS

Right Note – Ear Trainer; Orange Qube; Version 1.5; \$6.99 (a free, light version is available with reduced features) Compatible with iPhone, iPod touch, and iPad

Hear It, Note It! The Aural IQ Game; Appatta Ltd.; Version 1.02; \$1.99
Compatible with iPhone, iPod touch, and iPad

Ear Trainer; Dev4Phone; Version 2.0.1; \$6.99 (a free, light version is available with reduced features) Compatible with iPhone, iPod touch, and iPad

Ch!Ear – Chord Ear; Lars Peters; Version 1.2; Free Compatible with iPhone, iPod touch, and iPad

RHYTHM APP

Rhythm Sight Reading Trainer (Read Rhythm); Rolfs Apps; Version 6.0; \$2.99 Compatible with iPhone, iPod touch, and iPad

FUNDAMENTALS APPS

Tenuto; musictheory.net; Version 1.4.1; \$3.99 Compatible with iPhone, iPod touch, and iPad

Music Drills; Rifftech; Version 2.0; \$3.99 Compatible with iPhone, iPod touch, and iPad

Music Theory Pro; Joel Clifft; Version 2.0.2; \$4.99 Compatible with iPhone, iPod touch, and iPad

Music Theory Basics; Patrick Q. Kelly; Version 1.5; \$9.99
Compatible only with iPad

Music Theory Advanced; Patrick Q. Kelly; Version 1.5; \$11.99
Compatible only with iPad





CONTRIBUTORS

David Castro is Assistant Professor of Music Theory at St. Olaf College. He received his Ph.D. in Music Theory from the University of Oregon and his research interests include the music of Dmitri Shostakovich and Arvo Pärt, in addition to the pedagogy of music theory. He has presented papers at various conferences and is currently serving on the Website Editorial Board for *The Journal of Music Theory Pedagogy*.

Jane Piper Clendinning is a Professor of Music Theory at Florida State University College of Music in Tallahassee, Florida, where she teaches a graduate class in music theory pedagogy and both supervises the second-year core music theory courses for undergraduate music majors and teaches an Honors section. Her textbooks *The Musician's Guide to Theory and Analysis* (W. W. Norton, 2nd ed., 2011) and *The Musician's Guide to Fundamentals* (W. W. Norton, 2012), which are widely used for undergraduate music theory at universities and colleges in the United States, were co-authored with Elizabeth West Marvin and Joel Phillips.

Nathan Fleshner is Assistant Professor and Coordinator of Music Theory at Stephen F. Austin State University. A graduate of the Eastman School of Music, he has presented papers on connections between Schenkerian analysis and psychoanalysis as well as popular music at the Society for Music Theory, the International Association of Analytical Psychology, and various regional music theory conferences. He is particularly interested in the portrayal of mental illness in musical compositions.

Jeffrey L. Gillespie is Professor of Music at Butler University, where he serves as Area Coordinator of music theory and aural skills. His primary areas of research include theory pedagogy, music and disability, and analysis of contemporary music. Jeff's work appears in *The Journal of Music Theory Pedagogy*, *Intégral*, *Music Theory Online*, and *Indiana Theory Review*. He performs extensively in church as a choral director, vocalist, and keyboardist.

Austin Gross teaches in the School of Music at West Chester University, and has also taught at Franklin & Marshall College. He holds a Ph.D. in Music Theory from the Eastman School of Music, and has taught courses on music theory, aural skills, improvisational traditions, and jazz history. His research interests focus on the intersection of musical structure, history, creativity, and performance in the German Baroque as well as in jazz, and he has presented papers on the solos of jazz pianist Bill Evans at various conferences.

Melissa Hoag is Associate Professor of Music Theory and Coordinator of Music Theory and Aural Skills at Oakland University in Rochester, Michigan. Her research interests include the pedagogy of music theory and intersections of voice-leading, rhythm, and musical meaning in the art songs and keyboard works of Brahms. Her research has also appeared in *Music Theory Online*, *Gamut*, the *Dutch Journal of Music Theory*, and *Semiotica*.

William Porter is recently retired Professor of Organ and Harpsichord at the Eastman School of Music in Rochester, New York, and he also teaches in the organ department at McGill University in Montreal, where he lives. From 1985 to 2002 he taught organ, music history, and music theory at the New England Conservatory in Boston, and from 2001 until 2005 he taught improvisation at Yale University. He holds degrees from Oberlin College, where he also taught organ and harpsichord from 1974 to 1986, and from Yale University, where he was director of music at Yale Divinity School from 1971 to 1973. Widely known as a performer in the United States and in Europe, he has also achieved international recognition for his skill in improvisation in a wide variety of styles, ancient and modern. He has recorded on historic instruments, old and new, for the Gasparo, Proprius, BMG, and Loft labels.

Nancy Rogers is an Associate Professor of Music Theory at The Florida State University, where she supervises first-year music theory and recently received a university-wide undergraduate teaching award. With research interests including music cognition and its pedagogical implications, she has presented papers at numerous national, international, and regional conferences. The ninth edition of her book *Music for Sight Singing* (Pearson), co-authored with Robert W. Ottman, was released earlier this year.

Chris Stover is an Assistant Professor at the New School for Jazz and Contemporary Music, where he coordinates the Music Theory and Composition program. His research brings together notions of time and process from musical and philosophical perspectives, with a particular focus on music of the West African diaspora, and he is currently working on a book on a phenomenology of microrhythmic motion and call and response. He is also an active performer and composer in New York City and internationally.

Paula Telesco is an Associate Professor of Music Theory at the University of Massachusetts Lowell, where she teaches Music Theory and Aural Skills for music majors, as well as for non-music majors. She has published articles in *The Journal of Music Theory Pedagogy*, *Music Theory Spectrum*, *The Journal of Musicology*, and the *Forum on Public Policy*. Her research interests include music theory and aural skills pedagogy, music cognition, the perception of meter, and enharmonicism.

Kristen Wallentinsen holds a Bachelor's degree in violin performance from the University of Arizona, and Master's degrees in music theory and violin performance from the University of Massachusetts Amherst. She recently completed her Master's thesis, entitled "A Hierarchical Approach to the Analysis of Intermediary Structures within the Modified Contour Reduction Algorithm," and she has presented her research at regional and graduate student conferences in New York and Colorado. Currently, she is pursuing a Ph.D. in music theory at the University of Western Ontario, where she hopes to further her research in contour theory. Her other areas of interest include music theory pedagogy, Schenkerian theory, and the analysis of early music.

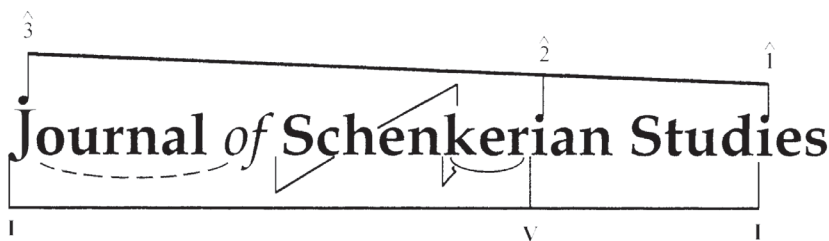
GUIDELINES FOR CONTRIBUTORS

1. Articles on any aspect of teaching or learning music theory will be welcome. Contributions will be judged on originality, relevance, interest to a diverse audience, and clarity of writing.
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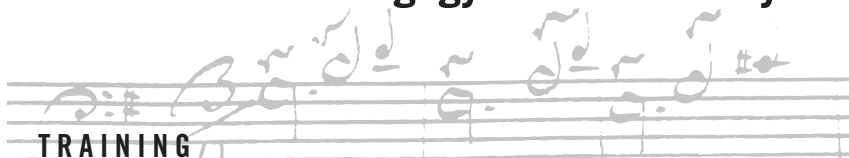
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