USING SINGLE-LINE INSTRUMENTS AS A MEANS OF REINFORCING CONCEPTS OF HARMONY: A DISCUSSION OF EXERCISES FOR USE IN INDIVIDUAL AND GROUP SETTINGS

by

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ABSTRACT

The purpose of this thesis is to discuss and present harmony-based exercises that can be performed on single-line instruments. My premise is that, while keyboard harmony exercises are widely available, few equivalent resources exist for performance on single-line instruments.

Exercises of increasing complexity are presented over the course of three chapters. Chapter 2, “Fundamental Exercises in Chord Awareness,” presents a wide range of exercises that involve arpeggiating chords in different inversions and positions, using a variety of formats (exercise types), all of which are meant to provide contexts that will sharpen memory for these chords. All exercises in this chapter are designed for solo performance.

Chapters 3 and 4 present various means of reproducing harmonic successions on single-line instruments, used singly and in groups of two or more. Chapter 3, “Methods of Playing Simple Harmonic Progressions,” discusses some of the ways in which harmonic progressions can be reproduced without requiring that the instruments involved be able to reliably produce simultaneous notes. Chapter 4, “Melodic/Bass-Line Interaction,” uses schemata described in Robert Gjerdingen’s book Music in the Galant Style, (2007), as a basis for deriving exercises that conceive of harmony as the result of interaction between two melodic lines (soprano and bass).

The thesis concludes with a brief discussion of sessions in which many of these exercises were tested on and discussed with university-level music students.
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1.1 Point of Reference

As a student with a performance background in both bassoon and piano, it is puzzling to me that my imagery of harmonic concepts such as specific chords and chord progressions involves imagining myself playing the keyboard, and never the bassoon. In fact, the only time I have ever noticed myself imagining playing the bassoon is when playing bassoon repertoire in my head or imagining improvised melodies. Admittedly, I began playing the piano first. However, given that my main instrument during my undergraduate degree was the bassoon and that I subsequently completed a Master of Music in Bassoon Performance, I have likely spent considerably more hours playing the bassoon than the piano by this point. Also, the period during which the majority of these bassoon-playing hours occurred corresponds to the period of my more advanced theoretical studies. Having said that, the years spent learning the piano were also my formative years, in which I learned scales, what a triad was, and how to play cadences. Nevertheless, one must wonder if and how a bassoon-based visualization and kinesthetic sense would replace keyboard sensations in the absence of piano experience. This leads to the question: How do non-keyboardists conceive of specific harmonic concepts?

Certainly non-keyboardists must visualize something. In their article entitled “Perspectives and Challenges of Musical Imagery,” Albert Schneider and Rolf Inge Godoy write, “...when we imagine a tune, we also imagine some kind of ‘carrier’ of performance of this tune, be that our own sub-vocalizations, our imagined fingers moving along a keyboard, imagining someone else singing or playing, etc.” Though this quote refers to melodies, and not necessarily harmonic structures, it does present some of the various means in which one might imagine a musical construct. In an article by James M. Baker entitled “The Keyboard as Basis for Imagery of Pitch Relations,” he writes, “Having taught music theory for over twenty-five years, I am convinced that many musicians imagine music

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1 Albert Schneider and Rolf Inge Godoy, "Perspectives and Challenges of Musical Imagery," in Musical Imagery, ed. R. I Godoy et al. (The Netherlands: Swets and Zeitlinger, 2001), 22.
in terms of instruments they play. In giving melodic dictation, for example, I have seen a cellist raise her left hand and locate a problematic interval on an imaginary cello fingerboard in order to identify it.” Such physical associations come as no surprise, given that this quote, like the one above, refers to imagery of a melodic construct. Left open to question is the issue of what a single-line instrument player with little or no keyboard experience would imagine in a multi-voice context.

In September 2009, I performed a series of informal interviews on fourteen music majors at the University of British Columbia. Students participated on a volunteer basis and were selected based on availability. The spectrum of students interviewed is shown below in Table 1.1 in terms of main instrument, piano experience, university training, and general success in theory. All entries in the table below are based on the verbal responses of the students, and as such, might not be entirely accurate in some areas, namely, as regards their levels of piano playing and their past success in music theory.

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Table 1.1. Students interviewed as part of informal study on visualization of theoretical concepts.

<table>
<thead>
<tr>
<th>Type of Main Instrument</th>
<th>Level of Piano+</th>
<th>Number of Years of University-Level Theory Training++</th>
<th>General Success in Theory+++</th>
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<tbody>
<tr>
<td>Piano</td>
<td>Major</td>
<td>3+</td>
<td>Average/Weak</td>
</tr>
<tr>
<td>String</td>
<td>Proficient</td>
<td>2</td>
<td>Average</td>
</tr>
<tr>
<td>Piano</td>
<td>Major</td>
<td>3+</td>
<td>Average</td>
</tr>
<tr>
<td>Woodwind</td>
<td>Proficient</td>
<td>3+</td>
<td>Average</td>
</tr>
<tr>
<td>String</td>
<td>Weak</td>
<td>Less than 1</td>
<td>Weak</td>
</tr>
<tr>
<td>Voice</td>
<td>Weak</td>
<td>1</td>
<td>Weak</td>
</tr>
<tr>
<td>Woodwind</td>
<td>Proficient</td>
<td>3+</td>
<td>Strong</td>
</tr>
<tr>
<td>Piano</td>
<td>Proficient</td>
<td>3+</td>
<td>Average</td>
</tr>
<tr>
<td>Woodwind</td>
<td>Proficient</td>
<td>3+</td>
<td>Average/Strong</td>
</tr>
<tr>
<td>Woodwind</td>
<td>Limited</td>
<td>3+</td>
<td>Average</td>
</tr>
<tr>
<td>Voice</td>
<td>Limited</td>
<td>2</td>
<td>Weak</td>
</tr>
<tr>
<td>String</td>
<td>Weak</td>
<td>2</td>
<td>Average</td>
</tr>
<tr>
<td>Woodwind</td>
<td>Proficient</td>
<td>3+</td>
<td>Strong</td>
</tr>
<tr>
<td>Brass</td>
<td>Weak</td>
<td>2</td>
<td>Weak</td>
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+ The levels of piano playing achieved by non-piano majors are grouped into three categories: proficient, limited, and weak. Proficient signifies that the student has achieved a fairly high level of piano playing (approximately Royal Conservatory of Music Grade 8 or higher). Limited signifies having had a considerable amount of piano instruction, but having reached only an intermediate level (approximately RCM Grades 4 to 7). Weak signifies anything less than described above, in some cases, no pre-university piano instruction whatsoever.

++ Four possible designations: Less than 1, 1, 2, and 3+. Since the study took place at the beginning of the academic year, students in their first year would only have had a few weeks of university-level theory training. First-year students are designated by “less than 1,” second-years by “1,” third-years by “2,” and fourth-years and beyond by 3+.

+++ Students indicated to me previous marks in music theory courses. Typical marks of 85 or higher are designated by “Strong,” marks of 74 to 84 are designated by “Average,” and any marks below 74 are designated by “Weak.” Students on the cusp of two categories receive both designations.

In each interview, I began by asking the students to tell me about their music theory background before attending university, their academic success (so far) in the university theory classroom, what their main performance medium was, and to what extent they could play the piano. After these preliminary questions, I asked them to tell me what they
visualized when I spoke the names of twenty different theoretical objects. The twenty terms are listed below in Figure 1.1.

Figure 1.1. List of terms used in visualization survey.

1. D major triad
2. D-flat major triad, first inversion
3. Diminished seventh chord
4. B-Flat major scale
5. Augmented triad
6. Major sixth
7. Parallel fifths
8. Trill
9. Passage transposed up a second
10. F-sharp major arpeggio
11. Whole-tone scale
12. Perfect authentic cadence
13. Half cadence
14. Cadential six-four
15. F sharp
16. Middle C
17. semitone
18. Dominant seventh
19. Supertonic, or “two” chord
20. F double-flat

The sample of students interviewed is admittedly not large enough or selected with a sufficient degree of randomness to meet scientific standards. Additionally, responses about piano skills and success in the theory classroom are prone to error and bias since the information was transmitted orally and may have been exaggerated, misrepresented, or simply misremembered. This study is therefore not being used as a means of drawing overarching conclusions about trends in theory success for keyboard majors vs. single-line-medium majors, and keyboardists vs. non-keyboardists. What can be observed even from this small sample, however, is that students visualize theoretical concepts in a variety of different ways, and often in several different ways simultaneously. The various types of answers are listed below in Figure 1.2.
Figure 1.2. Types of answers provided as description of imagery.

- Feeling playing on piano
- Seeing playing on piano
- Seeing notes on keyboard, but not playing
- Feeling playing on another instrument
- Imagining self singing
- Hearing concept represented without specific instrument
- Hearing concept played on specific instrument or instruments
- Hearing passage in specific piece of music
- Seeing specific notes on staff, with specific clef(s)
- Seeing staff or sheet music, but with no specific notes or clefs
- Thinking of note names without aural association or placement in staff
- Imagining note names pulled from a continuum
- Seeing part of assignment in which particular concept was addressed
- Seeing the symbols associated with the term
- Feelings of tension associated with classroom experiences
- Seeing colours associated with specific notes
- Feelings of openness or tension associated with phrasing
- Various simultaneous combinations of the above
- Did not know (or could not remember) what concept was

Generally speaking, players with little or no keyboard experience tended not to describe visualizations that involved actively performing in some way. In essence, this may not be a problem. However, it would seem as though it might be beneficial for students to be able to visualize from a variety of different angles. Not visualizing an act of performance would strongly imply that these students are not directly linking the musical concepts learned in the theory classroom with performing on their main instrument or voice. Quite possibly, then, theory instruction is falling short of one of its frequently alleged goals for these students.

Another division, seemingly irrespective of main instrument, was between students who tended to consistently visualize playing an instrument in some capacity, and those who had very few concrete visualizations whatsoever. In addition, students who reported the strongest level of visualization had fairly advanced piano skills, and tended to visualize the piano in some capacity, whether they were piano majors or not. Students with very limited piano skills were also more likely to respond with vague answers, like “I hear a little bit of dissonance,” “thinking of middle of song,” “closed feeling,” “I see the Roman numerals,”
and “I hear openness.” To some extent, this disparity in concreteness of images presumably reflects the fixed positions of musical patterns provided by the keyboard, positions visually apparent to the player while engaged in playing. Even more crucial are differences in the harmonic capabilities of keyboard, as opposed to single-line, instruments. Since players of single-line instruments are unable to play solid chords, or even single-line chordal structures simultaneously with a melodic line, they do not have the same experience with both being forced to think of and play vertical harmonic structures, and to interpret at sight notated vertical sonorities in real time. Thus, players whose experience is limited to single-line instruments lack both the visual and kinesthetic experience of playing harmonic structures, as well as the visual associations between multi-level notation and the resulting sound.

Upon completing this study, I decided I wanted to investigate methods of teaching theoretical concepts through the playing of single-line instruments. As Michael Rogers writes, “From the standpoint of a theory program, [...] the central justification for a keyboard component is not learning how to play the piano—essential as this is for any musician—but as reinforcement of conceptual skills.” In other words, it is not the means so much as the end that is important. This thesis serves to propose a single-line-instrument-based means of reinforcing musical conceptual skills.

1.2 Pedagogy in the Past

Imagery based on a verbal cue has been discussed thus far. But what of notated music on a staff? As early as the beginning of the nineteenth century, it was recognized that many classically-trained instrumentalists have difficulty conceptualizing written music. In 1818, the French school teacher Pierre Galin wrote of advanced instrumental students, “Most of them have to consult their violin, their pianoforte, or their flute, in order to learn a new tune; and it is actually the instrument which does the reading for them.” Though

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not technically a professional musician, Galin found it “strange that musical instruction has always been begun through the eye of the pupil, instead of through his ear.” What I find stranger still, is that the reinforcement of theoretical instruction is so often limited to paper, instead of additionally incorporating the student’s performance medium, be it a keyboard instrument, a non-keyboard instrument, or the voice. To this end, it would seem as though students are being taught an aural art through visual cues. It would follow that perhaps not enough connections are made between the eye, the ear, and the hands, i.e. the sense of touch and the development of intuitive motor skills.

Historically, all instrumentalists desiring to become professionals learned to play a keyboard instrument. Only singers did not actively pursue the study of a keyboard instrument. Of such instruction, John D. White says, “Prior to the modern age of specialization, virtually every musician started out on a keyboard instrument—clavichord, harpsichord, organ, pianoforte, or piano, depending upon the historical period. It was a basic tool for composers, arrangers, and teachers.” Though it is no longer assumed that all career-bound musicians begin their training with keyboard studies, the theory instruction of today is grounded in the pedagogy that existed in this period. As such, many concepts studied, such as four-part writing and the frequent representation of progressions in block chords in a piano staff, are grounded in a keyboard-based perception of tonal concepts.

Perhaps the best known historical document on keyboard pedagogy is the Essay on the Art of Playing the Keyboard by C.P.E. Bach (1714-1788). Interestingly, in this treatise, Bach discusses melodic embellishments early on (chapter 2), introducing them before his lengthy discussion of thorough bass. He begins his chapter on embellishments with the following bold statement, “No one disputes the need for embellishments.” From here, he discusses harmony and voice leading in great depth, exclusively from the standpoint of

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thorough bass. The book concludes with a short section on improvisation, in which he provides some bass frameworks and discusses modulations. Even compared to the training of piano specialists today, let alone non-keyboardists, this method presents a much stronger grounding in harmony from the very beginning.

In addition to acquiring fairly advanced keyboard skills, historically, students of single-line instruments played improvised melodic exercises as part of their training. In these exercises, a knowledge of the underlying harmony, presumably gained from their keyboard training, was essential in order to determine which melodic notes to stress, what notes could or could not function as anchor notes.

_On Playing the Flute_, by Johann Joachim Quantz (1697-1773), discusses several improvised elements of performance, in addition to offering some general comments about beginning the flute and being a professional musician. He discusses how to elaborate on melodic structures by means of appoggiaturas, “shakes” (by which he means trills), and things to consider when improvising cadenzas. Among the issues he treats are how to determined the appropriate number of statements of a given motive, how to achieve a balanced underlying metric organization and how to resolve dissonances. He then provides some hints on improvising cadenzas involving two players, and, in addition, comments on how to play these structures so that they are stylistically accurate.

### 1.3 Current Pedagogy

The extent to which the piano is used as a pedagogical tool in the theory and musicianship classrooms varies from school to school. Every school has its own requirements in terms of piano proficiency for non-piano majors, whether or not it requires keyboard harmony courses, and whether or not it encourages or allows the use of the piano as a means of completing exercises in the theory or musicianship classroom. Additionally, the various textbooks in use vary in terms of their reliance on the student’s piano skills. In many of the popular textbooks, basic piano skills are presumed. Keyboard exercises

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designed to reinforce concepts covered in a given chapter are often given, but no single-line instrument equivalent is provided.

For the single-line instrumentalist, this is problematic. He or she cannot do the keyboard exercises suggested with ease. The student’s options are to fumble through the exercise as able, all the while being so caught up in navigating the keyboard that any sense of large-scale continuity is almost certainly hindered, or to forgo the exercise entirely. The single-line instrumentalist therefore misses a “hands-on” opportunity to reinforce the concepts, and possibly falls a tiny fraction behind piano-proficient peers in terms of achieving an all-encompassing understanding of the material. Over time, however, these “tiny fractions” could amount to a more measurable discrepancy, to a point where remedial measures might be difficult to implement.

This lack of exercises for non-keyboard players is typical of many of the popular theory and sight singing textbooks currently being used in today’s music schools. What is particularly irksome is that many of these exercises could quite readily be adapted for single-line instruments without significant sacrifice to the intellectual content of the exercise, which is typically one of its main purposes. As for creating an association between sound and concept, though the pitches of a chord may be impossible to articulate simultaneously on these instruments, arpeggiated figures corresponding to the chord structure can still easily be played and heard.

In order to get a sense of the current pedagogical trends, I e-mailed the theory departments at various post-secondary music institutions in Canada and the United States with a short list of questions about some of the pedagogical parameters in place. The first question on the list asked for the name of the textbook(s) used during the 2009-2010 academic year in the first and second-year theory classroom. Though only about half of the schools e-mailed responded, enough responses were received to get a sense of what some of the popular textbooks were. A summary of the responses about theory textbooks is shown below in Table 1.2.
Table 1.2. Rough representation of prevalence of harmony textbooks in use in Canada and the United States.

<table>
<thead>
<tr>
<th>Textbook Used</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primarily Unpublished Materials</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL NUMBER OF RESPONDENTS</strong></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>

In two of these textbooks, both singing and keyboard exercises are suggested throughout. In Miguel A. Roig-Francoli’s Harmony in Context,9 suggestions for keyboard exercises are found in many of the worksheets found in every chapter, some of which suggest singing while playing. Similarly, throughout Steven G. Laitz’s The Complete Musician, there are “Exercise Interludes”,10 which call for singing and keyboard skills, along with written work and aural skills exercises. The exercises in these two textbooks are excellent in that they provide the student with a variety of means of practicing and reinforcing concepts covered in class and in that singing is a performance medium that is accessible to most students. The problem, however, is that no non-keyboard substitution is provided for the keyboard exercises.

Aldwell and Schachter’s *Harmony and Voice Leading*\(^{11}\) includes a twenty-page-long appendix on harmonic progressions, but no vocal exercises. Again, the inclusion of the keyboard skills exercises in these textbooks is excellent in that it provides a hands-on means of reinforcing the printed material, but falls short in that it immediately excludes a significant portion of students from an opportunity to reinforce concepts.

There are also theory textbooks in which there are no suggested playing exercises whatsoever. For example, in Charles Horton and Lawrence Ritchey’s *Harmony Through Melody: The Interaction of Melody, Counterpoint, and Harmony in Western Music*,\(^{12}\) only written exercises are provided. Though on the one hand this levels the field in terms of not relying on extraneous skills in order to complete assignments, the absence of exercises that involve playing is especially perturbing given the approach and presentation of the material. The textbook begins with species counterpoint, on the premise that chords result from the interaction of melodic lines. This would seem to be an excellent opportunity to suggest exercises involving the performance of melodic lines, since they can be performed by all performance media, with the exception of unpitched percussion.

### 1.4 Using the Piano as a Means of Reinforcing Theoretical Concepts

Most university-level music programs require a basic level of piano skills of all their graduates. I would like to discuss the purposes of this requirement by citing what theory pedagogues and the authors of well-known keyboard harmony textbooks have to say. Regarding the merits of playing the piano, Rogers says the following:

> The tangible act of pushing down keys, seeing distances, and hearing resultant sounds can cement a concept to the mind and ears in a way that no amount of paper work or talking can ever accomplish. The talking and writing are important counterparts, but the keyboard activities actually involve (although at an elementary level) making music: playing with sounds in both the amusement and performance sense.\(^{13}\)


\(^{13}\) Michael R. Rogers, *Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies* (Carbondale, USA: Southern Illinois University, 1994), 70.
With the exception of seeing distances, these statements mention no action that could not be reproduced on all single-line instruments.

White describes the components of a keyboard harmony program as follows, “Normally, the keyboard component of the freshmen and sophomore theory course includes figured-bass realization, clef reading, improvisation, and perhaps some score-reading and jazz improvisation.”14

Regarding the purpose of keyboard harmony, Brings, Burkhart, Kamien, et al. write, “...the true purpose of studying keyboard harmony is to train the mind and ear, not the fingers. The purposes of keyboard harmony study are twofold: one, to help the student learn to think at the keyboard; and two, to use the keyboard to learn to hear music in more than one part.”

Wittlich and Martin15 justify the subject as follows:

We believe that the keyboard provides an excellent means for reinforcing what is learned in theory classes, e.g., harmony, counterpoint, and aural training. The keyboard instruments, after all, are the main ones on which multi-part textures can be realized simultaneously. We believe further that without such reinforcement, that is, unless the students learn to convert the notated materials of typical music theory instruction into sound, much of what we try to impart to them about musical relationships is merely abstraction. Keyboard harmony, then, becomes an effective means to the end of better understanding harmonic patterns, relationships, and voice leading.16

It is certainly true that piano proficiency can be a useful skill, especially for education majors and composers. However, since many of the activities described above could be replicated on single-line instruments, it would seem as though players of single-line instruments need not acquire piano skills in order to achieve many of the goals of a keyboard harmony course. Performing relevant examples is arguably one of the best ways of assimilating new musical concepts, and it would seem as though in many cases a performance-based experience would be most effective if done in a performance medium in

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which the student is fluent.

1.5 Discussion of Keyboard Instruments versus Single-Line Instruments

There are some obvious differences between keyboard and single-line instruments that would seem relevant to making associations between playing instruments and recalling theoretical concepts. Perhaps the most crucial difference is that, other than by unconventional means, single-line instruments cannot produce notes simultaneously. It is true that string players can play double or triple stops, but this is not the way in which the instrument is most typically used. On wind instruments, there are several methods of producing simultaneity through extended techniques, though none would seem to be a practical means of executing the exercises presented in the chapters that follow. Some wind players are able produce two notes simultaneously by singing while playing, but this is difficult for most players, not realistically sustainable, and by no means a conventional way in which music for these instruments is written. Multiphonics are also possible, but they are not always played with the player's awareness of the simultaneous notes produced, making their application in harmonic-based exercises difficult. More often, they are thought of strictly in terms of the fingering required to produce them. Also, the possible simultaneous pitch combinations are limited and they do not all produce standard tonal structures. Possible chord progressions could only be realized in a spotty fashion, because they would rely entirely on the multi-phonic chordal structures that happen to be possible on a given instrument.

Another important distinction is that keyboardists are able to observe both hands as they move across the keyboard and are able to see the complete array of available pitches laid out before them. Even string players, who can observe their fingers, cannot see individual notes, though they can see the appropriate place to put the finger on the fingerboard. Thus, players of single-line instruments must rely more, if not entirely, on feel. This is, of course, not to imply that keyboardists do not develop a heightened physical awareness in addition to visual associations.
On the piano, there is only one mechanical means of producing each note. On all single-line instruments, there are at least a few notes for which there are multiple ways of fingerning the desired pitch. With the exception of pitches in the extreme registers, all possible pitches on a string instrument can be produced on at least two different strings. On woodwind and brass instruments, there is also often more than one fingering that will produce a given note. This means that for woodwind players, the physical association depends on the student imagining the correct combination of depressed keys and covered holes. On brass instruments, the hand-to-instrument physical associations are even more limited, since they use a small set of positions or valve combinations for a large number of notes. At face value, this would seem to result in less physical individuality for every note. In reality, however, it just means that an accurate physical association for a brass player must combine an imagined replication of the correct air flow and embouchure in conjunction with the appropriate fingering or position.

On the piano, every key serves only one purpose. On woodwind and brass instruments, however, all keys, valves and tone holes are involved in multiple fingerings that produce a variety of different notes. This means that no one “location” on the instrument can serve to visually identify a note. On string instruments, where there are no keys or valves at all, it is possible that individual points along the fingerboard could be conceived as the places of various pitches along a string, but such locations would not be as clearcut as on a keyboard instrument, since string players will adjust the placement of their finger according to mean temperament and the fine tuning of each string.

It perhaps goes without saying that string players can speak or sing while playing, just like keyboard players, whereas wind players cannot. This is mentioned only because for some exercises, it would be beneficial to incorporate a speaking component in conjunction with playing as a means of ensuring that the student is fully engaged in the mental process.

The combination of various orchestral and band instruments in one learning environment poses an additional complication if transposing instruments are involved. If
the instrumentalists in one group play instruments pitched in different keys, instructors will have to make sure they are able to translate instructions involving note names and keys almost instantly. As students become more advanced, instructors may wish to leave this translation to the students, perhaps having the players of C-pitched instruments do the transposing from time to time.

All differences mentioned so far have implied advantages to learning patterns on a keyboard instrument. Somewhat arguably, though, single-line instruments do have one distinct advantage over keyboard instruments: they are better at playing melodies. Pianists lack the ability to control a note between its attack and release, as well as the ability to control all aspects of a note’s natural decay. This limits the palette of nuances available to the keyboardist when attempting to create a living, breathing melodic line. The possibilities for melodic nuance are dramatically increased when the musician has the ability to control subtleties of dynamics, tone, intensity, and vibrato between the attack and release of any given note. Though players of single-line instruments may have less experience thinking chordally, they have a wealth of experience thinking exclusively of melodic line.

Regarding the study of melody, Rogers says the following:

...it is amazing how little time is devoted to melodic study (perhaps because of our impoverished nomenclature in the melodic realm). This is especially regrettable considering that most students are performers in a single-line medium, that provides easy entry into a variety of analytical areas.\(^{17}\)

Though the exercises presented herein are primarily harmonic-based, an effort has been made to preserve concepts of melodic line wherever possible, most notably in Chapter 4. Given that the exercises are aimed at students who play single-line instruments, it would follow that primarily melodic-based exercises should also be developed. Regrettably, the purpose and confines of this thesis do not allow for the inclusion of such exercises, but they could be incorporated into the program at a later date.

1.6 Overview of Project

This document primarily serves the purpose of presenting some exercises I generated during the last ten months. Though not discussed in great detail in any chapter, integral to the project was the testing of these exercises in sessions with university-level music students. Both the development of the exercises and the student sessions are described below. However, the reader should note that the student sessions are not revisited until the final chapter.

The Development of Exercises

The exercises presented herein have been conceived with two purposes in mind: (1) providing preliminary or remedial training for less experienced students and (2) providing a single-line instrument counterpart to the study of keyboard harmony. The goal of the preliminary training is to instill a physical association between the identity and the playing of chordal structures and to encourage active chordal thinking while playing an instrument on which the student is presumably fluent. These exercises are conceived under the premise that players of single-line instruments, particularly those with little or no keyboard experience, may not have developed the same agility in grouping notes into chordal structures, given the traditional roles and limitations of the instrument they play. As for providing a single-line instrument counterpart to the study of keyboard harmony, the goal is to create a similar mental and musical experience as that created in the keyboard harmony classroom, without requiring that the student play an instrument that, depending on the student’s keyboard skills, may serve as an obstacle to learning. Additionally, covering theoretical concepts on the student’s main instruments would presumably make it more likely that the student will make connections between repertoire she is playing and harmonic concepts.

The exercises are either newly-composed exercises, adaptations of pre-existing exercises from theory, keyboard harmony, and aural skills textbooks, or, in two cases, exercises shown to me in private bassoon lessons. Exercises derived from another source
are cited with footnotes.

The exercises are presented in three categories as follows:

1. Chord Awareness (Chapter 2)
2. Harmonic Progressions (Chapter 3)
3. Melodic/Bass-Line Interaction (Chapter 4)

Chord awareness exercises serve as preparatory work for the later exercises, as well as fodder for the weaker student seeking alternative means of reinforcing the basics of theoretical study. The exercises serve as a means of improving accuracy and speed in chord recognition, as well as creating a larger sense of chordal space. In these exercises, chords are considered in isolation or as part of non-diatonically-generated chains, not as part of diatonic harmonic progressions.

The harmonic progression exercises involve chord arpeggiation, playing progressions homophonically in a small group, and arpeggiating over top of or underneath a bass line or melody. The arpeggiation is intended to encourage the students to think of all the pitches of every chord, and the ensemble playing is intended to provide the simultaneity of sound that is omitted when the student plays arpeggios. Though students of single-line instruments are typically already playing in ensembles of various kinds, and are thus already immersed in playing simultaneous chords several times a week, the main listening focus in the ensemble rehearsal is generally on non-harmonic considerations, such as intonation, blend, and matching entries and articulations. In these rehearsal settings, there is generally not enough time to discuss harmonic or analytical matters in detail, though such matters would certainly be considered relevant to achieving a deeper understanding of the music. Exercises such as the ones presented herein might provide a means of fostering active harmonic thinking without taking up valuable (and often limited) ensemble rehearsal time.

The main inspiration for the melody/bass-line interaction exercises was drawn from Robert Gjerdingen’s *Music in the Galant Style,*

18 which describes many of the idiomatic melody/bass models that are characteristic of music from that period. One of the goals in

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creating these exercises was to take advantage of what single-line instruments can do well, which is to say, playing individual lines, not chords. The ability to come up with a logical and smooth melody/bass framework is integral to creating an elegant solution to a four-part theory exercise, and has countless applications to other aspects of developing overall musicianship.

In an article entitled “Using Bloom’s Taxonomy to Develop an Approach to Analysis,” James Caldwell discusses potential applications of the approach described in Benjamin S. Bloom’s *Taxonomy of Educational Objectives: The Classification of Educational Goals; Handbook 1: Cognitive Domain* in the music theory classroom. The approach divides the assimilation of a concept into six hierarchical levels, shown in Table 1.3. Caldwell further expands and clarifies by including a list of verbs for each level that could correspond to tasks in the theory classroom.

Table 1.3. Caldwell’s summary of Bloom’s Taxonomy with associated verbs.

<table>
<thead>
<tr>
<th>Level</th>
<th>Skill</th>
<th>Associated Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Knowledge</td>
<td>list, recall, remember, define, identify, label, recognize</td>
</tr>
<tr>
<td>2</td>
<td>Intellectual Abilities and Skills</td>
<td>explain, illustrate, describe, summarize, convert, measure, translate, extrapolate, predict</td>
</tr>
<tr>
<td>3</td>
<td>Application</td>
<td>demonstrate, apply, use, construct, perform, solve, use abstractions, show</td>
</tr>
<tr>
<td>4</td>
<td>Analysis</td>
<td>analyze, differentiate, generalize, distinguish, determine, diagram, inventory</td>
</tr>
<tr>
<td>5</td>
<td>Synthesis</td>
<td>design, plan, relate, formulate, organize, compose, construct</td>
</tr>
<tr>
<td>6</td>
<td>Evaluation</td>
<td>compare, decide, judge, evaluate, conclude, contrast, appraise</td>
</tr>
</tbody>
</table>

In the theory classroom, as in perhaps most classrooms, it seems as though most assignments call upon levels three to six, while some students have yet to achieve mastery.

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of levels one and two. Since there is typically a wide disparity in abilities in the undergraduate classroom, this is not necessarily a problem that can easily be addressed, or the addressing of which is necessarily worth the lecture time it would demand. However, what this situation does imply is that something significant needs to be done in the way of remedial work, especially given the inadequate preparation of many struggling first-year music majors due to lack of previous training.

Caldwell shows an example of hierarchical questions that could lead students through an analysis of the orchestration of Handel’s *Concerto Grosso*, Op. 6, No. 1. I have applied this concept of hierarchical organization to the organization of the exercises in this thesis, on multiple levels. Level One: Knowledge, might consist simply of being able to recognize and identify any triad in any tonal context, with upper levels consisting, respectively, of tasks such as 2) explaining, 3) transposing a passage into a new key, 4) improvising based on the passage in question, 5) considering options for chord substitutions, and 6) evaluating the strong and weak points of different versions of the passage.

**Student Sessions**

During the first and second term of the 2009-2010 academic year, beginning in late October, weekly one-hour sessions were held in a classroom at the University of British Columbia School of Music. All of the participants but one were music majors at various stages in their university training and all students participated on a volunteer basis. The one non-music-major participant was a science major who was taking music courses at the School of Music, and had a keen interest in exploring pedagogical techniques for potential use with his private students. Over the course of 16 weeks, I met with these students in groups of two to four. The instrumentation for each session was varied, and included subsets from flute, oboe, bassoon, saxophone, French horn, tuba, violin, cello, double bass, piano (treated as a single-line instrument), and violin.

The purpose of these sessions was to observe if and how these exercises were
successful in achieving their goal, to consider ways in which they could be improved, modified, or expanded, and to receive feedback from the students on their experiences with the exercises.

Each session followed a similar format, beginning with warm-up exercises, proceeding with more advanced harmonic exercises, and concluding with melodic and improvisatory exercises. The warm-up exercises served the dual purpose of warming up the students’ fingers, air, embouchure, and of encouraging the students to think harmonically. In early sessions, a greater proportion of time was devoted to preliminary exercises. As the students became faster with these exercises, more time was devoted to more advanced harmonic exercises and exercises that incorporated improvisatory elements.
Chapter 2: Fundamental Exercises in Chord Awareness

“I hear and I forget
I see and I remember
I do and I understand”

-Thomas Benjamin

2.1 Introduction

Before delving into a harmonically-grounded theory of thematic structures comprising melodic voices and their associated basses, it would seem essential that every student have a firm grasp of the basic triads and seventh chords that make up the diatonic tonal language. Much like a math student is unlikely to achieve success in calculus without having the multiplication tables at the ready, the university-level music theory student will likely struggle without having the basic triads at his or her fingertips. In working with students who are weak in theory, this essential foundation is consistently very unstable. Though many of these students seem to be capable of following the basic concepts taught in class, they are often unable to complete analysis with any speed, resulting in assignments that take too many hours for the student to complete, if they are completed at all, and exam tasks that are insurmountable in the time given. As Michael R. Rogers points out in his book Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies, “... eventually the information must be so totally engrained into the natural thinking grooves that responses are swift, sure, and automatic. Like a basic two hundred word vocabulary in a language, or the multiplication table in mathematics, certain facts in music (e.g., all major and minor scales, whole steps, all P5s, all major and minor triads, and all key signatures), once they are understood, must then actually be memorized.”

If asked to state the pitches of a triad or seventh chord from a given note, especially from a “sharp” or “flat” note, many students must contemplate for ten or more seconds. If asked to identify chords from a given score, some students I have worked with do not seem

21 Michael R. Rogers, Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies (Carbondale, USA: Southern Illinois University, 1994), 35.
to be able to verbalize the chord type quickly, even once they have figured out the names of the notes involved. The fundamental problem is therefore one of developing facility, speed, and accuracy, which in turn require memorization. These students, quite simply, need more practice drilling the basic chords. Just as at some point during elementary school they had to memorize the multiplication tables, in conjunction with any patterns that could serve as both mnemonic and reinforcing devices, these students need to be able to readily articulate the notes of any given diatonic chord from any given note before they can achieve facility in the work required of them in their theory courses and in applying theoretical concepts to any repertoire they are playing.

Rogers makes a good point about developing speed in identifying chords:

The goal of fluency in fundamentals is not speed as an end in itself but as an aid to continuity. Having a continuity in reading and hearing music means being able to collect and connect the separate bits of conceptual and perpetual information into groupings that coalesce. Below a certain threshold of quick response, pattern recognition is simply unlikely since the separate parts will never be held together long enough to form into something bigger. Knowing about notes, we can build scales. Knowing about scales, we can learn intervals and can imagine them against a backdrop. Knowing about both scales and intervals, we can learn chords, melodies, and the larger groupings like progressions, phrases, sections, and all the rest—but only if the patterns of these early links are literally memorized. Otherwise the whole chain must be reconstructed each time in the student’s mind and even then is usually so heavy that its weight becomes overwhelming as it is dragged to each new piece.22

In essence, developing one’s ability to recognize the basic building blocks of tonal language so that it becomes second nature frees up the mind for making more complex or multi-level connections with the music.

The exercises described in this section provide a hands-on solution to this problem, one that calls on the student to reinforce the chordal basics through playing his or her single-line instrument. Having the students drill the basics through playing their instruments serves many purposes. Most importantly, it attaches a physical and aural association to every chord. As discussed in the introduction, the traditional use of the piano as a means of

22 Michael R. Rogers, Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies (Carbondale, USA: Southern Illinois University, 1994), 39.
developing physical associations and “real-time” harmonic intuition is not likely to work for those with limited piano skills. Nevertheless, learning chords on one’s instrument seems like an excellent strategy, as a supplement to hearing about them in lectures and seeing them on paper, media that do not necessarily work on their own for some students. Regardless of a student’s learning style, this strategy provides an active counterpart to the information presented and passively absorbed in the theory classroom, where students are, understandably, rarely encouraged to bring out their instruments. In the context of this document, simple chordal exercises also prepare the students for later exercises, in which they must be able to arpeggiate chords freely and without too much pause for mental calculations.

The purpose of these chord awareness exercises is to increase students’ facility and speed in finding the notes of a given chord on a single-line instrument, spelling the notes of a chord, identifying chord types aurally, identifying the possible roles of a chord within all keys, and developing a physical association between printed chords and how they feel/sound when played. The exercises in this section are rooted entirely around chord arpeggiation, since that is the only universal option for players of single-line instruments. Players of string instruments may wish to experiment with playing the notes of chords as double, triple, or quadruple stops.

2.2 The Bare Bones: Major and Minor Triads

The chord awareness exercises begin with few assumptions about the students’ agility with chord spelling. Though the initial exercises may seem exceedingly rudimentary, for many students a basic, comprehensive review is necessary. The purpose of these first exercises is to promote adeptness at picking out the notes of all triads, with full awareness of the sound produced and the note names involved. It is assumed that students undertaking these exercises have at least a basic understanding of key signatures, though the memorization of all key signatures need not at this point be at the student’s fingertips. Familiarity with key signatures will inadvertently be reinforced in conjunction with the
Major and Minor Triads

The first exercises, presented in Figures 2.2, 2.3, and 2.4, show two methods of determining the notes of a triad. The first derives the pitches of a major or minor triad in terms of semitones, and the second derives the pitches through playing a scale. This second approach serves the additional purpose of reinforcing the students’ speed with identifying key signatures. Though initially students may need to play these exercises from printed music, it is important that these exercises also be done without printed music so that the student has no choice but to be actively engaged in determining what notes make up each triad.

Rogers believes that practice with scales and intervals can be a contributing factor in developing facility with triads:

True facility with scales and intervals pays enormous dividends in accuracy and speed with triads. Students can quickly develop the ability to think of a triad as a single unit rather than computing each note individually. At an early stage the distance of root to third, third to fifth, and root to fifth must be detailed. Then, however, the constituent parts should be brought together as one thing just as first graders are initially taught the letters, C . . . A . . . T and then the word “cat.”

The first method makes no assumptions about students’ knowledge of scales and their ability to distinguish between chromatic and diatonic intervals. Though most students will presumably have played scales on their instrument, many students will have learned to play scales in terms of feel or sound, without much regard for pitch names beyond the tonic. This would suggest that students will not necessarily have developed an awareness of notes in terms of scale degrees or the ability to recall individual notes quickly and accurately. Additionally, students may not be aware of the correct enharmonic spelling of all pitches within a scale. In other words, students with little grounding in scales may have trouble determining the correct nomenclature of pitches. The method described below,

23 Michael R. Rogers, Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies (Carbondale, USA: Southern Illinois University, 1994), 38.
suggested by Dr. William Benjamin, proposes a means of determining the pitches of a major or minor triad without requiring any previous knowledge of scale degrees, while ensuring that all pitches of both the chromatic scale and the triad are determined with the correct note names in mind.

This first method calls upon students to think of the pitches of a triad as points of emphasis in a chromatic pitch space. Figure 2.1 shows a visual representation of such a space in the form of an array, wherein adjacent pitches along a diagonal represent chromatic motion and pitches along each horizontal line make up a whole-tone scale. Pitches that line up vertically belong to the same pitch class. Any student thrown off by an obscure spelling of a note can always confirm the correct pitch by locating a familiar spelling within the same column. Additionally, when reading from left to right, ascending diagonals feature only one letter name, and thus represent a continuum of chromatic semitones. Likewise, descending diagonals feature letter names in alphabetical order, thereby representing a continuum of diatonic semitones. Uppercase letters indicate pitch classes that occur relatively commonly as roots of triads in tonal harmony, whereas pitch classes represented by lowercase letters indicate roots of triads that rarely occur.

Figure 2.1. Representation of chromatic pitch space.

The exercise begins with the selection of any note represented by an upper case
letter in the array in Figure 2.1. From this initiating note, the student must play a rising and descending chromatic scale that spans a perfect fifth, and systematically strip away pitches until all that remains is the three notes that make up the triad. As the student proceeds chromatically from note to note, he or she should follow the pattern shown by arrows in the basic rubrics in Figure 2.2. Figure 2.2.a shows the basic rubric for deriving major triads and its application from pitch class C in the array, and Figure 2.2.b shows the basic rubric for deriving minor triads, followed by its application from pitch class A in the array. In these rubrics, rising chromatic motion is designated by solid black arrows and descending chromatic motion is designated by grey arrows. These rubrics ensure that the correct note spellings are employed for all chromatic and diatonic semitones in both directions. Pitches enclosed by emboldened circles represent the pitches of the triad, and ultimately all that will be left once extraneous notes are stripped away.

Figure 2.2. Rubrics for major and minor triads.

a. Major triads.

   i. Basic rubric for major triads.
ii. C major triad derived using rubric.

b. Minor triads.

i. Basic rubric for minor triads.

ii. A minor triad derived using rubric.
Figure 2.3 shows one way in which students could systematically strip away pitches until only the triad remains. The rhythm in this example deliberately places the pitches of the triad on strong beats of the bar. Thus, in this model, students could think of the pitches of the triad as either the first, fourth, and eighth notes of the chromatic scale, or as the three pitches that land on the strong beats of the bar.

Figure 2.3. Notated version of how major and minor triads might be derived.

a. Major triads.

b. Minor triads.

As an alternative to deriving the pitches using a semitone approach, students who
have mastered the first method should try thinking of the notes of a triad as being pulled from the corresponding major or minor scale. In these exercises, students begin by playing a major or minor scale, and systematically reduce it to the three notes of the tonic triad. The purpose of preceding the tonic triad with its scale is to force the students to be thinking within the tonic key before they pick out the notes of the triad, and to facilitate thinking of the triad in terms of scale degrees. As shown in Figure 2.4, students would begin by orienting themselves within a key by simply playing the appropriate major or minor (harmonic or melodic) scale, accenting every note that belongs to the tonic triad. In the progressive reductions shown below, emphasis on the notes of the triads is increased through rhythmic changes and the elimination of unnecessary notes. Students who already have arpeggios under their fingers will likely find this exercise simplistic. For those who do not, this exercise provides a means of finding these pitches from the presumably familiar context of the scale. As always, it is essential that students play in all twenty-four keys and without notation.

Figure 2.4. Major scale reduced to tonic triad.
In pursuing the second method, it is important to cycle through all twenty-four keys, so that the students have thought through and played every possible major and minor triad. Students who need more review in this area should be encouraged to play through all of these scales/triads daily until they are able to name the scale degrees of each scale with fluency. Even for the beginning student, this should not be especially time consuming, since even at a slow tempo, all of Figure 2.4 should not take more than 30 seconds to play.

Up to this point, exercises have introduced triads in a bottom-up model. Given that the names of triads are determined by the lowest note, this would seem to be the most pedagogically sound approach. However, for the sake of thoroughness, avoiding a bias towards the lowest note of a chord, and in order to facilitate melodic decoration in later exercises, students should also try building triads from the top down. Teachers should take this opportunity to confirm that it is the lowest note that is both the root and the namesake of the triad. Also, students can notice and take delight in the inversion of interval types (i.e. m3+P5 for a major triad) that occurs when triads are built from the top down instead of from the bottom up.

The need for playing these exercises starting from all of the twelve pitch classes, in both major and minor versions, has been mentioned several times. What has not been addressed, however, is the order in which the different triads should be introduced. A multitude of logical options exists, including introducing triads in the order of cycle of fifths/fourths (adding a sharp or flat to the scale of each new triad), learning parallel major and minor triads side-by-side, shifting upwards or downwards chromatically, shifting up or down a third by octatonic or hexatonic relations, etc. In Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies, Rogers suggests that triads should be memorized according to the presence and location of accidentals within a given triad.\textsuperscript{25} According to his suggested line-up, students would begin by memorizing all triads that involve no accidentals whatsoever. Then they would systematically add accidentals to various notes of the triads, such as the third only or the root and the fifth, and learn triads according to

\textsuperscript{25} Michael R. Rogers, Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies (Carbondale, USA: Southern Illinois University, 1994), 38-39.
“families” that contain similar configurations. Students would finish off by learning the triads that contain both the letter names B and F, noting that since no other triads contain the same configuration of accidentals, that they make up a separate family. Table 2.1 below summarizes the organization of triad assimilation suggested by Rogers.

Table 2.1. Organization of triads by configuration of accidentals.

<table>
<thead>
<tr>
<th></th>
<th>Major Triads</th>
<th>Minor Triads</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No Accidentals</td>
<td>CEG, FAC, GBD</td>
<td>DFA, EGB, ACE</td>
</tr>
<tr>
<td>2. Sharp on middle note</td>
<td>DF#A, EG#B, AC#E</td>
<td></td>
</tr>
<tr>
<td>3. Flat on middle note</td>
<td>CEbG, FAbC, GBbD</td>
<td></td>
</tr>
<tr>
<td>4. Sharp on root and fifth</td>
<td>DbFAb, EbGBb, AbCEb</td>
<td>C#EG#, F#AC#, G#BD#</td>
</tr>
<tr>
<td>5. Flat on root and fifth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. All sharps/flats</td>
<td>F#A#C#</td>
<td>EbGbBb</td>
</tr>
<tr>
<td>7. Triads involving B or Bb as root</td>
<td>BD#F#, BbDF</td>
<td>BDF#, BbDbF</td>
</tr>
</tbody>
</table>

Students would presumably also be encouraged to notice patterns that emerge. For example, three major and three minor triads fit into the first category. Additionally, the letter names of the three roots in these groupings recur as a set throughout the table, shown by the light and dark grey background in the table above. Students could also notice that all letters of the musical alphabet other than B are featured once as the root of the triad in the first category. Students could then be encouraged to determine why the letter B does not appear as a root in any of the first six categories, noting that among the seven fifths involving only naturals, B-F is the only one that is diminished and all others are perfect.

2.3 Chord Awareness: Triad Spelling Exercises

In the previous exercises, students were encouraged to think of triads as three pitches related by a specified number of semitones or as pitches pulled from a scale. Table 2.2.1 suggested one way in which students or teachers might wish to organize or introduce
triads. In the three triad-spelling exercises that follow, it is assumed that students are comfortable playing major and minor triads in isolation. Instead of every exercise culminating in the derivation of a single triad, students are now called upon to play strings of triads generated by common tones and dominant-tonic relations. As always, students should play from the notated model until they are confident they can replicate the pattern, and then play the exercise beginning on different pitches. As the students become increasingly comfortable with the exercise, the tempo should be increased, though never to the extent that students are guessing notes.

The first exercise is very similar to one presented in Angela Diller’s *Keyboard Harmony Course,* where students have to place each white note on the piano within its three possible major triads. In Diller’s exercise, students are to sing (or say) lyrics as they play as follows, “C is one of C-E-G, C is five of F-A-C,...” Though speaking through the exercise undeniably helps reinforce the material, this is not an option available to players of wind instruments if they are to play such an exercise on their main instrument. The exercise shown in Figure 2.5 calls on the student to play all possible major and minor triads that contain the note B-flat, beginning with the major triads. The student begins by stating B-flat three times, and then playing the three notes of a B-flat triad, i.e. “B-flat as root.” The student then restates the B-flat three times, as a means of both confirming the common-tone between the two chords and giving the student a chance to gather his or her thoughts before proceeding to the next triad. Students should be encouraged to notice and discuss how B-flat remains the only common tone between each series of three triads and to contemplate why no two triads of the same quality can have more than one pitch in common. All students should make every effort to approach every note of the exercise with attention to both the names of the notes they are playing and the intonation of each triad. String players may wish to say the note names aloud in order to ensure that they are truly thinking in terms of individual notes of the triad, and not just memorizing a finger pattern.

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27 Ibid., 7.
Figure 2.5. Model for chord spelling exercise.

Exercise Model: Major and Minor Triads Involving B-Flat

A. Major Triads

B-flat as root...

B-flat as third...

B-flat as fifth...

B. Minor Triads

B-flat as root...

B-flat as third...

B-flat as fifth...

The next exercise gives students a chance to cycle through a longer chain of triads. Students can begin by playing any major or minor triad, and move from one triad to the next via two common tones, as shown in Figure 2.6. The two common tones can either be the top two of the triad, as shown in Figure 2.6.a, or the bottom two, as shown in Figure 2.6.b. Either way, the student will alternate between major and minor triads. By the time the student returns to the original triad, she will have played all twenty-four of the available major and minor triads. As such, there is only one possible complete cycle, with twenty-four possible starting points. As the student progresses through the cycle, she should jump up or down an octave wherever necessary (or desired). She should also be encouraged to notice any patterns that emerge, such as the outlining of a whole-tone scale by groups of four triads (shown in Figure 2.6 by a downward arrow) and the formation of minor/minor or major-major seventh chords by the roots of adjacent triads.
Figure 2.6. Overlapping triads.

a. Ascending (complete cycle).

b. Descending (beginning of cycle).

The third and final exercise requires the student to play either the complete collection of major triads or the complete collection of minor triads, as generated by the cycle of fifths/fourths. This exercise then also serves the purpose of reinforcing the cycle of
fifths, which should ultimately be at the fingertips of any advanced music student. The major triad series, shown in Figure 2.7.a, is presented according to the cycle of fifths, and as such, helps set the stage for mental facility in determining and locating secondary dominant chords. In the minor triad series, shown in Figure 2.7.b, adjacent chords are organized according to the cycle of fourths, resulting in a “iv of...” sequence. In both cases, the complete exercise certainly serves as a means of ensuring that students leave no major or minor triad unplayed in a given session.

Figure 2.7. Cycle of fifths.

a. Major triads.

![Major triads](image)

b. Minor triads.

![Minor triads](image)

### 2.4 Playing Triads in Open Position

At this point in the progression of material, a crossroads has been reached. The students are presumably able to play and identify the notes of all major and minor triads, and from here they could follow several different paths. They could learn to play triads in open position and/or in inversions; to play other chord types, such as seventh chords or...
diminished triads; or to place triads in different keys. It is debatable as to which path should be followed first. Ultimately, however, all of these paths would presumably be traveled and as such, the order is perhaps of little importance. In keeping with the idea of beginning with the mastery of triads, the material proceeds from here with playing triads in open position, and in the next section, diminished and augmented triads.

Along with the introduction of playing in open position, the exercises below introduce a four-voice texture. This four-voice texture has been introduced primarily for the sake of broadening the range of note configurations, but also serves as a means of better emulating chords as they often occur in the context of “real” music and in the four-part writing that is often called for in the theory classroom.

Four exercises are introduced in this section. The first two involve cycling through possible open-position configurations for one chord. The last two demand that the student cycle through a number of different chords, just as in Figures 2.6 and 2.7, except this time, all chords are in open position. Depending on the chord being played and the range of the instruments, some configurations may not always be possible. In the first two exercises, students should play as much as they are able, and sing or imagine any required notes they are not capable of producing. In the final two exercises, which involve cycling through various types of chords, students will be required to jump down an octave periodically, since no orchestral instrument has a nine octave range.

The first exercise calls on the student to play six possible configurations of the four notes of a given chord. Table 2.2 outlines these possibilities, with the configurations arranged in pairs according to the lowest two entries above the emboldened horizontal line. To begin, the student selects any note to serve as the root for the exercise, and decides whether he wishes to play a major or minor chord. The student then plays the first configuration, which happens to be a one octave arpeggio, reading from the bottom of the column up, and then back down. The student proceeds to the next configuration and repeats the process, ascending from the bottom of the column and descending to return to the original tonic. Figure 2.8 shows two ways in a student might accomplish this using a d
minor triad. The first features a rest between each configuration, giving the student a chance to gather his thoughts before proceeding to the next. The second requires continuous arpeggiation, placing an increased demand for focus, control, and mastery of the material on the part of the student.

Table 2.2. Exercise from Figure 2.8 presented in terms of root, third, and fifth.

<table>
<thead>
<tr>
<th>Configuration of Notes of Triad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root</td>
</tr>
<tr>
<td>5th</td>
</tr>
<tr>
<td>3rd</td>
</tr>
<tr>
<td>Root</td>
</tr>
<tr>
<td>1.</td>
</tr>
</tbody>
</table>

Figure 2.8. Cycling through some open position possibilities for a given triad.

a. With a rest in between each configuration.

D Minor Triad
Figure 2.8. Continued...

b. Proceeds continuously from one configuration to another.

The next exercise serves as a means of practicing moving between non-adjacent chord tones. Instead of clearly outlining open position chords, the exercise requires that the student arpeggiate in disjunct motion, as shown in Figure 2.9. In some ways, it may seem more like a preparatory exercise for playing chords in open position. However, it is placed after the configuration exercise simply because, for many students, it is more difficult to keep track of disjunct motion, especially when they are not playing from music.

Figure 2.9. Arpeggiating in disjunct motion.

As mentioned above, the next two exercises are generated by the same means as in Figures 2.6 and 2.7: the cycle of fifths and common tones. In the first of these last two exercises, students can begin by selecting any major or minor chord and any open configuration, such as one from configurations 2-6 in Table 2.2. They then arpeggiate the chord up and down in the open configuration they have selected, and proceed directly to the major or minor chord a fifth lower/fourth higher, continuing until they have returned
to the original chord. Figure 2.10 shows the first four chords of one rendition of this exercise, beginning with an F major chord in configuration 2 from Table 2.2.

Figure 2.10. Open position triads in cycle of fifths.

Generating a series of open position chords through pairs of common tones requires considerably more planning. The layout of the exercise should ideally allow for a clear representation of the presence of common tones. Additionally, it would be helpful if the presentation of each chord remained consistent in terms of configuration. However, now that the chords are no longer in close position, but still in root position, there is no longer one way of presenting a chord that will allow for both the overlapping of the first two notes with the previous chord and the overlapping of the last two with the first two of the next, etc. In order to successfully generate a chain of open position chords with overlapping pairs of common tones according to a consistent plan, different configurations will be required for the ascending and descending arpeggiation. Figure 2.11 shows one way in which this could be achieved, employing configuration 1 for the initial descent and configuration 2 for the upswing, the final two notes of which overlap with the first two of the next chord. Other configurations are certainly possible. The only rule is that if the two common tones are to immediately precede the next chord, these final two notes will have to be either a third or a sixth apart. Likewise, whatever configuration initiates a new chord will have to begin with this same third or sixth.
2.5 Diminished and Augmented Triads

As with the major and minor triads, diminished and augmented triads can be derived using various means. As in the major and minor exercises, they can easily be derived by semitones. Deriving diminished triads from a scale could also work, but the augmented triad is problematic in that it does not occur in the diatonic collection. Unlike with the major and minor triads, however, an additional option is available: deriving the diminished and augmented triads as mutations of the already familiar major and minor triads. As Rogers states, “If the major and minor ones [triads] are known, then all diminished and augmented triads can be readily calculated as a variation of a more familiar type.”28 Three methods of derivation are discussed in this section, each in both a diminished and augmented triad version. The first derives the pitches of the triads from a chromatic scale and the last two derive the pitches from major and minor triads.

The first exercise likely requires little explanation, as a similar exercise is presented in Figure 2.2. As in Figure 2.2, the student must select notes from the chromatic pitch space array of Figure 2.1, and systematically reduce the structure to the three pitches of the triad. Figure 2.12 shows the basic rubrics for both diminished and augmented triads. Note that since the diminished triad is made up of two stacked minor thirds, the pattern consists of two interlocking L-shapes. As for the augmented triad, the association with the whole-

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tone scale is made clear by the presence of the three emboldened triad pitches in the same row.

Figure 2.12. Deriving diminished and augmented triads by semitones.

a. Diminished triad.

b. Augmented Triad

The next exercise features an arrangement of related diminished and augmented triads derived from minor and major triads. In both Figure 2.13.a and 2.13.b, chords are arpeggiated in pairs. The first of each pair is always a minor or major chord, depending on the exercise. The second is always a restatement of the previous chord with one chromatic alteration that produces either a diminished or augmented chord, again, depending on the exercise. The exercise progresses from unit to unit by descending a minor third in the
diminished triad version, and descending a major third in the augmented triad version. Thus, the roots of the chords of adjacent two-measure units also form either diminished or augmented triads. By the time the student has returned to the original chord, she will have played through all of the diminished or augmented triads that are part of one cycle. Students should play through each of the three diminished and four augmented cycles, in effect exhausting the set of major and minor triads, to within harmonic equivalence. Of course, alternate spellings of some of the perfect triads and their diminished and augmented transformations may be employed. The “Advanced Version” of this exercises treats the four pitches of the chords as individual voices and attempts to minimize the movement in the upper three voices.

Figure 2.13. Deriving diminished and augmented triads from major and minor triads.

a. Diminished triads from minor triads.
   i. Close position version.
Figure 2.13. Continued...

ii. Advanced Version

b. Augmented triads from major triads.

i. Close position version.

ii. Advanced version.

In the two exercises shown below in Figure 2.14, students must cycle through either all of the major, minor, and diminished triads, or all of the minor, major and
augmented triads. In Figure 2.14.a, the student begins by arpeggiating any four-note major chord in root position, ideally one in the upper half of the instrument’s range. As the exercise progresses, the student must systematically lower one note of the previous arpeggio by a semitone, beginning with the third of the triad and followed by the fifth and the root. The end result is a side-by-side presentation of three triad types—major, minor, and diminished—all with a common root (F3 in the example below). This is then followed by the same three triad qualities transposed down a semitone, ultimately producing a chain of major-minor-diminished, major-minor-diminished, etc., triads and a gradual chromatic descent. Students should continue the chromatic alterations until they have returned to the original major arpeggio an octave lower.

Figure 2.14. Mutating triads.

a. Descending with diminished chords.

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Footnote: The exercise shown in Figure 2.14.a was demonstrated to me in a lesson with bassoonist Nadina Mackie Jackson. It is displayed above with her permission.
b. Ascending, with augmented chords.

Similarly, in Figure 2.20.b, the exercise consists of a series of arpeggiated triads that proceed one chromatic alteration at a time. In this exercise, however, the gradual motion is ascending and the three triad qualities featured are minor, major, and augmented. Whereas Figure 2.14.a features trios of triads that gradually decrease in breadth, Figure 2.14.b features triads that increase in breadth, expanding from minor to major to augmented before proceeding to the next root. As in the descending exercise, the order of altered notes is third, fifth, and root, but in this case, the chromatic alteration is always upward. Again, students should cycle through the arpeggios until they have returned to the minor arpeggio they began with, this time finishing one octave higher.

2.6 Chord Awareness: Placing Chords within the Context of a Key

The exercises in this section approach the placement of triads within the context of a key from two angles. The first two exercises use the diatonic scale as the foundation and call upon the student to play all seven diatonic triads in a given key. The last two involve finding all possible tonal contexts for a given triad. In other words, the first two exercises require the student to find all triads within a particular key, and the last two require that the student find all keys within a particular triad.
In the first exercise, shown in Figure 2.15.a and 2.15.b, the student plays through the complete collection of diatonic triads within a given key, in this case, E-flat major and minor. The basic framework for the exercise is an ascending scale. From each note of the scale, a rising and falling pentachord is played and a triad is arpeggiated up and down. The example below shows triads in close position, but there is no reason why a student could not incorporate an open configuration instead. As the student builds each triad, they should pay close attention to the quality of the chord they are creating from each scale degree, using the exercise as a means of identifying triad qualities aurally and reinforcing the triad qualities associated with each scale degree.

Figure 2.15. Deriving diatonic chords through pentachords.

a. Major key.

The next exercise, shown in Figure 2.16,\(^{30}\) is also based on an ascending scale, but this time, students must proceed without pause from one chord to the next. Additionally, every chord is arpeggiated in one direction only. The purpose of this exercise is to promote

\(^{30}\) The exercise shown in Figure 2.16 was demonstrated to me in a lesson with bassoonist Nadina Mackie Jackson. It is displayed below with her permission.
mental agility in finding these chords, giving the student no dead time in which to plan for the next chord and requiring that he shift to the next chord after two beats instead of four.

Figure 2.16. Arpeggiating triads without pause.

![Fig. 2.16. Arpeggiating triads without pause.](image)

Once the student is able to find all triads within a given key with ease, he might find it helpful to practice approaching the matter from the other end, finding “all keys within a given triad.” In Figure 2.17, the student must systematically cycle through all the tonal possibilities given a specific triad. It is worth noting that the Neapolitan chord is not found within the diatonic collection, and as such might not be familiar to those with limited theory training. If the student finds this chord confusing, he may prefer to skip the Neapolitan presentation, proceeding directly from playing the triad as tonic to playing it as mediant. It is also important that the student acknowledges and understands the reasons for the lack of presentation of the minor triad as some sort of leading-tone triad, and also that the occurrence of a major leading-tone triad is not necessarily the most common version of a chord built on the seventh scale degree.
Figure 2.17. All keys within a triad.

a. Major triad.
The exercise above is good in that the basic model of “chord followed by scale” is easy to latch onto, but the mental process required to play the exercise quickly and accurately is considerably more complex. One problem, however, is that it is difficult to get a sense of the tonal context of the given triad in all of its possible keys in the model presented. Simply following the triad by the scale of a key in which it could exist does not necessarily provide a convincing aural argument for its presence in that key. An alternate version is presented below in Figure 2.18. As in the previous exercise, each line begins with a statement of the triad being placed within all possible keys. The scalar statement following the triad, however, varies from line, depending on the tonal context of the triad. The varying melodic pattern is designed to first give a representation of the triad that also
helps establish the new key, and then conclude with a resolution within the new key. These melodic patterns vary in length, making it more difficult for this exercise to be played without notation. However, students who are already comfortable with the simpler version may find this version a more rewarding musical experience.

Figure 2.18. Alternate version of “All keys within a triad” exercise.
2.7 Chord Awareness: Dominant Seventh and Diminished Seventh Chords

Four exercises are presented in this section. The first strives to present the dominant and diminished seventh chords in a tonal context and the second presents the seventh chords as variations on major and diminished chords. The third calls upon the student to play a complete string of applied seventh chords, and the final exercise gives the student a chance to explore some of the other types of seventh chords.

In the exercise shown in Figure 2.19, dominant seventh and diminished seventh chords are followed by the scale (major or minor) they would tonicize. Students begin by picking a major or minor key, then arpeggiate the corresponding dominant seventh or diminished seventh chord and conclude with the complete tonic scale, ascending and descending. In addition to giving the chord a tonal context, this presentation allows for a stable ending to an exercise that begins with a relatively unstable chord. As students play this exercise, they should be aware of the ti-do motion from the seventh chord to the tonic scale.

Figure 2.19. Basic dominant seventh/diminished seventh chord exercise.

a. Dominant seventh chord.

i. Resolving to major scale.

ii. Resolving to harmonic minor scale.
Figure 2.19. Continued...

b. Diminished seventh chord resolving to harmonic minor scale.

As mentioned above, the next exercise derives seventh chords from their associated major and minor triads. In Figure 2.20.a, major-minor sevenths are derived from major triads and in Figure 2.20.b, diminished seventh chords are derived from minor triads. The two examples consist of two-measure units, wherein the perfect triad is arpeggiated in the first measure and the seventh chord in the second. The seventh in the second measure then becomes the root of the next two-measure unit. Since the root and seventh of a major-minor seventh chord form a minor seventh, i.e. an inverted major second, this results in the roots of each two-measure segment in Figure 2.20.a forming a whole-tone scale. In the case of the diminished seventh chord version in Figure 2.20.b, the diminished seventh/augmented second (=minor third) between the root and seventh result in a diminished seventh triad being formed by the roots of each two-measure segment. This ultimately results in two possible cycles for the dominant seventh exercise and three possible cycles for the diminished seventh exercise.
Figure 2.20. Seventh chords from triads.

a. Dominant seventh chord.

![Dominant Seventh Chord Diagram]

b. Diminished seventh chord.

![Diminished Seventh Chord Diagram]

The next set of exercises is much like the cycle of fifths exercise presented in Figure 2.7, wherein the student was required to play a complete string of major or minor triads. Additionally, this exercise combines the tonal context of Figures 2.19 with the “seventh-chords-as-mutations-of-major-or-minor-triads” approach of 2.20. The first version of the exercise, presented in Figure 2.21.a, features dominant seventh chords. The student begins as though he or she will play a complete major arpeggio. Instead of spanning a complete octave, however, the apex of the arpeggio is replaced with a seventh. The student then proceeds immediately to the major arpeggio this initial seventh chord would tonicize, and again replaces the upper root of the arpeggio with a seventh, thereby creating a chain of
dominant seventh chords. Figure 2.21.b features diminished seventh chords in a similar fashion. As with the dominant seventh version, every measure begins with the arpeggiation of the associated perfect triad, which, in this case, is a minor triad. This time, however, the arpeggio is presented in its complete form, spanning a full octave. The complete diminished seventh chord is then arpeggiated on the descent. The complete arpeggiation of the minor triad is necessary in order establish a stable chord to be tonicized and the octave span allows for the arpeggiation to conclude with the leading tone of the next chord. Since the root of the chord is the leading tone of the chord to be tonicized, the measure-long units end up being related by semitone, not fifths. This results in two versions of the same exercise that sound distantly related, even though they are generated by almost identical means.

Figure 2.21. Cycles of seventh chords.

a. Dominant seventh chord (cycle of fifths).

![Dominant seventh chord](image)

b. Diminished seventh chord (chromatic scale).

![Diminished seventh chord](image)
The final exercise in this section serves as a means of drilling all five standard seventh chord types. As shown in Figure 2.22, students begin by playing a tonic arpeggio followed by the seventh chord of largest span, the major-major seventh chord, and gradually move to that of narrowest span, the diminished seventh chord, lowering one note by a semitone with each arpeggiation. Once comfortable with this model, students should cycle through, beginning on each of the twelve pitch classes and should also try cycling in reverse order, from the smallest to the largest reaching seventh chord, for variety and further reinforcement.

Figure 2.22. “All-encompassing” seventh chord exercise.

2.8 Inversions

All exercises described thus far have presented chords in root position. Students and instructors seeking means of practicing chords in inversion could easily play almost any of the previous exercises substituting chords in inversion for all root position chords. In an effort to avoid redundancy, such variations will not be discussed in this section, though such exercises would be very much encouraged. Instead, three new exercises are presented below. The first is very simple, requiring the arpeggiation of isolated chords in root position and in inversion. The final two are considerably more involved and require the students to arpeggiate chords from a diatonic scale.

In the first exercise, any chord is selected and arpeggiated up and down in root position, spanning one octave. The chord is then arpeggiated in all subsequent inversions, with the bass note descending from bar to bar, as shown in Figure 2.23. If a seventh chord
is selected, students will have to follow the initial arpeggiation with the chord in third inversion. Otherwise, a second inversion will follow the root position presentation of the chord. In the presentation below, students may note that adjacent presentations of the chord have a decreasing number of common tones as the exercise progresses. Additionally, this exercise demonstrates some of the doubling rules that come into play when inversions are introduced. Beginning students should attempt this exercise with as many chords as possible. More advanced students may wish to skip to the more challenging exercises described below.

Figure 2.23. Simple three-note chord inversion exercise.

As mentioned above, the next exercise uses the diatonic scale as a framework. The student begins by arpeggiating a tonic chord in first inversion from the top-down, as shown in Figure 2.23. He or she must then proceed by playing the remaining two triads that could contain the tonic, altering one pitch at a time and proceeding from a first inversion triad to second inversion and root position triads. Once the root position triad has been achieved, the top note of the triad (i.e. the tonic of the scale) is shifted a diatonic step up, and the student is ready to state the three possible triads that can be formed from the supertonic. Arpeggiation proceeds from the top-down in this exercise for the sake of variety and to allow for the tonic triad to be presented first in the line-up. Though not presented below, bottom-up arpeggiation is by all means possible.
Figure 2.24. Comprehensive top-down triad exercise.
The final exercise is much like the previous one in that it is based on the pitches of a diatonic scale. In this case, however, only one triad is arpeggiated per pitch of the scale. Though this exercise does not result in an exhaustive representation of the triadic possibilities for a given melody note, it does mean that all arpeggiated chords can be in inversion. Figure 2.25 shows first inversion chords arpeggiated down and up from the pitches of descending major and harmonic minor scales. As in the exercise shown in Figure 2.15, students should take this opportunity to reinforce their awareness of the quality of triads built from different scale degrees. The exercise should also be attempted with second inversion chords arpeggiated from every pitch of the scale.

Figure 2.25. Arpeggiating first inversion chords from the pitches of a descending scale.

a. Major key.

b. Minor key (harmonic).
2.9 Chord Awareness: Playing Chords from a Notated “Solid” Representation

Since music written for solo wind instruments cannot call for simultaneously sounding notes, at least in the traditional sense, and chordal passages for string instruments are the exception rather than the rule, it would follow that players of single-line instruments might not be accustomed to reading chords notated in solid form. This potentially presents yet another obstacle for these students in terms of developing speed with musical analysis and score reading.

Figure 2.26 presents one idea for an exercise that could help players of single line instruments develop agility in reading block chords. The exercise is based on an intermediate-level bassoon etude by Julius Weissenborn. As in many etudes, arpeggiated chords make up much of the material. Though arpeggiation provides an excellent framework for thinking chordally, the ordered notation of every note of the arpeggio omits the need for the student to think actively about chords they are producing and what note they should play next. In this exercise, some of the arpeggiation has been rewritten in the form of block chords. Every passage that features a block chord is immediately preceded by a model with the arpeggiation presented in its original fully notated form. The models are of varying lengths and the pairs of fully-notated models and block chord equivalents are indicated by square brackets with letters above. Students should match articulation and melodic contour as exactly as possible.
Figure 2.26. Exercise based on *Studies for Bassoon*, Op. 8, Vol. 2, No. 8 (mm.1-8), Julius Weissenborn.

a. Student sees:

![Image of the exercise as seen by the student.]

b. Student plays:

![Image of the exercise as played by the student.]

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Chapter 3: Methods of Playing Simple Harmonic Progressions

“Just as swimming cannot be learned from a book, real music learning rarely takes place without this live contact; composing, analyzing, and then hearing and playing actual pieces is the musician’s equivalent of jumping in the water and actually getting wet. ‘To play’ music literally means to have fun by moving around sounds.”

-Michael R. Rogers

3.1 Introduction

Up to this point, chords have been presented primarily without tonal context. Most exercises have called for the arpeggiation of a single chord, either in isolation or with a melodic counterpart, or for the arpeggiation of chains of chords generated by non-diatonic means. Though several of the exercises require the student to demonstrate a knowledge of what chords belong to what keys, none of them give the student an opportunity to experience playing strings of diatonic chords within a tonal context. This chapter suggests some methods of playing harmonic progressions on single-line instruments. The goal in these exercises is 1) to give students the opportunity to experience how different types of chords sound and feel within the context of different harmonic progressions, 2) to reaffirm the chords that make up some of the standard harmonic progressions, 3) to practice selecting appropriate chords to fit a given melody or bass line, 4) to develop an innate sense of what constitutes “good” voice leading, 5) to develop an understanding of how it feels to play “bad” voice leading, and 6) to improve students’ abilities in aural chord progression identification.

This chapter presents several means of playing harmonic progressions on single-line instruments. As the chapter progresses and each method is introduced, the harmonic progressions increase in complexity. The chapter concludes with harmony-based group activities requiring three or more students. Ultimately, students should be able to perform extended arpeggiated passages within a given key with mental agility such that they are able to proceed without pause between chordal structures.

The introduction of each method along a continuum of increasing harmonic complexity is not meant to imply that exercise types cannot or should not be applied at pedagogical points other than those at which they are described below. Also, while modulation and aspects of chromatic harmony are not discussed, the exercises could easily be adapted for these relatively advanced topics.

Chords are arpeggiated in three ways throughout the chapter: bottom-up, top-down, and upwards only, and only one of these methods is applied per exercise type. In most cases, there is no reason the method of arpeggiation could not be changed, particularly for the sake of variety and ensuring that the students maintain a certain amount of flexibility.

3.2 Simple Harmonic Progressions: Dominant to Tonic Progressions and Cadences

Arpeggiating Based on Aural Instructions

As in many theory courses, these exercises begin with the most basic harmonic progression: <dominant, tonic>. For the sake of clarity, they begin with three-note dominant and tonic chords in root position, as shown in Figure 3.1. Though this presentation breaks several voice-leading rules, presenting both chords in root position means that the three notes of the triad are played in the order the student is most likely to be able to bring them to mind as a totality. The goal here is to provide a clear example, free of as many complications as possible. Both bottom-up and top-down presentations are provided for the sake of encouraging both a rooted and a melodically-based way of conceiving of harmony.
Figure 3.1. <Dominant, tonic> with both chords in root position.


Student plays:

\[
\begin{array}{c}
\text{Dominant} \\
\text{Tonic}
\end{array}
\]

b. Top-Down.

Student plays:

\[
\begin{array}{c}
\text{Dominant} \\
\text{Tonic}
\end{array}
\]

Weak melodic implications aside, these root position presentations provide an excellent opportunity to discuss three voice-leading situations to be avoided: parallel fifths, parallel motion across all voices, and voice crossing. Students should at this point begin considering the three notes of each triad as operating in three different voices, with the lowest, middle, and highest notes of the first chord corresponding to the equivalent note in the second chord.

Two approaches to clarifying the voice-leading may be employed: the use of
inversions, or that of four-note chords instead of three-note chords. In what follows here, inversions are dealt with first.

Figure 3.2 shows a comparison of two dominant-tonic progressions: one with both chords in root position and the other with the dominant triad in first inversion. It is clear from this presentation that the second version creates a more parsimonious path for all three of the voices, while avoiding all-voices-in-parallel motion, parallel fifths, and voice crossing between the lower two voices. The desired leading-tone-to-tonic resolution is also achieved by the second version, making it a stronger resolution in terms of individual melodic lines. Again, the student should play both bottom-up and top-down versions of these progressions, following the pattern in Figure 3.1, so as not to ignore the presence of an implied melody, or to assign too much of a bias towards a bottom-up construction. Having done this, she should observe that, again, the melody in isolation, <D, D>, does not provide any sense of resolution. The student should also note, however, that the repetition implies no key in particular, and so, in contrast to the upper voice of 3.2a, has the virtue of not suggesting a key other than G major (<A, D> being more suggestive of the key of D).

Figure 3.2. <Dominant, tonic> with dominant chord in root position and first inversion.

a. Both triads in root position.

\[
\begin{array}{c}
D \\
B \\
A \\
F#
\end{array}
\]

b. Dominant triad in first inversion.

\[
\begin{array}{c}
D \\
D \\
A \\
F#
\end{array}
\]

D

Poor voice-leading: Parallel fifths, all voices leap up a fourth, voice crossing.

D

Good voice-leading: Parallel thirds, one common tone, leading tone resolves to tonic.

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When the student switches to a four-voice texture, he must immediately become attuned to some basic rules of doubling and voice-leading, which need not be reviewed here. Of course, he may have already encountered these in the theory classroom. Also, the student should now consider options beyond a close position chord, taking advantage of the range of his instrument and giving a registral identity to the individual voices implied by each note of the succession of two chords.

Figure 3.3 shows four possible four-voice dominant-tonic resolutions, each with a different melodic option. The first and last feature root position chords only, and the middle two feature a first inversion dominant chord. The first example shows the essential <leading-tone, tonic> resolution in the soprano. Students should note at this point that if the <leading-tone, tonic> resolution occurs in any of the upper voices, the dominant chord cannot be in first inversion, since this would result in parallel octaves between the bass and the upper voice in question. Students should therefore also note that a <leading-tone, tonic> melody limits the dominant chord to root position, at least until dominant seventh chords are introduced.

Figure 3.3. Some possible four-note <V, I> resolutions.

a. Both triads in root position.
F#-G melody.

<table>
<thead>
<tr>
<th></th>
<th>G</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>F#</td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>D</td>
</tr>
<tr>
<td>D</td>
<td>D</td>
<td>A</td>
</tr>
<tr>
<td>D</td>
<td>G</td>
<td>F#</td>
</tr>
</tbody>
</table>

b. Dominant Triad in first inversion.
A-G melody.

<table>
<thead>
<tr>
<th></th>
<th>G</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>G</td>
</tr>
<tr>
<td>B</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>F#</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 3.3. Continued...


D-G-G
B-F#
D-D
B-B
A-A
G-G
F#
D

As students are constructing these <dominant, tonic> resolutions in various voicings and keys, they should keep the basic contrapuntal (voice-leading) and textural (doubling) conventions of four-part writing in mind. The teacher may wish to ask students to list as many of these as come to mind and assemble a comprehensive list on the board or on an overhead, which can serve as a review of material undoubtedly covered already in theory classes.

Playing a two-chord progression given a single block chord

Rather than responding to verbal cues, this very straightforward exercise calls on students to respond to a visual stimulus. In this exercise, students are shown a block triad (on a blackboard, whiteboard, projection screen, flashcard, or handout) which they must consider to be the tonic chord. The chord could be shown in any combination of clefs, for any instrumentation, and in any inversion or voicing, depending on the level of the students. Upon correctly determining the chord, the student must respond by arpeggiating a dominant-functioning chord followed by the given representation of the tonic chord in the implied key. Figure 3.4 shows one possible version of the exercise. The tonic chord provided in solid representation represents the visual cue that would serve as the stimulus for the material that follows. Chords are arpeggiated upwards for illustrative purposes. As
mentioned above, other methods of arpeggiation are certainly possible.

Figure 3.4. Basic <V, I> drill with a diminished-seventh chord.

a. Student sees:

b. Student plays:

The Three-Chord-Long Cadential Model: Selecting Chords from a Table

Having practiced the most basic chord progression, the student is ready to move to a key-defining progression, by extending the <V, I> backwards, or to the left, by one chord. The student should be made to understand that, while the <V, I> is tonally ambiguous—<V, I> in C major could also be <I, IV> in G major—a <predominant, dominant, tonic> progression uniquely specifies the key by presenting its entire scale. After a quick review of the roles of predominant, dominant, and tonic chords, students should also review the predominant chords available to them. The options for predominant chords will vary somewhat depending on the theory training of the student.

The exercise requires that students create three-chord-long progressions based on the options presented in a table provided by the instructor. Table 3.1 presents an extremely wide range of options, including many chromatic possibilities. Normally, though, an instructor would construct a table by choosing a narrow subset of chords in each category,
perhaps confining choices, at least initially, to the diatonic scale. Students would then select one chord from each column and arpeggiate the three chords one after another.

Table 3.1. Possibilities for predominant, dominant, and tonic chords.

<table>
<thead>
<tr>
<th>Major Key</th>
<th>Predominant</th>
<th>Dominant</th>
<th>Tonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV, IV\textsuperscript{6}, IV\textsuperscript{7}, IV\textsuperscript{6}/5</td>
<td>V, V\textsuperscript{6}, V\textsuperscript{7}, V\textsuperscript{6}/5, V\textsuperscript{4}/2</td>
<td>I, I\textsuperscript{6}</td>
<td></td>
</tr>
<tr>
<td>ii, ii\textsuperscript{6}, ii\textsuperscript{7}, ii\textsuperscript{6}/5, ii\textsuperscript{4}/3, ii\textsuperscript{4}/2</td>
<td>vii\textsuperscript{0}, vii\textsuperscript{0}/7, vii\textsuperscript{0}/4\textsuperscript{3}/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vi, vi\textsuperscript{7}</td>
<td>vii\textsuperscript{0}/V, vii\textsuperscript{0}/6/V, vii\textsuperscript{0}/7/V, vii\textsuperscript{0}/6/5/V, vii\textsuperscript{0}/4\textsuperscript{3}/V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V/V, V\textsuperscript{7}/V, V\textsuperscript{6}/5/V, V\textsuperscript{4}/3/V, V\textsuperscript{4}/2/V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor Key</td>
<td>Predominant</td>
<td>Dominant</td>
<td>Tonic</td>
</tr>
<tr>
<td>iv, iv\textsuperscript{6}, iv\textsuperscript{7}, iv\textsuperscript{6}/5</td>
<td>V, V\textsuperscript{6}, V\textsuperscript{7}, V\textsuperscript{6}/5, V\textsuperscript{4}/2</td>
<td>i, i\textsuperscript{6}</td>
<td></td>
</tr>
<tr>
<td>ii\textsuperscript{0}, ii\textsuperscript{0}/6, ii\textsuperscript{0}/7, ii\textsuperscript{0}/6/5, ii\textsuperscript{0}/4\textsuperscript{3}/, ii\textsuperscript{0}/4\textsuperscript{2}/</td>
<td>vii\textsuperscript{0}, vii\textsuperscript{0}/7, vii\textsuperscript{0}/4\textsuperscript{3}/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI, VI\textsuperscript{7}</td>
<td>vii\textsuperscript{0}/V, vii\textsuperscript{0}/6/V, vii\textsuperscript{0}/7/V, vii\textsuperscript{0}/6/5/V, vii\textsuperscript{0}/4\textsuperscript{3}/V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V/V, V\textsuperscript{7}/V, V\textsuperscript{6}/5/V, V\textsuperscript{4}/3/V, V\textsuperscript{4}/2/V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I, I\textsuperscript{6}, Fr\textsuperscript{6}, Ger\textsuperscript{6}</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initially, this may be undertaken with little regard for the bass line produced. However, students should quickly be made aware that different bass lines have different formal purposes. For example, if the progression is intended as an authentic cadence, students should keep in mind that the final two bass notes determine whether or not it is destined to be imperfect, or has the potential to be perfect, depending on the associated melody. For perfect cadences, there are essentially only three options for the bass line: 2-5-1, 4-5-1, and 6-5-1. For imperfect cadences, among bass-lines to consider are 6-7-8, 2-7-8, 2-4-3, 4-4-3, and 1-7-1 (in <ii\textsuperscript{4}/2, V\textsuperscript{6}/5, I>). Students could then select chords with these possible bass lines in mind. The instructor can ask students to find less common bass lines for specific progressions, and can ask them whether there is a formal context (for example, a sequence model, or some point of disjunction in the music, like an avoided cadence) to
which it is suited.

3.3. Establishing and Prolonging the Tonic

The three methods of playing harmonic progressions presented in this section are very similar in nature. All three involve arpeggiating from a bass-centric representation of a progression, with a different type of arpeggiation presented in each case. For the sake of presenting a variety of progression types over the course of the chapter, the examples shown within this section are all based on progressions that could prolong the tonic, most typically at the onset of a phrase.

Playing from Roman Numerals

In this exercise, a progression is indicated by a series of Roman numerals, as shown in Figure 3.5.a. Students must select a key and arpeggiate the chords indicated, one after another. In the solution shown in Figure 3.5.b, each chord is arpeggiated in close position up and down and the arpeggiation spans exactly an octave in every case. The quarter rest that follows every triad allows for the bars to be of consistent length, even when seventh chords, which require an additional beat, are arpeggiated. It also provides the wind player with an opportunity to breathe. Voice-leading is of little concern in this example, since the student is to arpeggiate all chords in close position and parallel octaves will inevitably result with every new chord. Having said that, instructors should make an effort to provide progressions with smooth bass lines.
Figure 3.5. Arpeggiating progression designated by Roman numerals.

a. Student sees: $<i, v_i 6/5, i6, V6, i>.$

b. Student plays in any minor key:

![Figure 3.5](image)

**Playing from Figured Bass**

In this exercise, the student is essentially given the same information as in the previous one, but in the form of a notated bass line with figures. In other words, in both cases, the student is provided with the melodic contour of the bass line (this time with an associated key) and an indication of which inversions to play. Figure 3.6 shows one tonic prolonging bass line ($<i, v^6, iv^6, V, i>$) that could be given to a student, and a possible realization. The arpeggiation in this example alternates between bottom-up and top-down with every chord. The voicing of the chords also presents a form of hybrid between open and close position, though not motivated consistently by voice-leading considerations. In this example, chords in root position are played in close position, but first inversion chords are not. The purpose of this is to encourage a keen awareness of doubling rules. Implied false parallels are allowed to occur without restriction.

Figure 3.6. Arpeggiating progression designated by figured bass.

a. Student sees:

![Figure 3.6](image)
Playing from a Notated Bass Line without Figures

The final method gives the student more freedom in chord selection and requires that the student arpeggiate in open position. The visual information is similar to that given in the previous example, consisting of a notated bass line. However, the exclusion of Roman numerals and/or figures requires that the student make conscious decisions about what chords to arpeggiate above each bass note. The bass line shown in Figure 3.7.a can be harmonized in a variety of ways, though its presentation in a section devoted to tonic prolongation would suggest that the first and last chords are tonic chords. The solution presented in Figure 3.7.b shows the harmonic progression \(<I, \text{IV}, I^6, \text{vii}^6, I>\), though the second chord could just as easily be \(\text{ii}^6/5\), \(\text{IV}, \text{vii}^6/4\), etc. The chords in this example are all presented in open position and each of the four notes of each chord is conceived as though a distinct voice in a four-part texture. Here, voice-leading becomes a primary consideration when selecting both the chords and their voicing.
3.4 Arpeggiating Longer Phrases

The last set of methods presented in this chapter features more emphasis on the melody. In the first two exercises, the melody is provided. The last exercise requires that both the melody and the bass line be improvised. Additionally, the final two cases require two participants: one to play the melody and the other to arpeggiate chords.

Arpeggiating Chords as Grace Notes to Melody

In this method, a notated melody is provided with no indication of harmony. The student must select appropriate chords (in advance or on the spot) and precede every melodic note with a quick, arpeggiated ascending chord. Example 3.8 shows a melody that could be given to a student, followed by a possible realization. The chords are played in open position, with each note of the arpeggiated grace-note figure treated as a different voice. The presentation below implies a four-voice texture, with doubling of the second Bb in the third measure. The treatment of harmonic tones as grace notes allows for a prominent presentation of the melody.
Figure 3.8. Arpeggiation as grace notes to melody.

a. Student sees:

b. Student plays:

**Improvising an Accompaniment in a Variety of Styles**

In this second method, one student plays a notated melody exactly as written while another improvises a bass line. A specific style is indicated for the bass line, such as Alberti bass, walking bass, florid figuration, waltz, polka, etc. Chords are not indicated so as to give students additional experience in chord selection. However, students attempting this sort of exercise for the first time may require indications of the chords on the score. One great advantage of not indicating chords on the score is that the student providing the accompaniment must pay close attention to the melody at all times in order to ensure an appropriate chord is selected and that the chosen voicing does not result in poor voice-leading. Once a satisfactory solution has been produced, the two students should switch parts, even if in doing so, the melody would be below the accompaniment. Figure 3.9 shows a notated melody followed by a possible solution with Alberti bass accompaniment. As an intermediate stage, before producing the elaborated bass, the student improvising the bass should decide on the essential bass counterpoint, producing a simpler version of the bass line in which there is one note per chord change. The implied inner voices of the
Alberti figuration can then be added.

Figure 3.9. Second student improvises accompaniment in suggested style.

a. Students see:

b. Students play:

Both Students Improvise from Block Chords

In this exercise, no melody is provided and both students must improvise. As in the previous method, two students are assigned the task of playing either the melody or the accompaniment. The students are provided with a harmonic progression indicated by chords in close position, such as in Figure 3.10.a. The student assigned to the melody must weave her way through a melody composed primarily of chord tones. Once she achieves a satisfactory result she should play it several times until the other student is able to internalize it. The latter should then accompany this melody with one bass note per measure, using the bass notes given in the model. If changes to the melody are required, for contrapuntal reasons, this will become apparent at this point and they should be made by ear. Subsequently, the bass-line player should attempt to play an elaborated version that arpeggiates the given chords in an idiomatic way, the idiom being specified by the instructor. He must arpeggiate chords in open position (in the predetermined style), keeping
the chords and their inversions consistent with the block chord model, and ensuring good implied voice leading between proximate arpeggios. Since this exercise involves successive improvisation by two people, it may be impossible to avoid minor contrapuntal weaknesses. However, as long as the underlying counterpoint between the given bass and improvised melody is strong, these little flaws need not invalidate the result. A potential solution with a bass line improvised in a waltz style is shown in Figure 3.10.b.

Figure 3.10. One student improvises a melody from block chords while another student arpeggiates.

a. Students see:

![Image of musical notation]

b. Students play:

![Image of musical notation]

3.5 Simple Harmonic Progressions: Group Aural Activities

Once students have a handle on the basics of arpeggiating chord progressions, a number of group activities could be undertaken. Some possibilities are listed below.
Aural Identification of Chords

One student plays a single chord or a harmonic progression of her choice. Other students must determine what chord or chords were played, and in what inversions, if applicable. Students could either write down or simply say what they heard, or they could attempt to play it back, individually or as a group.

Extraction of Individual Melodic Lines from an Arpeggiated Four-Voice Texture

One student plays a harmonic progression of his choice. The other students must play back an individual voice as a single melodic line. Which voice the student is to play back could be predetermined or not, as the teacher sees fit. Alternatively, individual students could be assigned specific voices and the whole group could play back a homophonic version of the arpeggiated progression heard as the model.

Spot the Error

One student plays a harmonic progression of her choice with at least one example of poor voice leading. The other students must determine in what way(s) the student deliberately created poor voice leading and propose solutions to the problem. Some examples of passages that deliberately contain voice-leading errors are shown in Figure 3.11. In these progressions, a second student would have to play the bass line, which is the same in every passage in this example.
Square Dancing

One student is assigned the role of caller, another the role of bass-line or melody, and a third the role of arpeggiator. The student assigned the role of bass-line or melody plays from a predetermined, arrhythmic model, which is either written out on a staff, or given in terms of scale degrees or pitch classes. Though either the bass-line or melody is predetermined, the accompanying chords are not. As each note of the bass-line or melody is achieved, the caller must announce what chord should be arpeggiated next. Each note of the melody or bass-line should be sustained until the arpeggiation of the accompanying chord is complete. An alternative version of the same activity would be for the arpeggiator to decide on the chords for her- or himself, and for the caller to identify the chords played immediately after the fact.

Transposing Chorales

Students are assigned different voices of a notated chorale. The students begin by playing through single phrases of the chorale once as notated, paying as much attention as possible to which scale degrees they are playing. If needed, students should then review what series of scale degrees they just played. The teacher should then select a new key, and students should transpose their voice, thinking in terms of scale degrees throughout.
Chapter 4: Melodic/Bass-Line Interaction

“I do not educate the individual in order that he might do a particular thing, I have him do a particular thing in order that he might become educated.” 32

-Ian Polster

4.1 Introduction

In this chapter, students finally take advantage of what their instruments do best: create fluid melodic lines. The exercises in this chapter are conceived with the idea that the students will already have a basic grounding in harmony, and are capable of at least the preliminary chord awareness exercises in chapter two. Students would ideally continue level-appropriate exercises from the Chord Awareness chapter in conjunction with these melodic/bass-line exercises.

The exercises in this chapter are based on the contrapuntal patterns described in Robert Gjerdingen’s Music in the Galant Style.33 He calls these patterns schemata, by which he means two-voice (and sometimes single-voice) fragments, representing scale-degree frameworks of short passages. In these two-voice passages, the upper voice represents a principal upper voice and the lower voice represents a bass line. In Gjerdingen’s book, he shows schemata that were common in music of the galant period and arranges them according to prevalence. In what follows, some of these schemata are used as the basis for different types of exercises. They are, however, presented in an order different from Gjerdingen’s, being grouped according to syntactical role rather than prevalence and divided into the following categories: models that open a phrase, continuational/prolongational models, and cadential models. Exercises that combine all types conclude the chapter.

The purpose of the exercises in this chapter is to develop intuitions of melodic and bass-line patterns according to idioms of the early classical period, to develop a sense of how different melodic and contrapuntal (as well as the resulting harmonic) patterns sound

and feel when played on an instrument, and less directly, to improve the ability to hear a score in one’s head. Though only one exercise type is shown for each schema type, all can easily be adapted for any of them.

### 4.2 Models that Typically Open a Phrase

In this section, six models that could open a phrase are presented. Though both a melody and a bass line are always implied, some models are defined by melodic activity in a governing outer voice, whereas others are defined by specific melodic activity in both outer voices. Each model type is followed by a distinctive exercise type. The six exercise types generally increase in complexity as the list progresses. This progression is not based on and does not correspond to the relative complexity of the models themselves; instead it serves the cause of logical and pedagogically sound presentation. All but one of the exercises require another party to provide one of the voices. Students desiring a means of practicing these exercises alone could always input the missing voice into a software program with playback capabilities, assuming they have access to a computer. Since most of the missing voices are only a few notes long, the inputting required should not be particularly time-consuming.

**Do-Re-Mi (Melody): Playing One Outer Voice While Another Party Plays the Other**

This model features a melody that rises by step from the tonic to the mediant in the uppermost voice, over top of a bass line with variable melodic content. In music of the early Classical period, this opening model could appear with no melodic elaboration whatsoever, or, more typically, it could represent the melodic reduction of the opening of a phrase. In this exercise, two or more students explore some of the possible bass lines that could accompany a do-re-mi melody in a given key. To begin, students are divided into groups A and B. Though both groups ultimately play both parts, initially group A provides the upper voice and group B the lower. The exercise proceeds as follows:
1. Group A plays the Do-Re-Mi Melody.
2. One student from Group B plays a possible bass line.
3. Everyone states the bass line in terms of scale degrees or solfege.
4. Group A plays the melody while Group B plays the bass line.
5. Group B plays the melody while Group A plays the bass line.

While playing, all participants should continue to think in terms of scale degrees. Initially, instructors may wish to have students play from notated melodic and bass lines, such as those shown in Figure 4.1. This allows for less experienced students to ease into the exercise and enables the exercise to proceed with little hesitation. Once the notated examples have been exhausted, students should come up with additional possible bass lines that could accompany the do-re-mi melodic line. Alternatively, this task could be assigned as homework. In either case, instructors may wish to go over some guidelines about creating an appropriate bass line.

Figure 4.1. Some possible do-re-mi melody schemata.
First of all, it should be made clear to the students that though only two voices are being played, chordal structures are still implied. Secondly, since this model represents an opening phrase, the first chord should be a tonic chord, in either root position or first inversion. If either a subdominant or submediant chord is desired as accompaniment to the first note of the melodic schema, the model should be prefixed with one or two chords that establish the tonic, so that the phrase still begins with tonic harmony. An example of such a prefix is shown in the fourth schema in Figure 4.1, where the first note of the do-re-mi melodic schema is supported by scale degree 6. The tonic-dominant prefix allows for the passage to begin with conventional harmony and prepares for a smooth transition to the sixth scale degree in the bass, which in turn implies either a root position submediant or a first inversion subdominant chord.

The harmony implied by the second and third bass notes is more flexible than that implied by the first. For example, in the third pattern in Figure 4.1, the final chord could well be a mediant chord with a raised third. The instructor might wish to consider alternative harmonies and to explain why some might be more common than others. The most important consideration at this point is that the two voices create good counterpoint, consisting of consonant intervals and no forbidden parallel motion. If good counterpoint is created, the resultant harmonic implications should be acceptable. Once the students have exhausted options for a particular key, a new major or minor key should be selected. If the students were playing from a notated framework, they could take this opportunity to practice transposing in terms of scale degrees. At the discretion of the instructor, groups A and B should swap roles periodically.

**Do-Re-Mi (bass): Playing Two Voices Quasi-Simultaneously**

This model features the do-re-mi melody in the lowest voice, with variable melodic content in the uppermost voice. Again, it is assumed that this model could represent the melodic reduction of the opening of a phrase, and should not be considered strictly from a literal perspective. In the exercise described below, students explore some of the possible
melodic frameworks that could accompany a do-re-mi bass line in a given key. As before, the first note of the do-re-mi line and the corresponding note in the other voice should imply tonic harmony. Likewise, beyond the first implied chord, the most important governing principle is that the two voices proceed with good counterpoint. Unlike in the previous exercise, which relied on a second participant or group of participants, this exercise calls on the student to play both voices quasi-simultaneously, playing one note of the bass (or melody) followed by its corresponding melody (or bass) note before proceeding to the next. As always, students should think as much as possible in terms of scale degrees and play in keys other than the one presented below.

Essentially, the student must:

1. Pick a three-note melody that will work a do-re-mi bass line, such as one of the options shown in Figure 4.2.

2. Say the names of the scale degrees or the solfege syllables of the upper voice aloud.

3. Play the notes of the two lines, alternating between bass and melody, or vice versa, as shown in Figure 4.2.
Figure 4.2. Do-re-mi bass.

Descending Bass line: Arpeggiating Upper Three Voices Over Top of a Bass Line with Emphasis on the Uppermost Voice

In this model, the bass line descends by step from the tonic to the dominant, with or without chromatic passing tones, beneath an upper voice with variable melodic content. In the exercise described below, the purpose is to practice thinking harmonically in conjunction with maintaining a strong awareness of the melody. The student begins by selecting (or creating) a melodic line to play over top of the descending bass line. Figure 4.3
(1.a and 1.b) shows several possibilities in both major and minor keys. Once the melodic line is selected, the student must then arpeggiate a three-note chord downward (and back up) from each melody note. Each arpeggiated gesture concludes with a sustained melodic note, thereby reinforcing the melody and giving the student a chance to gather his or her thoughts before proceeding to the next melody note. Before beginning each complete statement of the model with accompanying melodic line, students may wish to talk through which chords they will use for each melody-bass construct.
Figure 4.3. Descending bass line.

1. Student selects one of the models below.

   a. Major Keys.
Figure 4.3. Continued...

b. Minor Keys.

2. Student states the melody out loud in terms of scale degrees or solfege and selects a key, if choosing to stray from model.
3. Student plays in the style of one of the treble parts below, while another provides the bass line. (Only two examples shown in both major and minor modes.)

![Figure 4.3](image)

**Romanesca/Folia (Bass-line Model; Arpeggiating Upper Three Voices while Emphasizing Inner Voices)**

The Romanesca and folia models impose restrictions on both of the outer voices. The two are presented together because they are similarly constructed, with descending motion in thirds, and because they occur in similar types of passages, most prevalently in sequences. The Romanesca is perhaps best-known to many as the repeating backdrop for Johann Pachelbel's *Canon in D*. It features a pair of upper voices in thirds descending by step over top of a bass that provides melodic contrast through alternating descending fourths and rising seconds. The folia also features two voices in thirds descending by step, but in the case of the folia, the lower voice of the thirds is also the bass voice. Incidentally, the first melody suggested in Figure 4.3 happens to create the framework for a folia.

The exercise shown in Figure 4.4 is much like the previous exercise. The only difference is that instead of emphasizing the uppermost voice, students must emphasize one
of the lower of the three treble voices.

Figure 4.4. Romanesca/folia.

1. Student selects either the Romanesca or the folia model.

   a. Romanesca model.

   b. Folia model.
2. Student plays the treble line of something like one of the following, while another provides the bass line.

   a. Romanesca.

   b. Folia.
**Do-Re-Mi/Romanesca Combined: Melodic Embellishments with Notated Rhythm while Another Provides the Bass**

This model combines two of the models already presented: the do-re-mi melody model and the Romanesca. As shown in Figure 4.5.a.1, a do-re-mi melody is stated in long notes over top of a varied version of the Romanesca bass line. Instead of descending a fourth in the first bar, the bass descends by step, creating a passing tone to the downbeat of the second bar. Alternatively, this bass line could be described as a hybrid between the bass line of both the folia and the Romanesca. In this exercise, students are provided with a notated example with unpitched rhythm notated above the melodic skeleton. The student must then improvise a melody in the rhythm provided that adheres to both the melodic skeleton and the implied harmony. In Figure 4.5.a.1, the rhythm indicated is homophonic with the bass line. Since all notes in the bass line represent harmonic potential, all associated melodic notes in this homophonic texture must be consonant. Figure 4.5.a.2 shows one possible solution.

Figure 4.5. Do-re-mi/Romanesca combined.

a. Basic example.

1. Model is provided with rhythm notated above staff.

![Diagram](image-url)
Figure 4.5. Continued...

2. Student plays a treble line, such as the one shown below, while another provides the bass.

In Figure 4.5.b.1 above, the rhythm indicated above the staff is considerably more complex than in the previous example. Since the upper voice now proceeds with faster motion than the bass, students have the option of employing non-chord tones, such as passing tones, upper and lower neighbours, and appoggiaturas. Figure 4.5.b.2 shows one solution that makes use of both passing tones and lower neighbours. Note that this
embellishment uses the half-note melodic line shown in Figure 4.5.a.2 as a framework, employing the same consonances on almost all of the strong beats.

**Sol-Fa-Mi: Embellishment of Bass Line**

This model features a sol-fa-mi melody in the uppermost voice over top of a variable bass line. Figure 4.6.a shows the basic model with one possible bass line. Though not shown, other bass lines are certainly possible. The middle note of the basic melodic model (fa) is often prolonged, creating the option of dividing the model into two equal halves, as shown in the second part of Figure 4.6.a. In this exercise, students are asked to improvise based on the bass line, as opposed to the melody. Exercises similar to earlier ones, with notated rhythm and guide notes, could easily be created.

Figure 4.6. Sol-fa-mi.

a. Model without guide notes or rhythm is provided.
Figure 4.6. Continued...

b. Student(s) might play one of the following.

i. One elaboration.

ii. A slightly more complex elaboration.

4.3. Continuational and Prolongational Models

This section describes some of the models that are not confined to phrase openings or cadences. The models presented in the first three categories usually occur in the middle of phrases, while those presented in the fourth and final category may occur at different points within a phrase.

Fonte/Monte: Melodic Embellishments with Guide Notes

The Fonte and the Monte are based on the same two-measure melodic-bass-line skeleton. The skeleton features 4-3 motion in the melody overtop of 7-8 motion in the bass, wherein the scale degrees numbers are determined by a localized tonic. In the Fonte and Monte models shown in Figure 4.7.a.1, each skeletal note spans an entire bar and two-measure units make up the basic building blocks. In the Fonte, the second two-measure unit must be a step lower than the first. In the Monte, the second two-measure unit must be a step higher than the first. It is assumed that in both cases, the second two-measure unit
features similar, if not identical, figuration in the two voices. Additionally, the first two-measure unit in the Fonte typically tonicizes a minor triad and the second, a major triad. In the Monte, the sequence of tonicized chords can vary as to quality.

In the exercise shown below, the student must improvise a melodic pattern in a rhythm of his or her choice according to the noteheads indicated above the staff.

Figure 4.7. Fonte/Monte.

a. Basic example. Models are provided with guide pitches notated on a staff above the schema.
Figure 4.7. Continued...

b. Student might play something like this, while another provides the bass:

i. Fonte.

ii. Monte.

c. Or they might elaborate further...

i. Fonte.

ii. Monte.

More complex elaborations such as the two immediately above may be difficult to achieve without the student first becoming aware of chordal context. Initially, it may be necessary to have students discuss or write out a chord progression that fits the model.
before they are able to elaborate freely.

**Sequences: Melodic Embellishment without Guide Pitches or Rhythm, in Two-Measure Units**

The next exercise calls upon the student to embellish the melodic line without the aid of guide pitches or rhythms notated above the staff. The model in this case is any diatonic sequence, which, as in the Monte and Fonte, features a series of parallel two-measure units. The advantage of introducing a freer form of melodic embellishment in this context is that once the student has determined an acceptable melody for the first two measures, there is no need to generate any new melodic material. This means that not only is the student required to create only a small amount of new material, but that the melodic seed is short enough that the student should have little trouble planning the entire passage in advance.

In this exercise, two students would begin by playing the basic framework of a diatonic sequence, such as the ascending fifths sequence shown in whole notes in Figure 4.8.a. The student playing the upper voice must then improvise a melody based on that of the model, without the help of a notated rhythm or guide pitches. Two possible solutions are shown in Figure 4.8.b. Though only the ascending fifths sequence is presented below, students can improvise in a similar fashion using the models of other sequence types.
Figure 4.8. Ascending fifths sequence.

a. Model without guide notes or rhythm is provided.

b. Student(s) might play one of the following.

i. One elaboration.

ii. A slightly more complex elaboration.

**Prinner: More Melodic Embellishment without Guide Pitches or Rhythm**

The Prinner, the term Gjerdingen applies to the model shown in Figure 4.9, essentially consists of a series of four parallel tenths with a sol thrown in before the arrival on the final two simultaneous pitches. Though the bass line would seem to be cadential, what Gjerdingen refers to as the Prinner is typically an answering gesture, but not a closing gesture. The lack of an arrival on the tonic in the melody and the motion in parallel tenths

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make it difficult to achieve a strong cadence. In this exercise, the instructions are minimal. Two students must play through the model as shown in Figure 4.9, and then repeat the passage, this time with the student playing the upper voice improvising elaboration on the given melody. An example of one possible melodic elaboration is shown in the second half of Figure 4.9.

Figure 4.9. The Prinner.

Methods of Prolonging: Pick a Chord and Prolong

This section shows three basic types of chord prolongation. The first two, arpeggiation and neighbour chords, should be familiar to most students. They can occur either at the start or in the middle of a phrase. The third model, the quiescenza, is another of the schemata types discussed in Gjerdingen. It can occur as a phrase opener or as a way of extending a final cadence chord. Students are encouraged to further elaborate through passing notes and other non-chord tones. They should not feel as though limited to simple rhythms, and may use more florid figuration and even some ornamentation.
Figure 4.10. Types of prolongation.

a. Tones to be prolonged (implied c minor chord).

b. Arpeggiation (typically an opening device).

c. Neighbour Tones/Chords (opening or continuation).
d. Quiescenza (opens a phrase or prolongs the final chord of a phrase).

**Prolongation Exercise: Pick a Chord and Prolong**

1. One student calls out a chord of his or her choice, followed by a student’s name and type of prolongation (optional).

2. Students arpeggiate chord in unison, using a specified pattern, for example:

3. Designated students improvise figuration while the remaining students sustain notes of the chord.

4. Alternatively, chord to be prolonged could also be selected at random from flash cards used in chord awareness exercises.

**4.4 Models that Typically Close a Phrase**

In this section, various cadential models are shown and one all-encompassing exercise is presented. Figure 4.11.a shows two versions of the bass-line framework that is typical of most cadences, the second with a prolonged dominant. Beginning students may
wish to practice playing this model in various keys. Students should acknowledge that various melodic tones are possible above every bass note. Specifically, the canonical melodic pitch classes above each bass note are those of the harmonic progression: I-ii\(^7\)-(\(V^6/4\))-\(V^7\)-I, as shown in Figure 4.11.b. Students may wish to explore some of the melodic possibilities using the guide tones shown in Figure 4.11.b as a framework, ideally with someone else providing a bass line. As a general rule when forming such melodies, students should avoid large leaps and ensure that any melody that arrives on the leading tone on the third chord resolves to the tonic. Figure 4.11.c shows two melodies that often close a phrase.

Figure 4.11. Bass line and melodic possibilities for cadential formula.

a. Basic bass line.

b. Some pitch realizations of the standard melodic pitch class possibilities over a cadential bass line.
c. Three common cadential melodic lines.

As a supplement to the basic cadential framework shown above, several other cadential models are presented in Figure 4.12. These models show examples of authentic, half, and deceptive cadences, followed by a version with melodic elaboration in most cases. A description of an exercise involving these cadential frameworks follows Figure 4.12.

Figure 4.12. Some different cadence cadential.

a. Cudworth (features complete melodic descent through scale).
Figure 4.12. Continued...

b. Grand.

c. Half cadences.

i. Bass line only.

ii. Converging cadence (perfect for half cadences on the tonicized dominant).

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Figure 4.12. Continued...

d. Some additional models with augmented sixth chords as part of cadence.

With elaboration:

e. Deceptive cadence (several melodic lines are acceptable).

With elaboration:
Cadence Exercise: Play a Cudworth in g minor

One student is assigned the role of playing the melody, with or without embellishment. The remaining students must play the bass line. To begin, the teacher or some designated leader calls out a cadence type and a key. The student then plays a melodic line that fits the cadence type alone, in order to give the student a chance to get his or her bearings and to inform the remaining students of what they will be accompanying. Then the student plays the same melody a second time with the remaining students providing the corresponding bass line. Once this is complete, the student who played the melody selects another student to take over this role and calls out another cadence type and key.

4.5 Additional Exercises Based on Melodic/Bass-Line Models

Improvisation of Complete Phrases Based on Models Presented in Gjerdingen

In these exercises, students are provided with the outline for a complete phrase constructed entirely of models presented in this chapter. They are always given at least one outer voice and the name of the model is printed above the corresponding passage in the score. Students can either play their solution while another provides the other voice, or play both voices as a compound melody.
Figure 4.13. Melodic/bass-line skeletons based on Gjerdingen models.
* This model has not been discussed, but is an obvious supplement.
Aural Determination of Corresponding Outer Voices

One student plays one of the models, first specifying the key of performance and which voice he or she will play, but without indicating the model’s name. The student then plays the model again, this time while another student provides a correct corresponding outer voice.

Identification of Schemata in Single-Line Literature

Students examine repertoire for their instrument from the Classical period, either
solo or chamber, in search of examples of any of the schemata described in this chapter. Every student brings a few examples to class and plays them for their peers, either as a live performance or from a recording. Other students must try to identify the schemata types aurally. This sort of activity is especially important in terms of creating relevant connections between material covered in the theory classroom and a student’s performance medium. More often than not, it seems as though the repertoire from which examples are drawn in the theory classroom is limited to keyboard sonatas and string quartets. This might be fine for keyboard majors and select string players, but singers and other instrumentalists might find this repertoire less engaging, and tire of the absence of repertoire for their performance medium.
Chapter 5: Thoughts on Student Sessions and Concluding Remarks

5.1 Thoughts on Student Sessions

As mentioned in the first chapter, weekly sessions for single-line instrument players were held over the course of the 2009-2010 academic year. The purpose of these sessions was to observe how effective the exercises were in practice, to figure out ways in which they could be improved, to determine how best to represent them for the students, and to receive ongoing feedback from the students on their experiences with the exercises.

When the sessions began, the project was still in its formative stages. Not all exercise types had even been conceived, and those that were underwent changes as the sessions progressed. The sessions were therefore not organized according to a clearly outlined progression of material from the first week to the last. Instead, each session began with a warm-up that typically consisted of familiar and new exercises from the chord awareness chapter, and then went on to explore exercises from any category that were in immediate need of testing. Given the whimsical structure of the weekly sessions and the lack of a formal evaluation of the students’ abilities before and after, these sessions cannot serve as an accurate means of determining whether or not this material would be an effective means of supplementing a student’s musical training.

Having said that, the sessions were invaluable in terms of the immediate feedback from the students. The students always had lots to say and were quick to point out anything that was not clear or that was difficult to execute without some sort of preparatory exercise. The students all had different strengths as players and music theory students, as well as different limitations based on their instruments. For some players (seemingly irrespective of the instrument involved), jumping up or down an octave to accommodate the range of their instruments resulted in a pause in the exercise, for others, it was always a seamless transition. Some exercises seemed to be easier to execute on wind instruments, particularly ones that required chromatic shifts, such as in Figures 2.13 and 2.14. Others seemed easier on string instruments, especially those that involved disjunct
Though attendance was difficult to enforce and at times sporadic, students who attended regularly did improve noticeably in their ability to play exercises that were repeated over the course of several weeks, even when asked to perform in obscure keys. These sessions, by making me aware of what the students deemed relevant, gave direction to my process of creating new, more complex exercises (such as those in Figures 2.17 and 2.18) and were essential in bringing these exercises to life and confirming their value.

5.2 Feedback from Students

In every session, students were asked to provide feedback on their perception of the clarity and usefulness of the exercises. Their feedback has been incorporated into the finished exercises presented throughout this thesis.

Following the sessions, I e-mailed a list of questions about the material as a whole to all student participants. Though brutal honesty was encouraged, it is unlikely that even the harshest criticism would not have been sugar-coated, since the e-mail responses were not anonymous. This is likely why I received almost no negative feedback. Having said that, the respondents themselves are intrinsically biased, since they participated on a volunteer basis, and presumably entered the sessions with an interest in learning the material.

When asked whether the students felt that these exercises would be a useful component to a student’s theory training, these were some of the responses:

Absolutely, especially for players of single-line instruments. Exploring music theory concepts in conjunction with playing your instrument reinforces the practical application of these concepts. There are music theory students who see the concepts as "busy work", and as such do not apply the concepts to their own playing.

These exercises allow for constant aural reinforcement of the sounds associated with various harmonies, voice-leadings, etc. (as opposed to thinking about a harmony as a collection of black dots on a page that happens to be called a "two chord").

All student statements in this chapter are copied word-for-word from e-mail correspondence with the permission of the students involved.
The improvisatory element of some of the exercises is valuable in terms of making the student take initiative and think through the concepts themselves, rather than just "reading blindly" off of printed music.

Yes, as long as (per our discussion at the time) the exercises were either kept simple enough that a student would be able to focus on the lesson and not worry about which notes to play and when or the exercises were written out completely.

Admittedly, it would be difficult for one of these students to respond with, “No, I think everything you’ve been doing with us for the last ten weeks has been a complete waste of time. I just neglected to mention it.” Having said that, with the exception of students who responded simply with the word “yes,” all responses gave specific examples of experiences they could not have easily achieved without playing their instrument. As for the last quote, which refers to a discussion held during the last session, the student is expressing the need to ease into complex exercises, especially ones of an improvisatory nature. In other words, care needs to be taken to ensure that exercises are not introduced at such a high level of intricacy that the student is primarily worried about what notes to play and unable to listen to what they are creating as a whole.

I also asked the students whether they felt that the time required to achieve facility in these exercises would be worth the potential outcome. I have pasted two responses below. The first represents the least optimistic of the responses, and the second sums up several of the points made in many of the other responses.

Potentially. I believe each student learns differently and that what may be beneficial to one may not be to every student. Those with an exceptionally kinetic or aural learning type would likely attain the most benefit.

Yes. A student that is struggling with theory concepts will have to put in the time to master the concepts, regardless of the methods they use to do so, and these exercises are efficient and sufficiently simple to learn that they are a good alternative to the conventional keyboard harmony approach. As well, in terms of the time required to master the exercises, often students who do not know how to play piano are required to learn it to be able to perform the most basic of keyboard harmony requirements, which involves a substantial investment of time before one can even begin to apply these skills toward theoretical concepts (and then, the application of said concepts is not as practical as if you were learning them on your primary instrument, which these exercises allow for).
I agree with both of these statements. There is no one method that will be ideal for every student, and these exercises are certainly catering more to kinesthetic and auditory learners. Having said that, I do think that these exercises fill a void in music pedagogy wherein the student is provided with neither a hands-on means of reinforcing material nor a non-keyboard-based approach to playing harmonic concepts.

I also asked the students at what point they thought these exercises should begin to be implemented, assuming they thought such exercises would be a useful component to a student’s theory training in the first place. Though no student made any explicit reference to age or whether or not they should be implemented before or during university-level training, it seemed as though all of the responses were implying that a pre-university introduction would be ideal. One student even stated, “These exercises may be difficult to add to training for a student who has already had an established theory education. Those who are just beginning may find it easiest to integrate these exercises.” This could perhaps reflect the realization that for many students, their theory knowledge far surpasses their ability to demonstrate it on their instrument. Another student responded, “They should be implemented as early as the student begins studies in music theory. It is important to stress, from the beginning, that the theoretical concepts are directly linked to the actual making of music. Furthermore, these exercises will only facilitate theory exercises done away from the instrument.” Again, this response expresses a need for an increased connection between theoretical concepts and the act of playing music.

Lastly, I asked the students to comment on the helpfulness of reinforcing material through playing exercises on their instruments. In particular, I asked them to comment on whether or not they felt the instrument was a distraction or if they felt that the same outcome could be achieved through verbal or pencil/paper drills. Here are two of the more detailed responses:

It was helpful to tackle a skill at a different angle. It was more comfortable than singing and maybe even easier (as singing correct pitches requires a good ear-training first, depending on the instrument, this works the other way around and encourages
good ear training by being able to do it correctly the first time). I do think the ultimate goal is to be able to hear and sing these exercises on sight but this is a great intermediate step going from paper to sounding pitches.

I do think that the same outcome could potentially be achieved through verbal or pencil/paper drills. However, I think that (a) the exercises presented here would arrive at the desired outcomes more quickly and (b) the added benefits of these exercises (the application of the concepts directly to the playing, the improvisatory element, etc.) make the extra effort worth it. For some students (not for me), the instrument might serve as a distraction, but once the student has learned these exercises to the point where the instrument is not a distraction but a tool, then the student has learned a wide variety of very useful skills that are directly applicable to their everyday reading and interpretation of music.

As perhaps expected, the general sentiment seems to be that yes, these exercises provide another means of learning and reinforcing theoretical concepts, but they are by no means the only way or necessarily the best way. As in learning practically anything, true mastery of the concepts generally comes only after approaching the matter from a variety of angles. These exercises certainly provide one often overlooked means of accomplishing this.

5.3 How this Material could be Incorporated into a Curriculum

These exercises could easily serve as either a supplement to a pre-existing course or as a free-standing course. In either case, it would likely work best in small groups of four to ten students. Since the material has been conceived with the purpose of creating harmonic exercises for players of single-line instruments for both remedial and non-remedial purposes, the role of such a course or course supplement is open to variation.

As a means of reinforcing the basics, exercises could easily be taught either in tutorial sessions associated with theory courses or as a separate program required of players of single-line instruments who demonstrate the need for remedial work. A course could also be offered as an elective for anyone interested, regardless of level. Unfortunately, all of these suggestions would require additional funds and resources from the school. In the absence of additional resources, teachers could always suggest these exercises to struggling students who may be looking for additional means of achieving mastery of the basics and beyond. Finally, these exercises could perhaps be incorporated into private lessons or
weekly repertoire classes, at the discretion of the private lesson teacher. In schools where keyboard harmony is required in some capacity, perhaps material such as this could serve as an alternative to keyboard harmony for non-keyboard majors. Though these exercises cannot take the place of achieving basic proficiency on the keyboard, perhaps they could take the place of any keyboard chord progression requirements in place at an institution. Though this is not the place to debate this issue, this would also depend on whether the school required the students to demonstrate chord progressions on the piano as a means of demonstrating keyboard proficiency, or whether the purpose was to demonstrate the ability to determine and replicate progressions in various keys, regardless of the instrument. In schools where keyboard harmony is not required of non-keyboardists or of anyone, the more advanced exercises could still serve as an elective course offering that gives players of single-line instruments the structured opportunity to explore playing harmonic concepts, melody and bass-line interactions, and improvisation without having to play a keyboard instrument.

5.4 Possible Directions of Expansion

The exercises presented in this thesis represent both a work in progress and only a small number of the seemingly infinite possibilities. I am certain that this material will undergo many more changes as I try to implement it in my teaching. Additionally, I expect that many more exercises will be added as I receive more feedback from students, receive suggestions from peers and established pedagogues, and further contemplate ways in which the building blocks of tonal music could be approached.

There are a few ways in which I am already planning on expanding upon the exercises and material presented in this thesis. First of all, I would like to create a repertoire of exercises that feature chords in solid representation, as in Section 2.9. Additionally, to aid in leading exercises from the chord awareness and harmonic progressions chapters, I would like to create flash cards with key signatures, individual triads, and Roman numerals on them for use in randomly generating the parameters of the exercise. Flash cards could
also serve as a means of ensuring that visual connections between chords played and various forms of notation are not left by the wayside. Students could also break off into smaller groups and use these cards to play various drilling games. For example, students could take turns flipping over both a key signature card and a Roman numeral card simultaneously, and have other group members try to determine and play the appropriate chord as quickly as possible. Roman numeral cards with various inversions could also provide an additional hands-on means of demonstrating possible chord substitutions for working out potential harmonic progressions to accompany a melody and for exploring harmonic progressions in smaller groups.

Supplemental to the chapter on melody and bass-line interactions, I would like to create a larger database of frameworks from which students could improvise. These could include more frameworks based on the schemata presented in Gjerdingen’s book, melodies lacking bass or accompaniments lacking a melody, motivic cells of varying lengths that could be used in generating thematic structures, and harmonic/tonal instructions with or without notated pitches. I am also considering creating a database of computer-generated bass-lines, chords, and melodies that students could accompany by playing their single-line instrument at home.

5.5 Concluding Remarks

This project represents the beginning of something to be cultivated further. Now that a set of progressive exercises for players of single-line instruments has been created, it would be beneficial to lead a more structured linear program based on this material. The earlier exercises would perhaps be better suited for pre-university students, and this suggests that sessions for high school students should ultimately be devised, leading to material suitable for older students. It is important that teachers never cease to re-evaluate the manner in which material is presented, practised, and understood. Years down the road, perhaps exercises for single-line instrumentalists will be a standard part of the university curriculum.


