BRENT COPPENBARGER

Music Theory Secrets

94 STRATEGIES FOR THE STARTING MUSICIAN

Music Theory Secrets

Music Secrets for the Starting Musician

Music Secrets for the Starting Musician is designed for instrumentalists, singers, conductors, composers, and other instructors and professionals in music seeking a quick set of pointers to improve their work as performers and creators of music. Easy to use and intended for the starting musician, contributions to **Music Secrets** meet the needs of beginners. It is the perfect resource for teaching students what they need to know in order to reinforce a set of best practices on their way to becoming professional musicians.

Music Theory Secrets: 94 Strategies for the Starting Musician, by Brent Coppenbarger, 2014

Music Theory Secrets

94 Strategies for the Starting Musician

Brent Coppenbarger

ROWMAN & LITTLEFIELD
Lanham • Boulder • New York • London

Published by Rowman & Littlefield
A wholly owned subsidiary of The Rowman & Littlefield Publishing Group, Inc.
4501 Forbes Boulevard, Suite 200, Lanham, Maryland 20706
www.rowman.com

16 Carlisle Street, London W1D 3 BT, United Kingdom

British Library Cataloguing in Publication Information Available

Library of Congress Cataloging-in-Publication Data
Coppenbarger, Brent.
Music theory secrets : 94 strategies for the starting musician / Brent Coppenbarger.
pages cm. — (Music secrets for the starting musician)
Includes bibliographical references and index.
ISBN 978-1-4422-3323-2 (hardcover : alk. paper) — ISBN 978-1-4422-3324-9 (ebook)
1. Music theory. I. Title.
MT6.C7825 2014
781—dc23 2014013724

™ The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI/NISO Z39.48-1992.

Printed in the United States of America

For Sonja, Ethan, and Rebecca

Preface

Rhythms, melodies, and harmonies are the building blocks of music. This book will help musicians understand and remember the key elements of pitch, rhythm, scales, key signatures, and harmony. With more than eighteen years of experience teaching music theory, I have developed a number of teaching and memory strategies designed to assist in the foundations of music theory. This book is designed to be a handbook for performers, teachers, students, novices, and amateur musicians.

Chapter 1 explains how to determine pitch, use meter, and count rhythms in both simple and compound meter. Chapter 2 deals with major scales and major key signatures, whereas chapter 3 deals with minor scales and minor key signatures. Chapter 4 explains other types of scales, including modes.

Chapter 5 presents scale degree names and intervals. Chapter 6 describes triads and chapter 7 seventh chords. Chapter 8 begins a discussion of roman numeral analysis, which continues in chapter 9 with inversions and figured bass.

Chapter 10 presents some of the more common nonchord tones, and chapter 11 describes the use of syllables in solfège singing. This chapter also contains five pages of sight-singing illustrations in various clefs and keys. Some instrumentalists might want to use these to practice transposition where appropriate in clef and range. Chapter 12 shows different techniques for transposition. Chapter 13 concludes with an example of a complete analysis of a four-part work using the techniques provided throughout the previous chapters.

Acknowledgments

I wish to thank my parents, both of whom were university music professors, for instilling in me a love for music. That is, not only for giving me a love of music's aesthetic value but also for providing me with an intellectual curiosity as to why music is unique to the human race. Special thanks also go to my wife and best friend, Sonja, for editing the text, and to my children, Ethan and Rebecca, for giving up some "jump on daddy" playtime.

Over many years of teaching, I have seen a number of students enter the university as music majors and struggle with music theory, or even drop their music major because of the challenges of music theory. Some of these students were very talented in their area of specialization, be it instrumental or vocal. They were gifted students capable of being successful musicians if it were not for their difficulty with music theory, and I found it very sad that they were not able to fulfill their potential. Most, with some extra time to learn the material, could have made a career in music, but due to the high cost of education today the time needed to catch up was simply too costly. Students who fall too far behind and have to repeat a theory class end up paying for an extra year in college, which also costs them a year of career time. Vocalists with a great voice are of little use as musicians if they cannot read music because they have always learned their music by rote. These vocalists will find it difficult to learn new music and impossible to teach new students.

Pianists have always seemed to be better at music theory. This is because most piano method books incorporate some music theory into their texts, whereas most instrumental methods, woodwinds and brass at least, do not. It is the nature of a keyboard instrument; when you play a chord, you ask your teacher, "What is a chord?" Now you are talking music theory. From the age of six, pianists have been seeing, playing, and hearing music as harmony.

Without music theory there would be no musical compositions for musicians to play. Music theory is as basic to music as writing is to reading. Having a basic background in music theory helps the musician with musical interpretation, musical style, improvisation, composing, cultural musical styles, historical performance practices, phrase development, musical form, and so on. Music theory is as important to musicians as legs are to sprinters.

As a teacher, I have developed various tricks and mnemonics to help students learn this vital material, and I have discussed these tricks in class and distributed them as handouts to my students. This book is a compilation of my most effective descriptions, explanations, mnemonics, and tricks. I have written what I believe is a commonsense approach to what can be for some a complex and confusing subject. Most musicians know some music theory through practice and familiarity with their instruments. If you play or sing a scale, you know some music theory. All you have to do is learn the names for the musical structures and forms that are already familiar to you.

With *Music Theory Secrets*, I have approached the subject from the very beginning. I have attempted to use memory devices and little tricks to assist you in remembering information and understanding concepts in what I hope is a little lighter character than you may find in a textbook. I thought there was a need for a music theory text that did not read like a classroom textbook. I wanted a book that started out with the very basics, so someone who did not know any music theory or even know how to read music could learn from it. Yet I did not want a book that was so basic it would be boring for those who progressed quickly or who had music training and wanted some more advanced knowledge. Therefore, I designed a book that, although it starts with the very basics, does advance to a point equivalent to a couple semesters of college-level music theory training. In this manner, you can continue as far into the book as your need or want for knowledge allows. Novices might want to read only the first half the book, whereas advanced students might find information that is more challenging in the last half of the book. I believe I was able to establish a balance that gives a little something to everyone.

If you are a high school student planning to study music in college, especially if you are a vocalist with not much experience in reading music, this book will help you prepare for success in your theory class. Even if you are a musician, a review of the basics is a good idea, just to make sure you have not missed something. For example, did you know that traditionally an accidental carries at the octave, even though the accidental sign might not be placed in front of the note in that octave?

I have designed this book as a resource that can be used in private music lessons to incorporate some music theory. It begins with the basics of note-reading and can be used with both young and older students. As students mature in their musical development, they can progress further through the book. It is also a good study guide for those who plan to major in music and need some background information or additional information to prepare themselves for their first year in college. With this head start in music theory, potential music majors will increase their chances of success in the field of music. With the cost of education today, time saved is money earned.

For adults who have always wanted to learn to play an instrument and want some background information on music theory or need extra help learning to read music, this book will be a valuable resource. One is never too old to start enjoying the healthy mental and physical benefits of learning to sing or play an instrument. Your brain is a muscle; use it or lose it.

For amateur musicians who already know some music theory but either need a refresher course or would like to delve a little deeper into the area of music theory, this book will challenge them to think about some aspects of music in a different manner.

For music teachers who are beginning a career in the classroom, this book can be a valuable teaching tool. Even if students are using a textbook in class, teachers can use some of the techniques in this book to help students understand music theory more quickly.

Although not designed as music theory workbook, I did want readers to experience a sampling of the different areas of music theory. Thus, I included some rhythm worksheets for clapping in different meters, sight-singing pages to practice singing or transposition, and four-part chorales to analyze. Normally you would have to purchase more than one book to get this variety. Since the cost of these books continues to increase, it seemed appropriate to offer a sampling, thus saving the cost of books that might not get much use.

Pitch and Rhythm Basics

SECRET 1: PITCH BASICS

All melodies build on pitch, defined as how high or low a note is. Do not confuse pitch with volume. Loud and soft are dynamics. The number of vibrations per second of a particular note determines pitch. For example, when an orchestra tunes to A = 440, the pitch A has a vibrating frequency of 440 times per second. To determine the pitches, composers and musicians have developed a system of five lines and four spaces called a staff. A note's position on the staff tells the musician what pitch to play; the shape and color of the note communicates the rhythm.

However, the note's position on the staff, either on a line or on a space, has no meaning until a symbol called a *clef* is placed at the beginning of the staff. The word *clef* comes from the Latin word *clavis*, meaning *key*. Understanding clefs is the key to reading notes, and the clef is the first in a series of symbols that make up the *key signature* (more about key signatures later). The clef determines the names or pitches of the lines and spaces, with each line or space using the letter names A through G of the alphabet. Changing the clef will change the names of the lines and spaces as well.

When notes extend beyond the staff, either higher or lower, the staff is temporarily extended by the use of small lines called *leger lines*, sometimes spelled *ledger lines*. Think of a ledger that is used in bookkeeping with columns of lines. Only use the minimal number of lines necessary to identify the note. Therefore, a B above the treble clef sits on a leger line; there is no additional line above it.

SECRET 2: THE TREBLE CLEF OR G CLEF

Through the use of clefs and leger lines, high-sounding instruments, such as piccolo, and low-sounding instruments, such as tuba, can use the same notational system but with different clefs, just as people who read and write many different languages can use the same alphabet. Most singers and all high instruments such as the flute, oboe, clarinet, violin, and trumpet use the treble clef, also called G clef, as shown in figure 1.1.

Figure 1.1.

In figure 1.1, note that the tail of the treble clef encircles the second line from the bottom, telling the musician that the second line from the bottom of the treble clef is the pitch G, thus the term *G clef*. The tail

of the treble clef **G**rabs the second line, which now makes it the G line. Knowing this, you can name all the lines and spaces on the staff.

Using letters A through G of the musical alphabet, and starting over again with letter A after reaching G, determines that the space after the second line G is A. The third line (always count from bottom up) is B. The third space is C. The next line is D, and so on. If going up the staff, go forward through the alphabet. If going down the staff, go backward through the alphabet. Remember to stay within the letters between A and G!

When going up the staff, the pitch gets higher. When going down the staff, the pitch gets lower. Notice the names of the lines and spaces in figure 1.2.

Figure 1.2.

Thus in treble clef, the names of the lines, from bottom to top, are E-G-B-D-F. The names of the spaces are F-A-C-E. To become efficient in reading music, you must memorize the names of the lines and spaces and not count up or down from G every time. Notice that the names of the spaces in treble clef or G clef spell the word *face*. Make a game out of coming up with an acronym for the names of the lines, E-G-B-D-F, such as **E**very **G**ood **B**rain **D**oesn't **F**orget or **E**ating **G**ophers **B**ut **D**on't **F**reak.

SECRET 3: THE BASS CLEF OR F CLEF

Low instruments, such as bassoon, trombone, cello, and tuba, use the bass clef, sometimes called the F clef. Bass and baritone singers also read this clef. Piano players read both treble and bass clefs, because the range of the instrument is so wide. Figure 1.3 shows the bass clef; notice that two dots are on either side of the fourth line. The fourth line is the pitch F. Remember this in the following way. The word *fourth* begins with the letter F, and thus the fourth line from bottom in the bass clef is the pitch F.

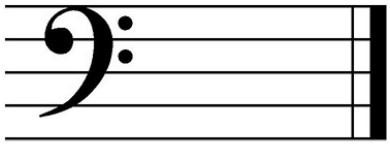


Figure 1.3.

Knowing that the fourth line is F tells you that the next space up, the fourth space, is G. The fifth line is then A. Going down, the space under the fourth line, the third space, is E. The third line is D, and so on.

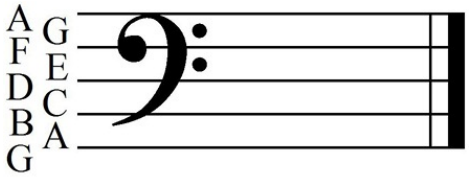
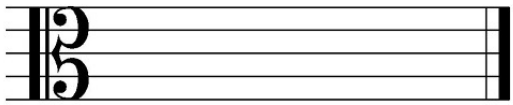


Figure 1.4.

Thus, the names of the lines in bass clef are G-B-D-F-A, while the names of the spaces are A-C-E-G. Once again, to become efficient in reading music, one must memorize the names of the lines and spaces in bass clef also. Notice that A-C-E spells *ace*. Can you come up with an acronym for G-B-D-F-A? How about **G**reen **B**irds **D**on't **F**ly **A**lone or **G**old **B**racelets **D**angle **F**rom **A**rms? I am sure you can come up with something better.

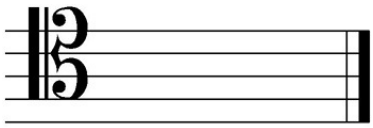
SECRET 4: THE ALTO CLEF AND TENOR CLEF

Two other clefs are often used: the alto or viola clef and the tenor clef. Alto clef is used only by viola players. Bassoon, cello, and trombone players use the tenor clef when their instruments play very high, in order to avoid using leger lines. (Tenor singers, however, usually read treble clef.) In both of these clefs, the *arrow* points to C, middle C to be exact. The next note above C is D. The note below C is B, and so on.



The Alto clef or Viola clef

Figure 1.5.



The Tenor clef

Figure 1.6.

Notice that in the alto clef middle C is the third line, while in the tenor clef middle C is the fourth line. In treble clef, middle C is the first leger line below the staff; while in bass clef, middle C is the first leger line above the staff. To remember the difference between alto and tenor clef, start with the clef on the middle line and draw it; then go up one line and draw the other clef. Now write the word *AT* with the *A* below the first clef and the *T* below the second. The *A* stands for alto clef and the *T* stands for tenor clef.

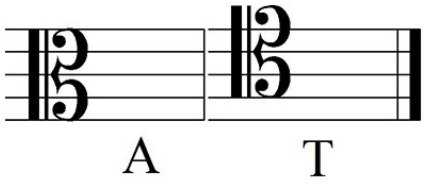


Figure 1.7.

SECRET 5: THE GRAND STAFF

Although only the letters A through G are used to name notes, there are many notes that use the same letters. For example, there are many Cs on the piano. A simple system to identify which note you speak of is to take the lowest C on the piano and call that C1. The next note is then D1, E1, F1, and so on, until reaching the second C, which is then C2. In this second octave of the piano, the notes will be C2, D2, E2, and so on. The third octave is C3 followed by D3, E3, and so on. Therefore, middle C on the piano is C4.

The piano uses two staves. The top staff uses treble clef and is played by the right hand. The bottom staff uses the bass clef and is played by the left hand. Middle C, one leger line below the treble clef staff or one leger line above the bass clef staff, is the note that lies in the middle between the two staves. This set of two staves is called the *grand staff*. To remember that middle C is C4, think middle C is the C for (C4) both treble and bass clef.

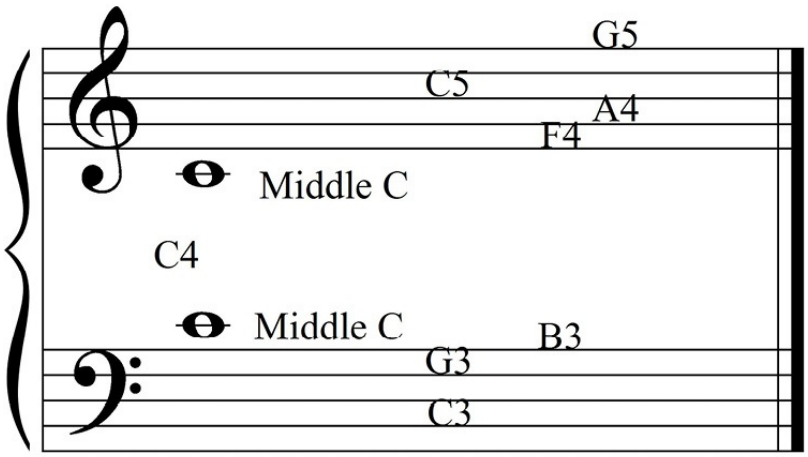


Figure 1.8.

SECRET 6: RHYTHM

Now that you can read pitches on the staff, you need to determine how long or short to play or sing a particular pitch. The system used to control the movement of these pitches with regard to time or length is called rhythm. Each pitch or note has a value or relative length that it will sound. This allows many people to play together in an organized fashion and for a composer's works to sound relatively the same for each performance. Note values are shown in figure 1.9.

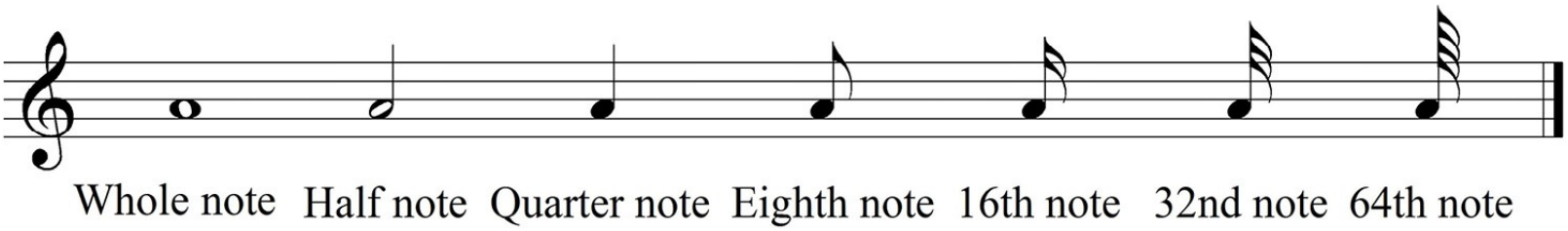


Figure 1.9.

A whole note divides into two half notes. Each half note divides into two quarter notes. Each quarter note divides into two eighth notes (there are two eighths of an inch in a quarter of an inch). Each eighth note divides into two sixteenth notes; each sixteenth divides into two thirty-seconds, and so on. Therefore, there are two half notes in a whole note, four quarters in a whole, eight eighths in a whole, two quarters in a half, four eighths in a half, two eighths in a quarter, and so on. Think of a ruler, with a whole note being an inch. The inch or whole note has four quarters, sixteen sixteenths, etc. Usually, but not always, the musician will count by quarter notes and not whole notes.

In figure 1.10, the four sixteenths tied together in the bass clef equals the quarter note in the treble clef. The two eighths tied together in the bass clef equals the quarter note in the treble clef. When you tie a note, you combine its value with the note to which it ties. Remember it this way; if a piece of string were a note and you tie two pieces of string together, you now have a piece of string that is longer.

Do not confuse a *tie* with a *slur*. A tie is two or more notes that are the same note connected with a curved line, but a slur is an articulation and not a rhythmic value. A slur uses a curved line under or over notes that are not the same note whereas the performer does not tongue or articulate the notes. This is the same as when a singer sings two pitches on the same word, such as the first *oh* in the U.S. national anthem.

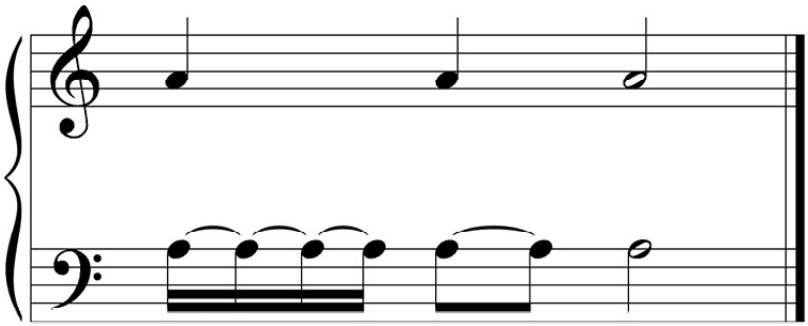


Figure 1.10.

However, note lengths do not always appear in even divisions, such as halves and quarters. Composers also use a modifying symbol called a dot. When a dot appears after the note, the dot receives the value of half the length of the note that preceded it. The dotted note is one and a half times the length of that same note without a dot. Therefore, a dotted quarter note is equal to three eighth notes: two eighth notes in the quarter and one eighth note in the dot. In figure 1.11 a dotted quarter note is given. The dot is worth one eighth, which is half the value of the quarter note. Notice that the rhythm in the bass clef is the same as the rhythm in the treble clef.

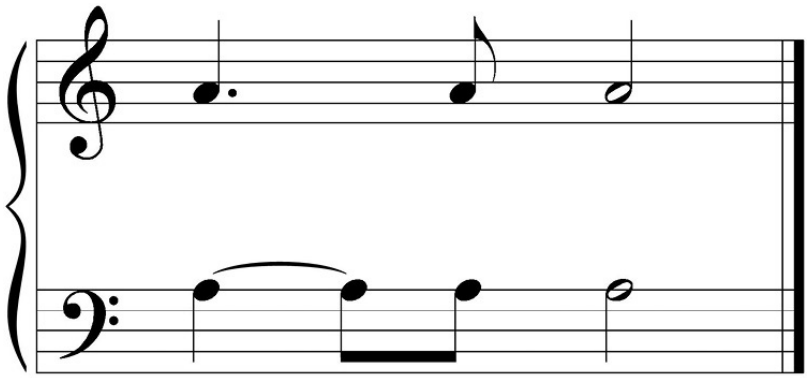


Figure 1.11.

The use of a dot saves space and makes for easier reading of music, as in figure 1.12. Note that the dotted eighth note is the same as an eighth note tied to a sixteenth (two sixteenth notes equal one eighth note). A dotted half note is the same as a half note tied to a quarter note.

Notice that if a note head is below the middle line, the stem is on the right side and goes up. If the note head is on the middle line or above, the stem is on the left side and goes down, as figure 1.12 shows. To remember this, think of drawing a stick figure that is facing the clef sign. The middle line is the waist and the foot is the note with the leg being the note stem. If the foot points toward the clef sign, the leg is on the right side of the foot and goes up and the foot is below the waist, or the middle line. If the note head is on the middle line or above, then it is just the opposite. The stem generally should be an octave in length. An octave, for example, in treble clef, is from the first space F to the fifth line F. (Always count lines and spaces from the bottom up.)

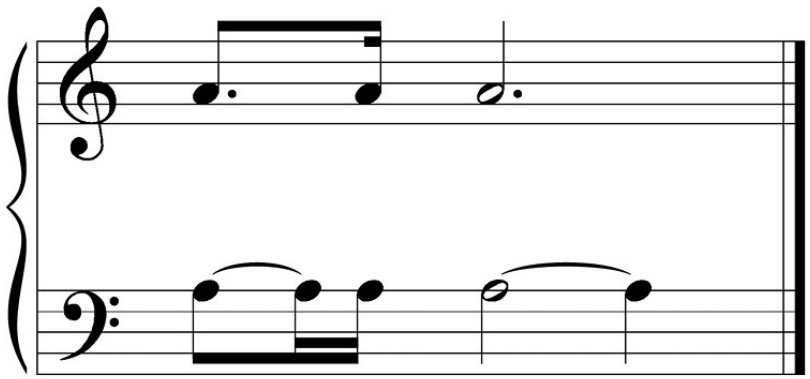


Figure 1.12.

Not only are there note values for pitches, but there are also note values for periods of silence, called *rests*. Rests are counted rhythmically in exactly the same way as notes. Remember that the whole rest hangs from the fourth line and the half rest sits on the middle line. The half rest is lazier than the whole rest, doing half as much work, and therefore must sit in the middle of the staff. Rests can be dotted, just the same as notes. In music, every instant of time must be accounted for, either as a note or as a rest.

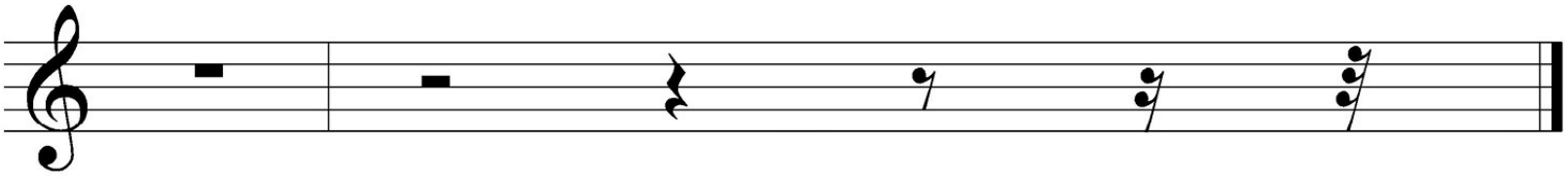


Figure 1.13.

SECRET 7: TIME SIGNATURE

Before getting into the specifics of counting rhythm, one must first understand time signatures and meters.

A time signature is a numeric symbol that appears at the beginning of a piece of music that resembles a fraction, but *without* the line between the top and bottom numbers. Notice the four-four time signature in figure 1.13. The time signature helps the musician count rhythms by identifying what type of note (quarter, eighth, sixteenth, etc.) will get the beat or pulse. The beat or pulse is what you tap your foot to when listening to a piece of music. The bottom number tells the musician the note that gets the pulse and the top number tells how many pulses will be in each measure.

In figure 1.13, the four-four time signature tells the musician that there are four beats per measure (top number = beats per measure) and the quarter note gets the beat (bottom number = beat note). Note that 1 = whole, 2 = half, 4 = quarter, 8 = eighth, 16 = sixteenth, and so on. A measure is enclosed between bar lines. A bar line is a vertical line that divides the measures. (See the bar line in figure 1.13.) Bar lines do not extend beyond the staff, even if the notes are written above or below the staff on leger lines.

Most traditional types of music use time signatures; however, some latter twentieth-century through twenty-first-century music may be written without time signatures and even without bar lines. In this case, notes and rhythms are placed on the staff and the entire work may look like one long measure. The musician plays the rhythmic values of the notes with some type of pulse based on the tempo marking that appears at the beginning of the work. Tempo is how slow or fast the pulse or beat note is.

When you tap your foot, you are tapping the beat at a particular tempo or speed. For example, a traditional march is at a tempo of a quarter note pulse equaling 120 beats per minute on a metronome—a fast walking pace. That is two beats per second.

SECRET 8: METER

The use of a time signature is to aid in counting and produces a natural strong and weak pulse in a measure. For example, a march is counted in two, and if you were saying the words *left*, *right*, *left*, *right* while marching, the word *left* would be stronger than the word *right*. These strong and weak pulses are called meter. There are three types of meter: *simple meter*, *compound meter*, and *asymmetrical meter*.

SECRET 9: SIMPLE METER

In *simple meter*, the pulse note or beat note divides evenly into two notes. For example, if the pulse note is a quarter note, the quarter note can be divided into two eighth notes. Remember your ruler, two eighths equal one quarter. There are two eighths of an inch in one quarter of an inch. An eighth note divides evenly into two sixteenth notes.

There are three types of simple meter. *Simple duple* has two beats per measure with a strong first beat and a weak second beat, as in a two-four time signature. (See figure 1.14.) *Simple triple*, shown in figure

1.15, has three beats per measure with a strong first beat and a weak second and third beat, as in a three-four time signature (like a waltz). *Simple quadruple* has four beats per measure with a strong first beat, a weak second beat, a less strong third beat, and a weak fourth beat, as in a four-four time signature. (See figure 1.16.)

$\frac{2}{4}$ ONE - two | ONE - two | ONE - two |

Figure 1.14.

$\frac{3}{4}$ ONE - two - three | ONE - two - three | ONE - two - three

Figure 1.15.

$\frac{4}{4}$ ONE – two - Three - four | ONE – two - Three - four |

Figure 1.16.

Simply stated, if the top number of the time signature is two, three, or four, the meter is simple meter, with two being duple, three being triple, and four being quadruple.

SECRET 10: COMPOUND METER

In *compound meter*, the pulse *cannot* be divided in half evenly, but instead is divided evenly into three. That is, in compound meter, the pulse note is a note with a dot, for example, nine-eight, in which a dotted quarter note gets the pulse. There are three eighths in a dotted quarter; therefore, in nine-eight time the grouping is three dotted quarter notes per measure. These groupings are usually *beamed* to show the pulse. Figure 1.17 shows the first three eighths beamed together to form groups of three eighth notes, or one dotted quarter per group. In this nine-eight example the foot taps on one, four, and seven to get *one* two three—*four* five six—*seven* eight nine.

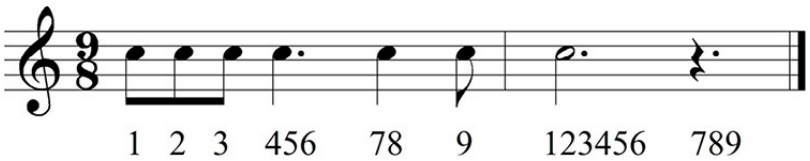


Figure 1.17.

Now look at the simple meter four-four example in figure 1.18 and notice that the foot taps the pulse on one, two, three, and four. Notice that the pulses are beamed to show quarter notes.

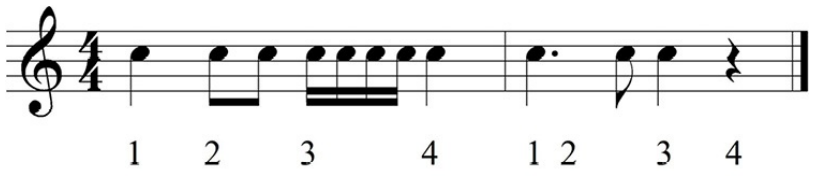


Figure 1.18.

Compound meter is also divided into duple, triple, and quadruple. Compound duple has two pulses per measure, as in six-eight, where the dotted quarter note gets the pulse, or six-sixteen, where the dotted eighth note gets the pulse (three sixteenth notes equal a dotted eighth). Sing "Row, Row, Row Your Boat" while clapping your hands on the beat. This song is in six-eight. The long beat on *row* is a dotted quarter, and you can hear how it divides into three equal eighth notes in the word *merrily*.

Remember that the dot gets half the value of the note that comes before it. Compound triple has three pulses per measure, as in the nine-eight example in figure 1.17, with three dotted quarters per measure. Compound quadruple has four pulses per measure, as in twelve-eight, where there are four dotted quarter notes worth of time per measure. Simply stated, if the top number of the time signature is a multiple of three (almost always six, nine, or twelve), then the meter is compound with six being duple, nine being triple, and twelve being quadruple. If the top number is three, however, the meter is simple, not compound.

SECRET 11: ASYMMETRICAL METER

In a time signature such as five-eight or seven-four where the pulse is a combination of simple and compound (1-2, 1-2-3) or compound and simple (1-2-3, 1-2), resulting in an uneven pulse, the meter is said to be *asymmetrical*. Asymmetrical means not balanced or uneven. These meters are uncommon.

SECRET 12: COUNTING IN SIMPLE METER

Now that we have learned about time signatures and meters, we can return to rhythm. Rhythm is a very important part of music. Rhythm helps a melody to move forward, giving it shape and a sense of proceeding to a conclusion. Sometimes rhythm is more important than melody; it is to a percussionist playing a drum set. Some would say that rhythm is more important than melody in jazz or some types of folk music.

Do not confuse rhythm with tempo here. Tempo once again is how fast or slow the pulse is, while rhythm is how long or short the notes are within the tempo. To aid in counting, many musicians will tap their foot to the pulse or beat. If, for example, the time signature is four-four (four beats per measure with the quarter note getting the beat), the musician will tap the quarter note pulse with his or her foot. Rhythms are then played in relation to this pulse. To aid in counting, many musicians will use syllables as place-keepers with numbers falling on the beat, as in figure 1.19. We touched on this when discussing beaming earlier.

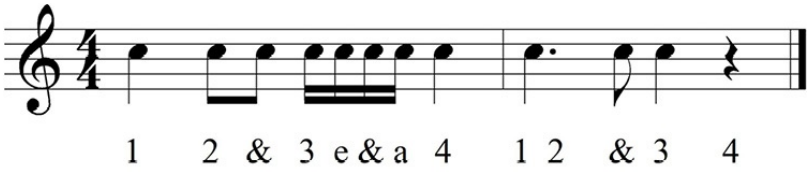


Figure 1.19.

Notice that *&* is the place-keeper for where the eighth falls and *e* and *a* are place-keepers for where the sixteenths fall. Also, notice that in the second measure, the second beat falls on the dot of the dotted quarter note. If clapping this rhythm, you may say *two*, but you would not clap or play on beat two because it is contained within the dotted quarter note.

The time signature four-two, for example, means there are four beats per measure with the half note getting the beat. Numbers will fall on every half-note worth of pulses.

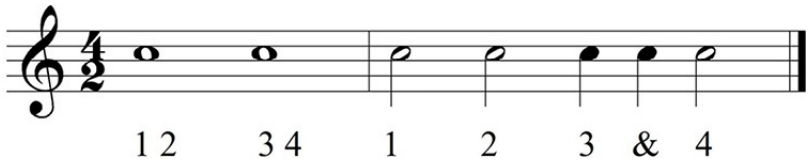


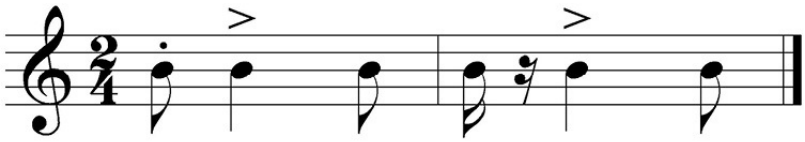
Figure 1.20.

This is the method generally used in simple meter counting. Note that *C* is short for *common time*, also known as 4/4 time, with four beats per measure, the quarter note getting the beat or pulse.

Sometimes in simple meter, three even notes are played during the time of what would normally be two notes. This is called a *triplet*. An eight-note triplet, therefore, is three eighth notes played during what would normally be two eighth notes. These three eighth notes will be beamed together and a small *3* is placed above the beam if the stems are going up or below the beam if the stems are going down. If there is no beam, such as in a quarter note triplet, then a bracket is used, still with a small *3* placed above or below. This system is not limited to triplets. Sometimes a piece of music will call for five sixteenth notes, for example, in the time of four sixteenth notes. The five sixteenth notes will be beamed together (two beams for sixteenths) and a small *5* is then placed above or below the set of five notes just as in the case of the triplets. Five notes played during the time of four is called a *quintuplet*.

Adding to the complexity of counting rhythm is the fact that two eighth notes may not always be played as two eighth notes. In jazz, sometimes the music calls for the eighth notes to *swing*. When you swing the eighth notes, rather than playing even eighths, you hold the first eighth slightly longer than the second, producing a rhythm close to a quarter note–eighth note triplet.

Another fundamental aspect of jazz is the use of *syncopation*. Syncopation is a rhythm where a normally weak part of the beat is emphasized or accented. A typical syncopated rhythm might be an eighth note, quarter note, eighth note figure. Syncopation is what makes jazz feel like jazz. In some instances to bring out this syncopation even more, the first eighth note is played short, like a sixteenth note with a sixteenth rest as in figure 1.21. Notice the accent mark (>) above the quarter note indicating that this note is to be stressed.



Both measures sound the same.

Figure 1.21.

SECRET 13: COUNTING IN COMPOUND METER

In compound meter, one of two different ways of counting may be used. The first is as in simple meter. The second way emphasizes the dotted aspect of compound meter, using numbers for the dotted-note pulse and syllables for the after beats, such as *one* la le, *two* la le. Figure 1.22 compares both ways.

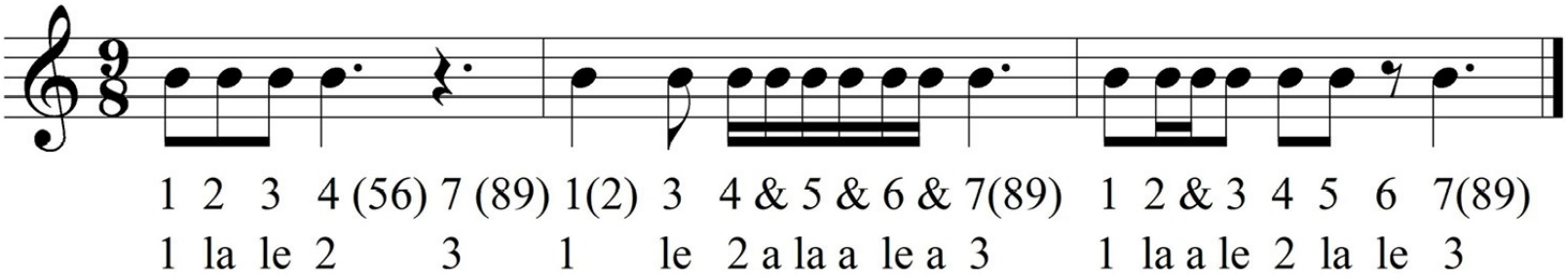


Figure 1.22.

A number of students have difficulty counting in compound meter. It is almost like thinking in triplets if it were in simple meter. Sometimes a piece in compound meter is marked at a slow tempo, in which case one counts for the pulse of the note indicated on the bottom of the time signature. For example, a slow piece in 6/8 time is counted for an eighth-note pulse. However, a fast march in 6/8 time is counted for a dotted-quarter-note pulse.

SECRET 14: PRACTICE MAKES PERFECT

Use the exercises on the following pages to practice both counting and rhythms. You might want to clap the exercise and play it on your instrument. Remember not to clap or play on the tie or the dot. Wind players must remember that rhythm is both in finger movement and in articulation; therefore, you may articulate or tongue rhythms on a single pitch but you might want to play up and down scales to produce rhythms through finger movement. String players will play rhythms through bowing and finger movement. And remember, *do not leave for tomorrow what you can practice today*.

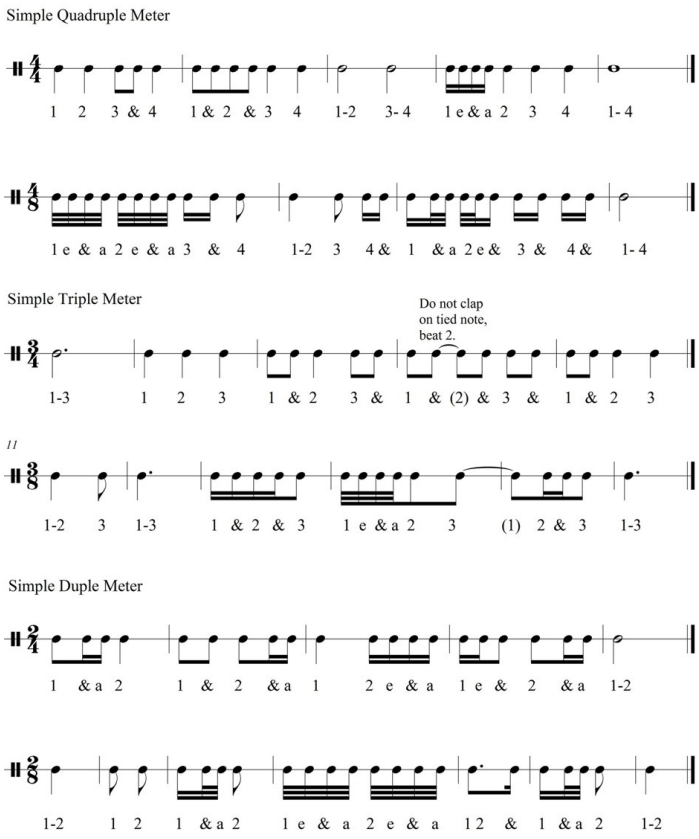


Figure 1.23.

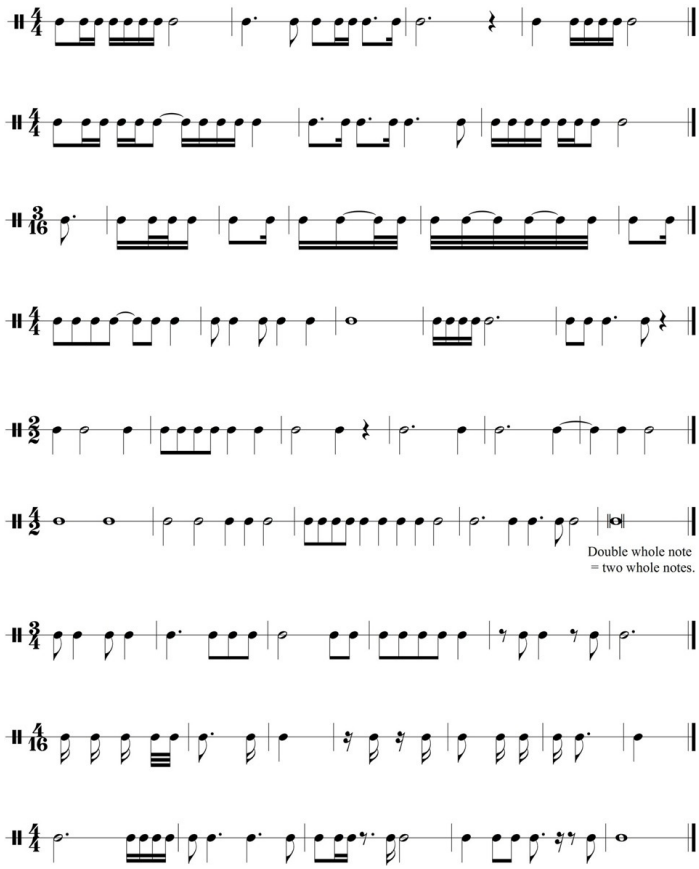


Figure 1.24.

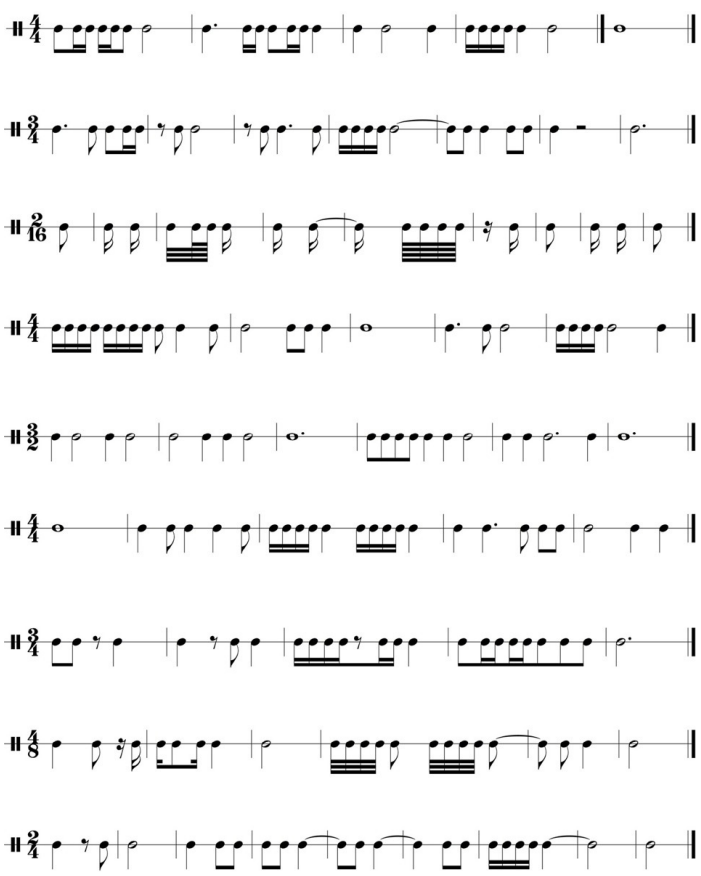


Figure 1.25.

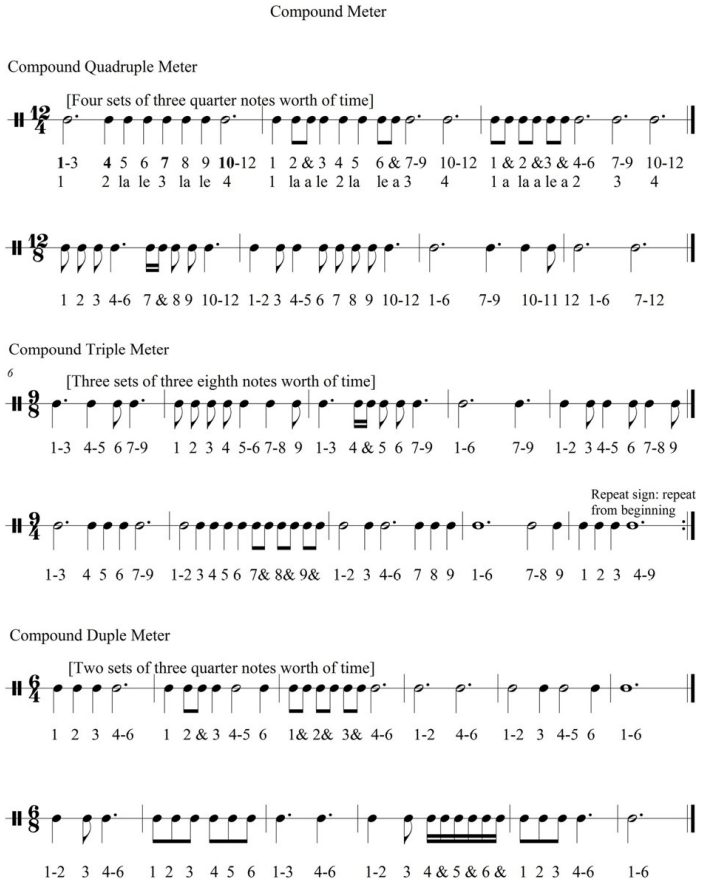


Figure 1.26.

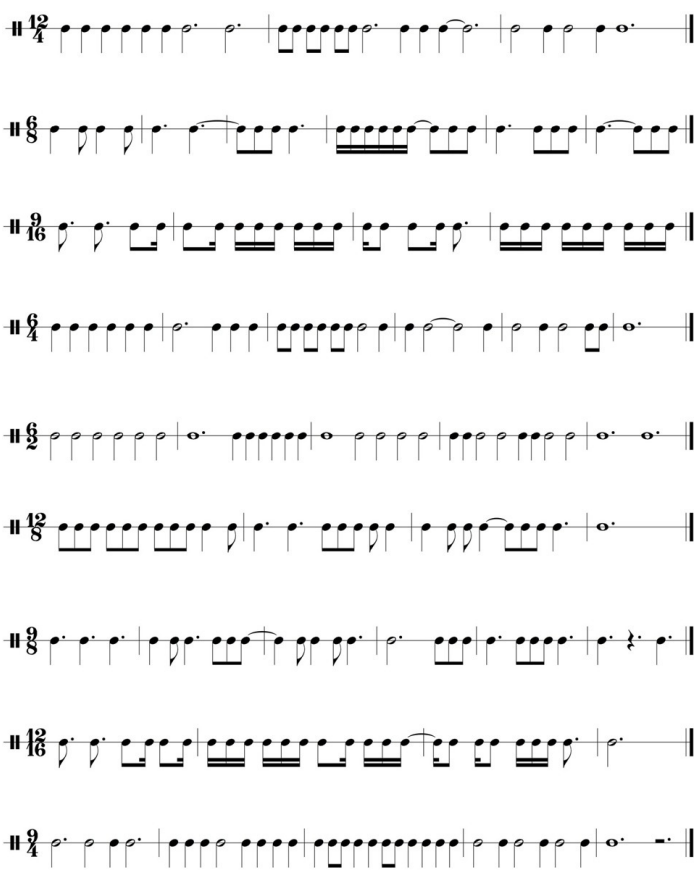


Figure 1.27.

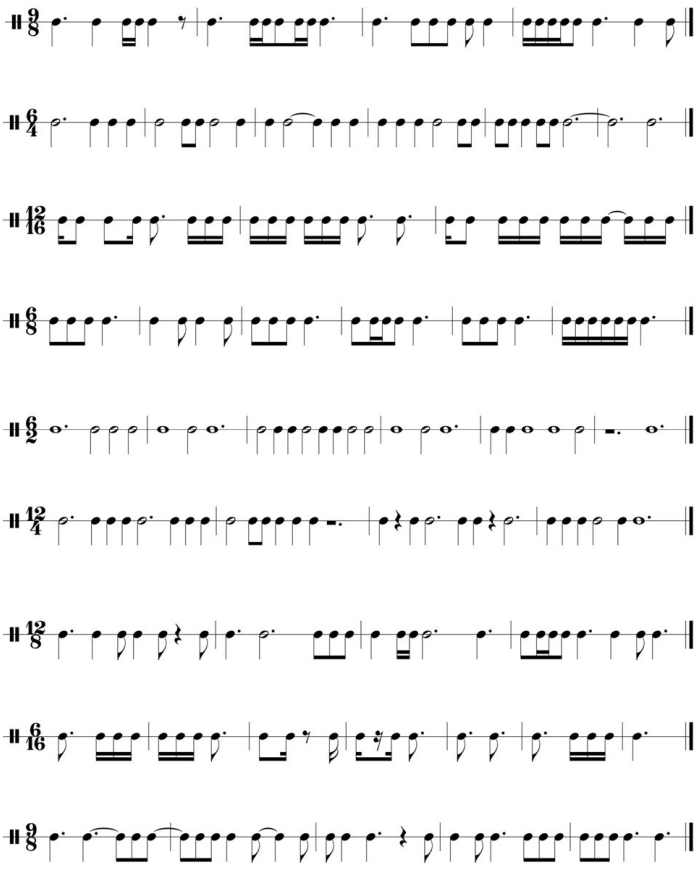


Figure 1.28.

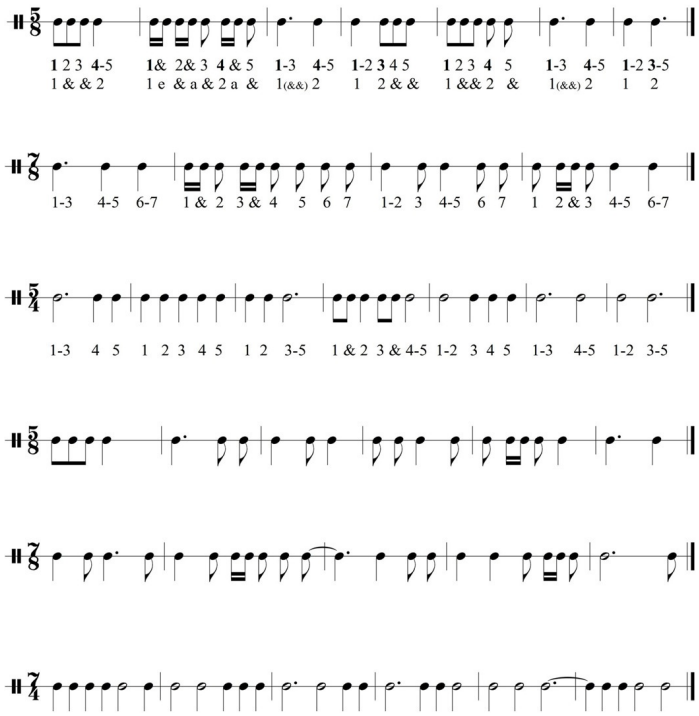

1 2 3 4-5
1 & & 2
1& 2& 3 4 & 5
1 e & a & 2 a &
1-3 4-5
1(&&) 2
1-2 3 4 5
1 2 & &
1 2 3 4 5
1 && 2 &
1-3 4-5
1(&&) 2
1-2 3-5
1 2
1-3 4-5 6-7
1 & 2 3 & 4 5 6 7
1-2 3 4-5 6 7
1 2 & 3 4-5 6-7
1-3 4 5 1 2 3 4 5 1 2 3-5
1 & 2 3 & 4-5 1-2 3 4 5 1-3 4-5 1-2 3-5

Figure 1.29.

Major Scales and Major Key Signatures

A composer, composing in the traditional manner, uses scales and key signatures to create a composition or write a tune or melody. You might choose to write in an atonal style, in which there is no key center or scale. However, traditionally the scale or key you choose to write in is like a seed from which the composition will grow. J. S. Bach's "Mass in B Minor" began first with a key or scale in mind, B minor. So what is a scale?

SECRET 15: THE SCALE

Just as a bathroom scale makes use of a series of numbers to show one's weight, a musical scale uses a series of notes or pitches to show whole steps and half steps. There are many types of scales, each defined by where whole steps and half steps occur. A *half-step* is the closest distance between two intervals in traditional Western music.

An *interval* is the distance between two notes. Remember when you learned to drive, you had to keep a safe *interval* or *distance* between cars. This interval is easily seen on the piano keyboard. If you locate the note C on the piano and then go up to the next key, the black key C♯/D♭, this is a half step. If you go up from C to the next white key, D, this is a whole step.

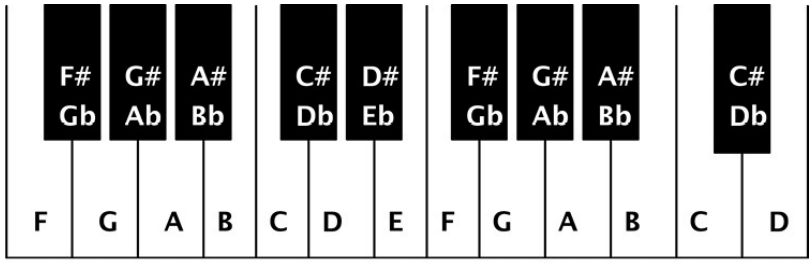


Figure 2.1.

A whole step, therefore, consists of two half steps. Note that on the piano keyboard there is no black key between E and F, and B and C. E to F (even though both are white keys) is a half step and the same is true of B to C.

If starting with C on the piano keyboard and playing all white keys (from C to C), C-D-E-F-G-A-B-C, you are playing the C major scale. There are seven notes in the scale with the octave being repeated, giving us an eight-note scale. Notice that C to D is a whole step (there is a black key in between). D to E is a whole step, with a black key in between. E to F, however, is a half step—there is no black key between E and F. F to G is a whole step. G to A is a whole step. A to B is a whole step. However, B to C is a half step, as there is no black key between B and C.

For the black keys, we will have to define a couple more terms, sharp and flat. A *sharp* (symbol = ♯) raises the pitch of the note a half step higher. (When you sharpen a pencil, you are *raising* the lead to a point.) The black key between C and D is therefore a half step higher than C, so we call it a C sharp,

assuming we are going up the scale. If going down the scale and thinking of the black key as being a descent from D to C (rather than C to D), then it is a half step lower than D. When lowering a note by a half step, we *flat* (symbol = ♭) the note. (When you flatten something, you make it smaller.) Therefore, C sharp (C♯) and D flat (D♭) are two different ways of spelling the same note. The term for this, two different spellings of the same note, is *enharmonic*. Looking at the keyboard in figure 2.2, the single letter names are the white keys on the piano and the letters with sharps and flats are the black keys.

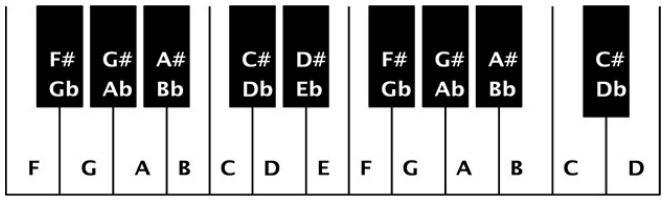


Figure 2.2.

Playing from C to C (all white keys) is the C major scale because it begins and ends on C.

SECRET 16: THE MAJOR SCALE

The *major scale*, by definition, has a half step between the notes (or scale degrees) 3 and 4 (E and F in the case of C major) and 7 and 8 (B and C in the case of C major) and whole steps between the other scale degrees. Anytime we then build a major scale, it *must* have the same *pattern* as the C major scale, that is, a half step between scale degrees 3 and 4, and a half step between scale degrees 7 and 8 with whole steps between scale degrees 1 and 2, 2 and 3, 4 and 5, 5 and 6, and 6 and 7. Another way to build a major scale is to split it in half and build half the scale at a time. This four-note scale is a *tetrachord*.

SECRET 17: THE MAJOR TETRACHORD

To build the C tetrachord, there must be a half step between the last two notes, that is, the third and fourth note. The notes are then C-D-E-F. C to D is a whole step (with C♯ between), D to E is a whole step (with D♯ between) and E to F is a half step. This gives the pattern of whole-whole-half with regard to scale degrees between notes: C-whole step-D-whole step-E-half step-F. Notice how this looks on the piano keyboard in figure 2.3 (W = whole and H = half).

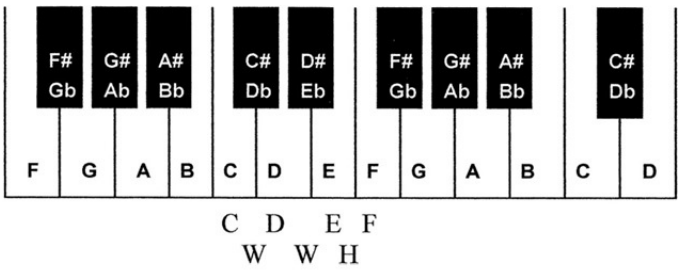


Figure 2.3.

Now that we have built half the scale, we must build the other half. To the C tetrachord we add the G tetrachord. Using the same pattern of whole-whole-half but starting on the note G gives the notes of G-A-B-C. Notice this pattern on the piano keyboard in figure 2.4.

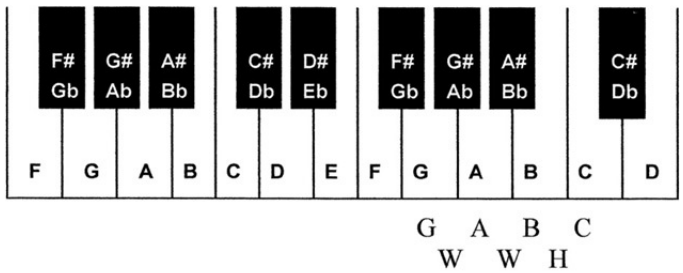


Figure 2.4.

Thus, the C tetrachord and the G tetrachord put together produce the C major scale: C-D-E-F-G-A-B-C (the C tetrachord of C-D-E-F and the G tetrachord of G-A-B-C). Now build the F tetrachord using the pattern we have learned by starting on F and using whole-whole-half steps between notes. If you need to, refer to the keyboard in the previous figure. Starting on F, the F tetrachord is F-G-A-Bb (B♭). F-whole step-G-whole step-A-half step-B♭. Be sure not to write A♯ (A sharp) for the black key between A and B. You cannot use the same letter twice in a row, because a major scale must name every note a different name. When these notes are placed on a staff, you will notice that scale degrees must alternate line-space-line-space, and so on, or if starting on a space: space-line-space-line, and so on. If one were to use A and A♯, both those pitches will be on the same space in treble clef. If we add the C tetrachord that we already learned and place it after the F tetrachord, we have F-G-A-Bb-C-D-E-F. This produces the F major scale.

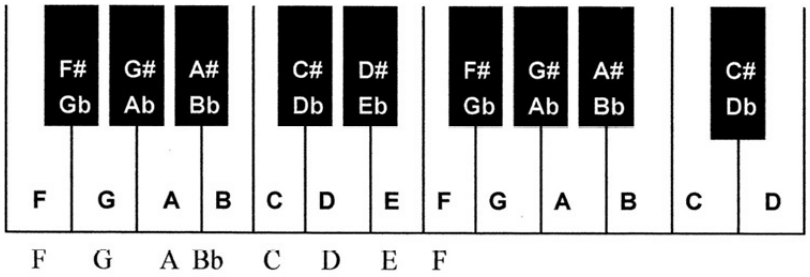


Figure 2.5.

Putting two tetrachords together is the same as building the eight-note major scale and placing half steps between degrees or notes 3 and 4, and 7 and 8. F, the first degree, to G, the second degree, is a whole step (with F♯/G♭ between). The second degree, G, to the third degree, A, is a whole step. Following our pattern of a half step between degrees 3 and 4, and 7 and 8, and whole steps between degrees 1 and 2, 2 and 3, 4 and 5, 5 and 6, and 6 and 7, we must now use a B flat (B♭), the black key, between scale degrees 3 and 4 in order to fit our model. We then continue with a whole step between degrees 4 and 5, a B♭ to C (with B between), and so on until we reach degrees 7 and 8. We need a half step here, and E to F is a half step, so we do not need to use an accidental. An accidental is a sign (sharp, flat, or natural) used to raise,

lower, or make natural a note. We have been using the accidentals ♯ and ♭ on our keyboard. Therefore, an F major scale uses one flat, a B flat (B♭). When writing the F major scale on the musical staff, it will look as illustrated in figure 2.6 (note the clef used).

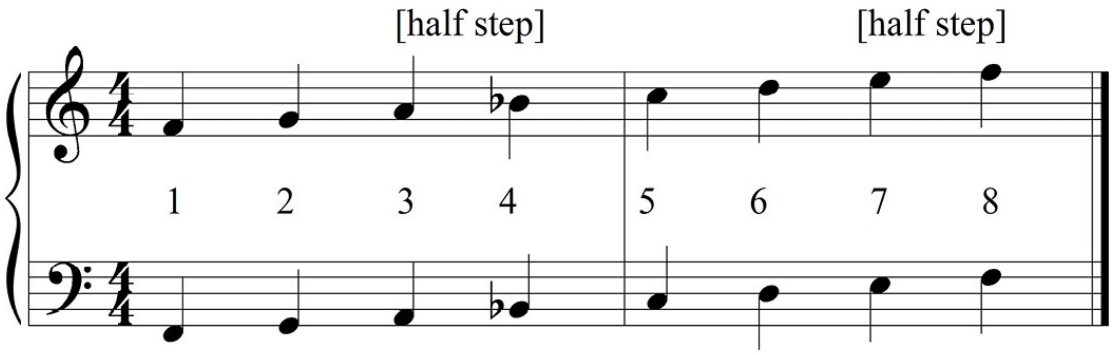


Figure 2.6.

Build a major scale starting on D. Start by building the D tetrachord. Using the keyboard in figure 2.7, start on D and build the tetrachord using the pattern of whole-whole-half between notes.

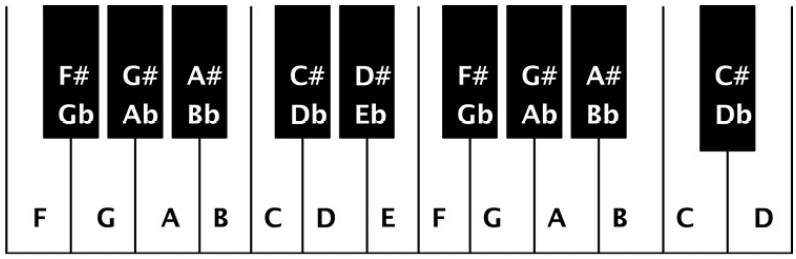


Figure 2.7.

D to E is a whole step (that fits the pattern). E to F is a half step, and we need a whole step. Therefore, we must raise the F to F sharp (F♯). Scale degrees 3 to 4 must be a half step and F♯ to G is a half step (D-whole-E-whole-F♯-half-G). The note that comes after G in the musical alphabet is A; therefore, we must start on A and build the A tetrachord. Use the keyboard in figure 2.7 if you need to see where whole steps and half steps occur. The A tetrachord is A-whole-B-whole-C♯-half-D. If we put the D tetrachord and the A tetrachord together, we have the D major scale: D-E-F♯-G-A-B-C♯-D. Since we are writing a D major scale, we must begin and end on D, the name of the scale.

Some major scales use sharps and some will use flats, but a major scale will not mix sharps and flats in the same scale. A scale must also alternate between line and space or space and line—that is, you cannot have G flat and G natural because those notes are both on the same line. On the staff, the D major scale looks as illustrated in figure 2.8 (note the use of F♯ and not G♭).

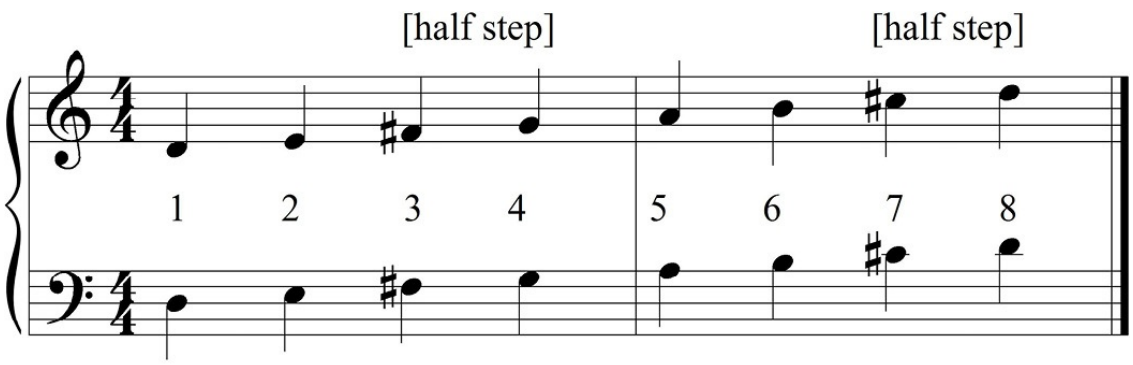


Figure 2.8.

Notice that accidentals (♯, ♭) go in front of the note so that you see them before you play them. If you put the accidental after the note, you will not see it in time to play the correct note. If writing music by hand, be sure to write out the accidental immediately in front of the note, on the same line or space as the note, and not above or below it.

The major scales that use flats are F, B♭, E♭, A♭, D♭, G♭, and C♭. The major scales that use sharps are G, D, A, E, B, F♯, and C♯. There are fifteen major scales: seven use flats, seven use sharps, and one uses neither sharps nor flats. Most musicians will not figure out scales in the manner we have just learned, but rather will memorize a key signature for each major scale, as this is much easier than calculating the major scales using whole steps and half steps every time.

SECRET 18: KEY SIGNATURES

A key signature is a series of sharps (♯) or flats (♭) that appear at the beginning of a staff, right after the clef sign. The line or space that the sharp or flat appears on consistently raises (in the case of a sharp) or lowers (in the case of a flat) any note that appears on that line or space. The key signatures or key names correspond to the scale of that key. For example, the F major scale uses one flat—a B flat. Therefore, the key of F has one flat—a B flat (B♭). Instead of writing out the F major scale and figuring out where the half steps are and using a flat symbol (♭) in front of the B to make it a B♭, one simply needs to put the B flat in the key signature (on the middle line in treble clef) and then write out the scale from F to F. Since the B flat is in the key signature, there is no need to use the flat in front of the note B. The middle line changes from a B line to a B♭ line and all notes that appear on any B line or space are no longer B naturals but rather B flats. The key signature changes the pitch for that line or space in *every* octave, so that the scale sounds the same throughout the piece of music.

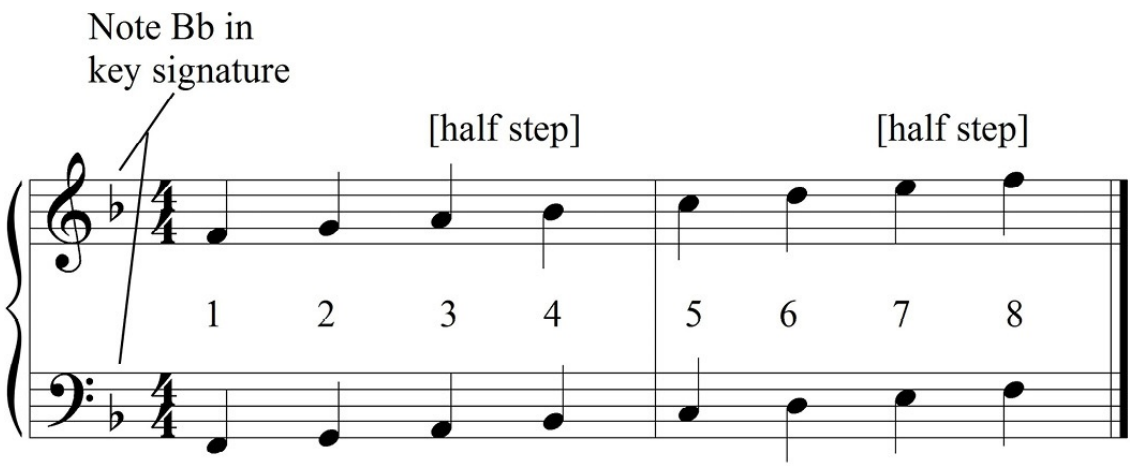


Figure 2.9.

As mentioned earlier, there are seven sharp key signatures, seven flat key signatures, and one with no sharps or flats. The key signature with no sharps or flats is the key of C major.

SECRET 19: THE ORDER OF FLATS

The flats always appear on the staff in the same order. The first flat is always B flat. In treble clef, this means we put a flat symbol (♭) on the middle line, the B line. In bass clef, put a flat symbol on the second line from the bottom, the B line. The second flat is E flat, the fourth space (from bottom) in treble clef or third space (from bottom) in bass clef. The third flat is A flat (second space from bottom in treble clef or first space from bottom in bass clef). The fourth flat is always D flat (in treble clef the fourth line from bottom, and in bass clef the third or middle line). Do you notice a pattern?

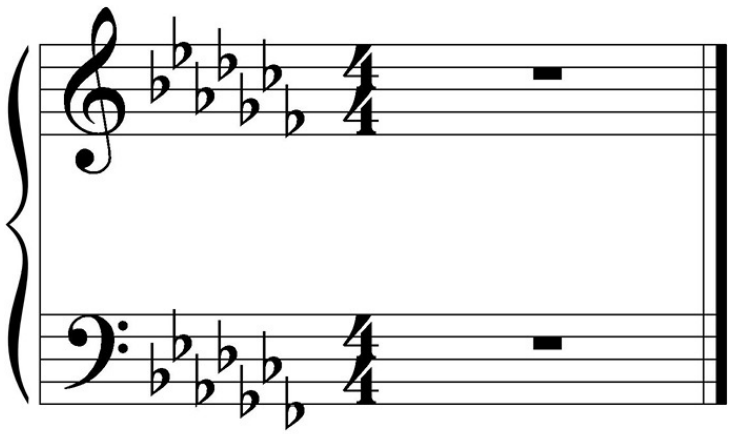


Figure 2.10.

Counting the first flat as one, count up four and place the next flat, and then count down five to place the next flat, then up four, down five, up four, down five. The order of the first four flats spells the word *BEAD*. The fifth flat is G♭, which appears on the second line (always count from the bottom) in the treble clef or first line in the bass clef. C♭ is the sixth flat and appears on the third space in the treble clef or second space in the bass clef. The last flat is F♭, which appears on the first space in the treble clef or in

the space just below the first line on the bass clef. The order of flats is therefore B-E-A-D-G-C-F. You may think of the order of flats as a *BEAD* made of **G**old, **C**opper, and **F**lint, BEADGCF. Perhaps you can come up with a better memory device such as **B**ald **E**agles **A**te **D**onna's **G**ecko, **C**at, and **F**ish. Flats *must* appear as given in figure 2.11; that is, for example, the second flat in treble clef must be on the fifth space E♭, *not* the first line E♭.

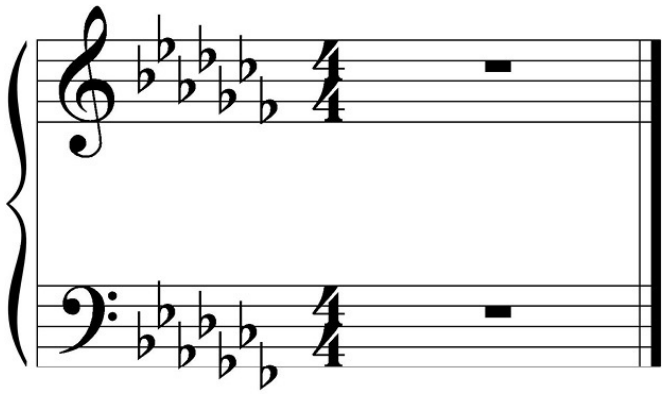


Figure 2.11.

Another way to think of the order of flats is to go up four (counting the line/space you start on as one), then down five until you have placed seven flats on the appropriate clef. This may be particularly helpful in the alto and tenor clef if you do not read them well. Figure 2.12 shows the order of flats on the alto or viola clef.

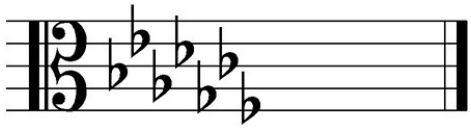


Figure 2.12.

The order of flats as they appear on the tenor clef is illustrated in figure 2.13.

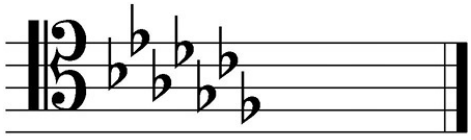


Figure 2.13.

SECRET 20: THE ORDER OF SHARPS

The sharps always appear in the same order on the staff. The first sharp is always F sharp (F♯), which is placed on the fifth line (top line) in the treble clef or the fourth line if in the bass clef. The second sharp is C♯. This is placed on the third space in the treble clef or the second space in the bass clef. The third sharp is G♯, which appears just above the staff, as if sitting on the fifth line when in treble clef or on the fourth space if in bass clef. D♯ is the fourth sharp and is on the fourth line in the treble clef or third line in bass clef. The fifth sharp is A♯. If you follow the pattern of four down, five up, four down, five up as to sharp placement, one would expect the A♯ to be above the clef on a leger line when using the treble clef. However, using a leger line may be confusing, and therefore the A♯ appears on the second space when in treble or the first space in the bass clef (to keep the same shape or pattern as the treble clef). Sharp number 6 is E♯. In the treble clef, this appears on the fourth space while in bass clef it is on the third space. The last sharp, the seventh, is B♯. It appears on the middle line (third line) when in treble clef (again to avoid the use of a leger line) or the second line when in bass clef (again to keep the same shape pattern as it appears in the treble clef). Therefore, the order of sharps is F-C-G-D-A-E-B. The order of sharps is the order of flats backward. You might want to use a mnemonic like **F**rogs **C**an **G**et **D**irty **A**fter **E**ating **B**ananas or **F**ast **C**ars **G**o **D**own **A**ll **E**astbound **B**oulevards. Notice how the sharps appear on the treble and bass clef in figure 2.14. Remember that A and B are down an octave.

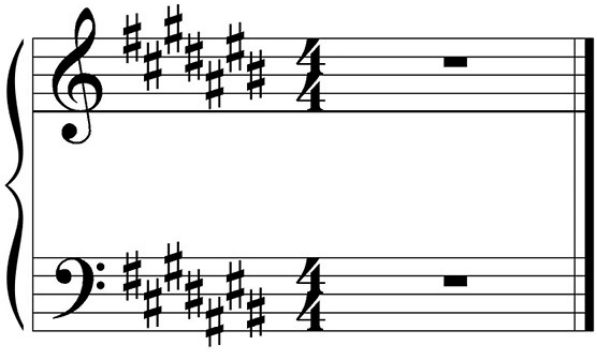


Figure 2.14.

The order of sharps on the alto or viola clef is illustrated in figure 2.15.

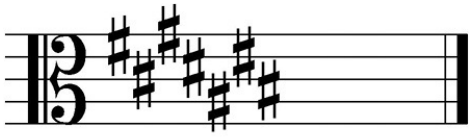


Figure 2.15.

The order of sharps on the tenor clef is the same, but is laid out a little differently, as in figure 2.16.

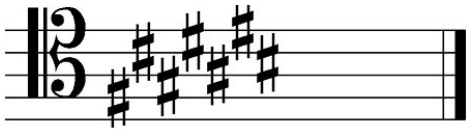


Figure 2.16.

SECRET 21: THE SHARP KEY SIGNATURES IN MAJOR

One must memorize not only the order of the sharps but also the names of the scales that have one sharp, two sharps, and so on. This is not so difficult to do. Let us begin with the major scales/key signatures that use sharps. If the staff already contains sharps, it is very easy to figure out the major key name. Take the last sharp (read them from left to right) and go *up* to the next line or space. This is the name of the major key. For example, if there is only one sharp, an F♯, go up to the next note (or the next letter in the alphabet); this will be a G. Therefore, one sharp (F♯) is in the key of G major. Or, G major has one sharp, an F♯. Remember that the order of sharps is always the same—F♯-C♯-G♯-D♯-A♯-E♯-B♯. Therefore, a piece with two sharps (F♯ and C♯) is in the key of D major. In this case, the last sharp is C♯. Now go up to the next line or space; it is a D. The key of D major has two sharps, F♯ and C♯.

What major key has four sharps? First, what are the first four sharps? The first four sharps are F♯, C♯, G♯, D♯. What letter comes after D in the alphabet or what is the next line/space above D? The answer is E. The key of E major has four sharps: F♯, C♯, G♯, D♯. What if there are six sharps? Name the six sharps: F♯, C♯, G♯, D♯, A♯, E♯. What line/space is just above E♯? If you said F, you are half-correct. Notice that the first sharp is F♯; therefore, the F line changes from F to F♯. The line above E♯ is F♯ (not F). The key of F♯ major has six sharps: F♯, C♯, G♯, D♯, A♯, E♯. If asked to write down the key signature for A major, think of the note that comes before A in the musical alphabet. The note before A is G. Therefore, write down sharps as they appear in order until you reach the last sharp, G sharp. F♯, C♯, G♯, stop! The key of A major has three sharps: F♯, C♯, and G♯.

SECRET 22: THE FLAT KEY SIGNATURES IN MAJOR

Let us now learn the names of the major scales or key signatures that use flats. Remember the order of the flats is B♭, E♭, A♭, D♭, G♭, C♭, F♭. The first flat is always B flat. The major key signature that has one flat, B♭, is the key of F major. If you have a staff with the flats on it, take the last flat and count down four lines and spaces (counting the last flat as one) and that is the name of the major key. For example, one flat is B♭ (which is the first and last). Start on B♭ and count down four, B♭ is one, A is two, G is three, and F is four. The major key signature with one flat is F major. Try two flats, B♭ and E♭. The last flat is E♭; now count down four. E♭ is one, D is two, C is three, and B♭ is four (remember that the B line/space has been changed from B to B♭, the first flat). The key of B♭ major has two flats, B♭ and E♭.

You also can simply look at the second-to-last flat and this is the name of the major key signature. If this is your preferred method, you will have to memorize one flat as being the key of F major. Think of F as standing for flat.

What major key has four flats? First list the four flats; B♭, E♭, A♭, D♭. The second-to-last flat is A♭. The key of A♭ major has four flats, B♭, E♭, A♭, D♭. Let us say that someone asks you to write in the flats for the key of G flat major. We know that G flat is going to be the second-to-last flat; therefore write one flat beyond G♭. The key of G♭ major will have the following flats: B♭, E♭, A♭, D♭, G♭, C♭. The key of G♭ major has six flats.

You can make up a simple chart to help with the key signatures, though memorizing the key signatures is much better as you may not be in a position to write out a chart. There are also memory tricks to help with memorization. For example, notice that all the flat key signatures have the word (flat) or symbol (♭) in their name, except F. Think of F as standing for flat.

You can make other comparisons. For example, C has no sharps or flats, whereas C flat has seven flats and C sharp has seven sharps. Notice that G♭ and F♯ are enharmonic to each other. The *same* pitch spelled differently is an enharmonic spelling. G flat and F sharp are the *same* pitch and the key of G flat major has *six* flats while the key of F sharp major has *six* sharps.

Notice that in the key signatures with the same letter name (G and G flat, for example), the number of sharps and flats add up to seven. (There are seven different pitches in a major scale; the eighth is a repeat of the first.) G has one sharp; G♭ has six flats (1 + 6 = 7). E has four sharps; E♭ has three flats (4 + 3 = 7). If you know sharp key signatures well, simply subtract from seven that number of the sharp key to find the flat key. For example, if asked for the number of flats in D♭ major, you know instantly that D major has two sharps; therefore, take two from seven, leaving five. D flat major has five flats. I am sure you can figure out some memory tricks of your own to help you remember key signatures. After working with sharps and flats for a while, you will probably have most of the key signatures memorized. Remember, *the best things in life are scales*.

Minor Scales and Minor Key Signatures

SECRET 23: MINOR SCALES

The last chapter discussed the major scale; however, the major scale is not the only type of scale. Another type of scale is the minor scale. Fortunately, the minor scales use the same key signatures you have already learned. The minor scale may be approached in a couple of different ways. We can relate the minor scale to the major with regard to key signature. We can also relate the minor scale to the major scale of the same letter name.

SECRET 24: PARALLEL MINOR

If the minor scale has a *different key signature* but the *same letter name* as a major scale, it is the *parallel minor* to that particular major scale with the same letter name. If you take a major scale and lower degrees 3, 6, and 7 by a half step, you will have the parallel minor. For example, the A major scale is A, B, C♯, D, E, F♯, G♯, A. If you lower degrees 3, 6, and 7, you have the parallel minor of A minor: A, B, C, D, E, F, G, A. This is also the natural form of the minor scale, but more about forms of the minor later.

Try this with another scale. F major is F, G, A, B♭, C, D, E, F, G. If you lower the third, sixth, and seventh degrees, you have the parallel minor F, G, A♭, B♭, C, D♭, E♭, F. Flat scales will add more flats; sharp scales will turn sharps into naturals. You will not find sharps and flats in the same scale. Try it with another sharp scale. D major is D, E, F♯, G, A, B, C♯, D. Lowering the third, sixth, and seventh degrees takes away both sharps and then adds a flat for the parallel minors: D, E, F, G, A, B♭, C, D.

Not all minor scales have a parallel major. There is a scale of G♯ minor; there is no G♯ major scale. Historically, composers have made more use of the relationship between a major scale and its relative minor.

SECRET 25: RELATIVE MINOR

If the minor scale has the *same key signature* (the same sharps or flats) as the major scale, but with a *different letter name* (i.e., starting note), it is the *relative minor* of that major scale. It is related by key signature. To find the relative minor of a particular major scale/key, count up (or down) to the sixth degree/note of the major scale. Remember that the first note of the scale is *one* and not zero, and remember to count *to* the sixth degree, do not count six degrees. If going up, count one, two, three, four, five, six, but if going down count eight, seven, six (not one through six).

For example, for the C major scale, count to the sixth degree or sixth note of that scale: C is one, D is two, E is three, F is four, G is five, and A is six. The sixth degree is A. The relative minor to C major is A minor. If you count down, then the scale goes down: C is eight, B is seven, and A is six. The answer is the same: A. The A minor scale is therefore A-B-C-D-E-F-G-A. The scale degrees are numbered as follows: 1/A, 2/B, 3/C, 4/D, 5/E, 6/F, 7/G, 8/A.

What is the relative minor of B♭ major? Count up six in the key of B♭ major: B♭-C-D-E♭-F-G. Check by counting down three: B♭-A-G. The relative minor of B♭ major is G minor. Using the key signature of B♭ major and starting on G, the G minor scale is G-A-B♭-C-D-E♭-F-G.

If you are given the minor scale and asked to find the relative major, count *up* to the third degree of the minor scale to find its relative major. The A minor scale is A-B-C-D-E-F-G-A; 1/A, 2/B, 3/C. The third degree of the A minor scale is C. The relative major to A minor is C major. Let us try another. What is the relative minor to F major? First, we must write out the F major scale, as in figure 3.1.

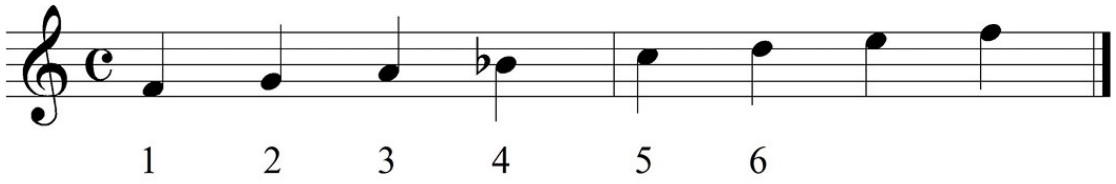


Figure 3.1.

Start with the F on the left, and count up to the sixth degree or note of the scale: D. The relative minor to F major is D minor. To write the D minor scale, write from D to D and use the same notes as in the F major scale (using B♭). Another way to find the relative minor from the major is to count *down* three half steps from the major to find the relative minor. Count *up* three half steps from the minor to find the relative major. Do this to find the relative scale or relative key signature.

Find the relative major of C minor. If the minor scale is not written out, you can count up three half steps instead of counting to the third degree of the scale; this will help you be sure you have reached the correct note. C to C♯/D♭ is a half step (that's one). C♯/D♭ to D is a half step (that's two), and D to E♭ is a half step (that's three half steps). The relative major of C minor is E♭ major. If you have trouble knowing where half steps occur, refer to the earlier keyboard diagram.

Remember to move an additional line and space or space and line beyond the one on which you begin, because major and minor scales go line-space-line-space or space-line-space-line. Therefore, the answer to the example above cannot be D♯ because D and D♯ are on the same line or space (depending on clef and octave). Therefore, you must use E♭, which is on the next line/space above D.

What is the relative major to E minor? Let us use the treble clef and start on the first line: E. Since we will count up to the third note (two beyond where we are beginning), we will call line E number 1, space F number 2, and line G number 3. This is not yet the full answer, because there are several kinds of G. Is it G♭, G natural, or G♯? Let us see; first line E to first space F is one half step, F to F♯ is the second half step (both still on a space), and space F♯ to line G is the third half step.

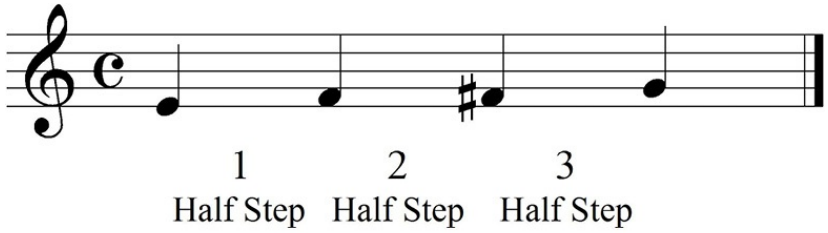


Figure 3.2.

The relative major to E minor, therefore, is G major. Do not forget to use the key signature for G major, which is one sharp, F♯, since G major and E minor are related by the fact that they have the same key signature.

Remember the parallel minor has the same starting pitch and letter name as the major scale with the same letter name, just the same as two people may have the same first name, but are not related by blood. The relative minor has the same key signature as the major key it is related to by key signature but a different starting note or key name just the same as two sisters may be related by blood (*the same key signature*), but have different names.

Parallel and *relative* refer to the different ways that a minor scale may be associated with a major scale. Once you have established the starting note and key signature of the minor scale, however you got there, you must determine the exact form of minor. Unlike the major scale, which is always the same, minor scales come in three forms: *natural minor*, *harmonic minor*, and *melodic minor*. All three of these are widely in use. We will begin by discussing the natural minor form, sometimes also called the *pure* form of the minor scale.

SECRET 26: NATURAL MINOR FORM

The natural form of the minor scale has half steps between scale degrees 2 and 3, and 5 and 6 with whole steps between the other scale degrees. Let us start on A and make an A minor scale. Here is our pattern: 1 W 2 H 3 W 4 W 5 H 6 W 7 W 8. This is written out on both treble and bass clef in figure 3.3.

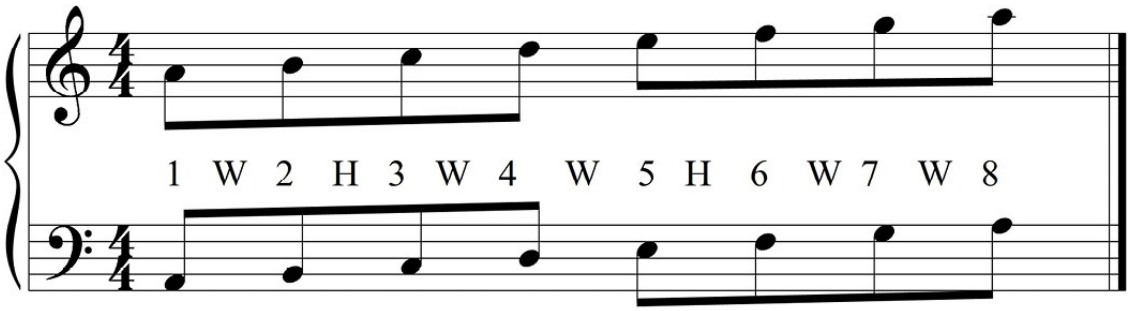


Figure 3.3.

Playing A to A using all white keys produces an A natural minor scale. *A minor* is the relative minor to *C major* because both have the same key signature, no sharps or flats. The *key signature* is a series of sharps or flats (or none) that appear after the clef, but before the time signature, that indicate the *key* of the piece. Remember that the key signature comes before the time signature the same as K (for key) comes before T (for time) in the alphabet. Both A natural minor and C major use only the white keys on the piano; they both have no sharps or flats.

Now build a D natural minor scale. Since the name of the scale is D, it must begin on D. Traditionally major scale names use capital letters while minor scale names use lowercase letters. D to E must be a whole step (degree 1 to 2). E to F must be a half step (degrees 2 to 3). F to G, degrees 3 to 4, is a whole step. G to A (4 to 5) is a whole step. Degrees 5 to 6 must be a half step. Therefore, we must go from A to B♭; we can't go from A to A♯ because A and A♯ are on the same line or space on the staff. We must alternate line-space-line-space or, if starting on a space, space-line-space-line, and so on. B♭ (B flat) to C is a whole step (degrees 6 to 7), and C to D (7 to 8) is a whole step.

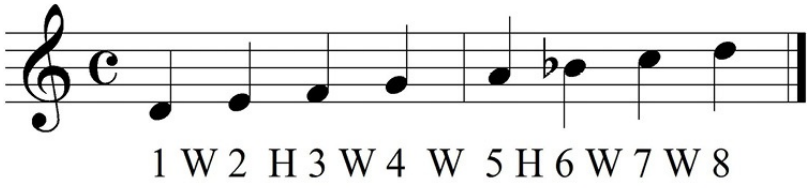


Figure 3.4.

When we built relative minor scales in the last chapter, we were building the natural or pure form of the minor scale. This is the natural way the minor scale looks without changing any scale degrees as we will do later with the other forms of the minor scale. It uses the same key signature as the relative major. This is a more efficient way to build the natural minor, rather than figuring out where the half steps and whole steps occur.

Try this with D again. Go up three half steps to find the relative major: D to D♯, D♯ to E, E to F. F is the relative major; F is for flat, the first flat key, and so its key signature is a single flat, B♭. Starting on D, with a key signature of one flat, the notes of D minor are D-E-F-G-A-B♭-C-D. This is much easier than calculating the whole steps and half steps.

What is the natural form of the minor scale that is relative to D major? First, find the key signature of D major. Go through the order of sharps until you reach the sharp that is one note below D: F♯, C♯. This is the key signature. Now find the starting note. Start on D and go up six notes: D-E-F♯-G-A-B. B minor is the relative of D major. Now go up the scale, using those same two sharps, from B to B. The natural form of B minor is B-C♯-D-E-F♯-G-A-B.

This process has multiple steps, but it all comes back to key signatures. Learn the key signatures well, and the rest will fall into place.

SECRET 27: HARMONIC MINOR FORM

To build the harmonic minor scale, simply take the natural minor scale, count up to the seventh degree, and raise that note one half step. Compare the A natural minor scale with the A harmonic minor scale in figure 3.5.

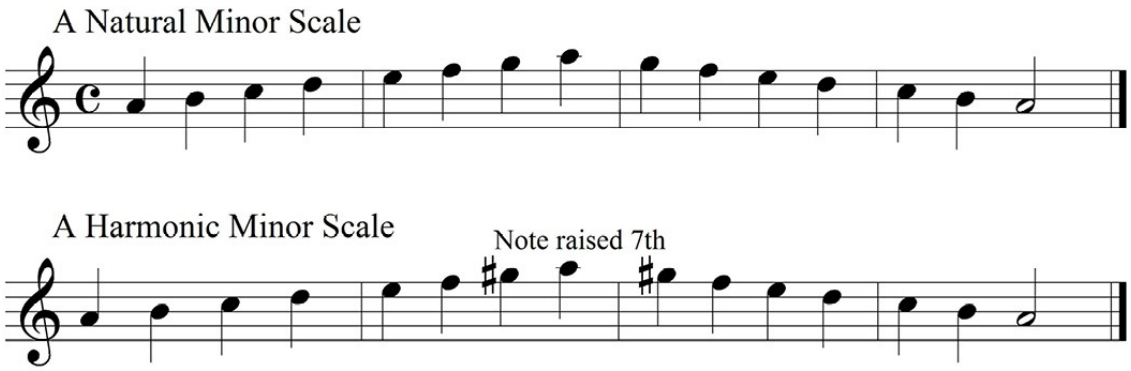


Figure 3.5.

Notice that in figure 3.5, on the A harmonic minor scale, the seventh degree is the G. Simply raise the G to G sharp (G♯) to produce the harmonic form of the minor scale. The seventh degree, the G sharp in this

example, also stays a sharp on the way down.

The interval between the sixth and seventh degrees of the scale, F to G sharp, is a wider interval than any you have encountered in a scale so far. This gives the harmonic minor scale a mysterious, exotic feel.

Build the harmonic form of the D minor scale. The D minor scale relates to the F major in that it also uses a B flat. First, build the natural form. D natural minor: D-E-F-G-A-B♭-C-D. The seventh degree is C, which must be raised to a C♯ for the harmonic form. Thus, D harmonic minor is D-E-F-G-A-B♭-C♯-D. Use C♯ going both up and down the harmonic form of the minor scale. Play this on the piano to hear that wide interval between B♭ and C♯, the defining interval of harmonic minor. Note that in the case of the harmonic minor (and as we will see in the melodic form) it is possible to mix sharps and flats in the same scale, unlike major scales or natural minor scales.

Try this: what is the relative harmonic minor scale of E♭ major? First, build the E♭ major scale. Look to the sixth degree of the major scale to find its relative minor. The relative minor of E♭ major is C minor. Then build the C natural minor scale. To build the harmonic minor form, take the natural minor and raise the seventh degree.

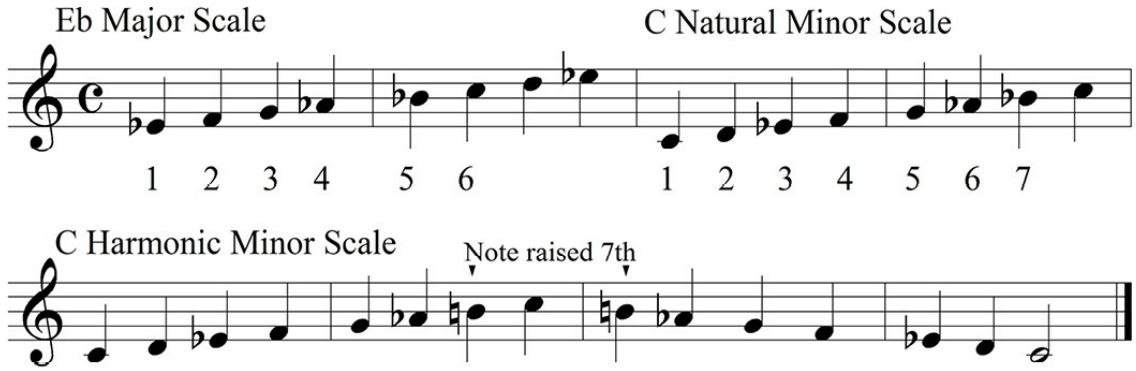


Figure 3.6.

Notice that when raising a flat by a half step, it becomes natural. In this case, B flat becomes a B natural.

Raising a flat becomes a natural, raising a natural becomes a sharp, and raising a sharp becomes a double sharp. A double sharp looks like the letter x. For example, A sharp natural minor, the relative of C♯ major, has every note sharp. The natural minor is A♯, B♯, C♯, D♯, E♯, F♯, G♯, A♯. Now we have to raise the seventh, which is already sharp, to a double sharp. Now we have A♯, B♯, C♯, D♯, E♯, F♯, Gx, A♯.

Harmonic minor developed because composers needed that seventh note raised in order for the chords to sound right underneath the melody. However, that wide, exotic interval between the sixth and seventh degrees of the minor scale does not always fit what the composer has in mind for a melody. The third and final form of the minor scale is the solution to this problem. Musicians found a way to smooth out that wide interval and create a minor scale that has a raised seventh some of the time (so the harmony works) and is still made entirely of half and whole steps, like the major and natural minor scales.

SECRET 28: MELODIC MINOR FORM

To build the melodic minor scale, first build the natural form of the minor scale, and then raise the sixth and seventh degrees a half step on the way up, but on the way down, lower these notes back to the natural minor form. Using the first example, the A minor scale, we have the following: natural minor—A-B-C-D-

E-F-G-A. To build the melodic minor form, raise the sixth and seventh degrees up, and then return them to natural minor going down: melodic form up: A-B-C-D-E-F♯-G♯-A; melodic form down: A-G-F-E-D-C-B-A.

Try this with a more complicated scale. What is the melodic minor scale relative to B major? Go through the order of sharps to the note below B: F♯, C♯, G♯, D♯, A♯. This is the key signature. What is the starting note? Go through the B major scale to the sixth degree: B-C♯-D♯-E-F♯-G♯. Now build the natural minor scale starting on G♯, using the key signature of five sharps: G♯-A♯-B-C♯-D♯-E-F♯-G♯. To go from natural minor to melodic minor, sharp the sixth and seventh degrees of this scale on the way up, and lower them back to the natural minor on the way down. The sixth and seventh degrees are E and F♯, so they will become E♯ and Fx (F double sharp). Even though E♯ sounds like F, and Fx sounds like G, we must call them by their right names. So the G♯ melodic minor scale is G♯-A♯-B-C♯-D♯-E♯-Fx-G♯, G♯-F♯-E-D♯-C♯-B-A♯-G♯.

Notice that the major, natural minor, and harmonic minor scales are the same going down as going up, but the melodic minor is different ascending and descending. Compare the three forms of the minor scale using A minor (relative to C major).

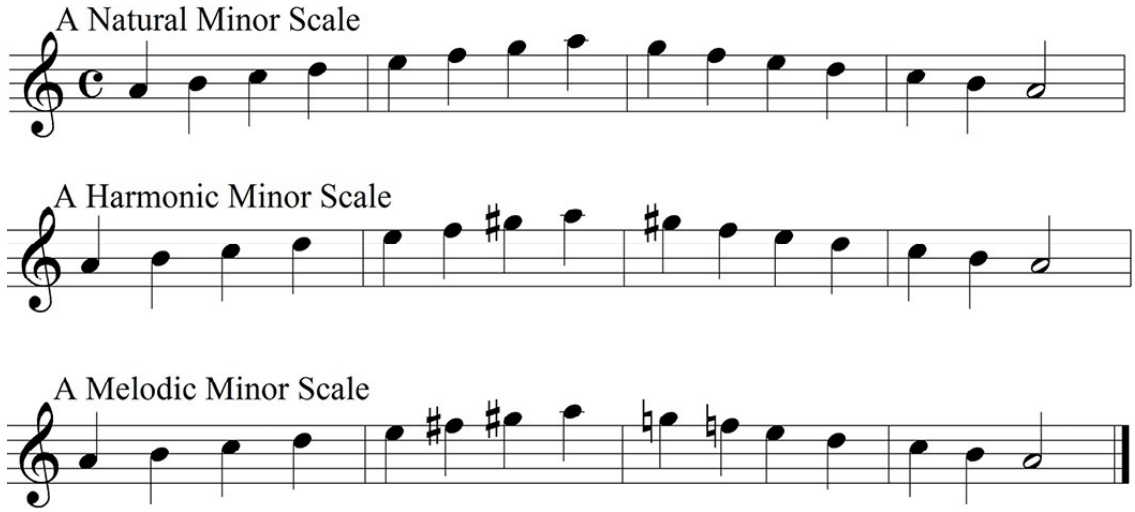


Figure 3.7.

To remember the difference between the three forms of the minor scale, remember that the natural form is how the scale lies naturally without changing anything. For the harmonic form, dot the *i* in the word *harmonic* with a ♯ sign. The *i* is the seventh letter of the word *harmonic*, so you raise or sharp the seventh note by a half step. Melodic is simply the remaining form, which is different going up and down, looking more like a *melody* than a scale. You can also dot the *i* in the word *melodic* with a ♯ sign; this is the sixth letter, which reminds you to sharp the sixth degree of the scale on the way up. If you sharp the sixth degree, you must also sharp the seventh—then, with two raised notes, the scale is so exhausted it has to relax on the way down, and those notes are lowered again. Many students get these two forms of the minor scale mixed up, so it is very important to learn them correctly early on.

There is no substitution for learning the key signatures. Knowing the major and minor key signatures will aid in figuring interval relationships, chord progressions, writing chords, sequential relationships, and numerical analysis in general. The following table may help in learning the key signatures. Notice that the

uppercase letters refer to major key signatures while the lowercase letters refer to the relative minor key signatures. Remember, *spare the scale and spoil the musician*.

Table 3.1. Key Signatures

Number of sharps/flats	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Sharps		G/e	D/b	A/f♯	E/c♯	B/g♯	F♯/d♯	C♯/a♯
Flats	C/a	F/d	B♭/g	E♭/c	A♭/f	D♭/b♭	G♭/e♭	C♭/a♭

Other Scales

SECRET 29: THE CHROMATIC SCALE

The major scale and minor scale are not the only scales that the musician has available. The scale that consists of all half steps is the *chromatic scale*. The chromatic scale is a twelve-note scale, thirteen with the repeat of tonic at the octave. Remember this little poem:

Chromatic scales you know,
By half steps see them grow,
A semi-tone here,
A semi-tone there,
All twelve notes in a row.

Generally, one uses sharps when ascending and flats when descending, as in figure 4.1.

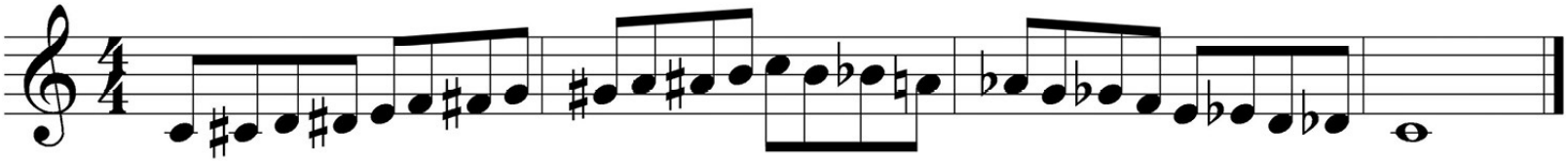


Figure 4.1.

When a composer uses a chromatic scale, the key signature still applies and the notes are altered with natural, sharp, and flat signs. There is no such thing as a chromatic key signature.

SECRET 30: THE WHOLE-TONE SCALE

The scale that uses all whole steps is the whole-tone scale. The whole-tone scale is a six-note scale with the repeat of tonic, as shown in figure 4.2.

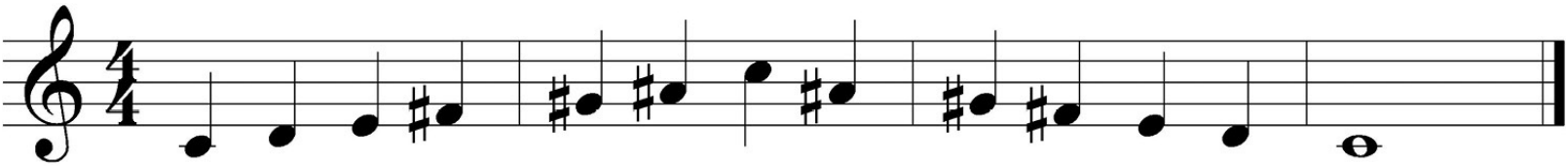


Figure 4.2.

There are only two whole-tone scales, C and C♯. The D whole-tone scale are the notes from the C whole-tone scale, with D added at the top. The D♯ whole-tone scale are the notes from the C♯ whole-tone scale, and so on. You can easily form a whole-tone scale by writing every other note of a chromatic scale.

SECRET 31: THE PENTATONIC SCALE

A pentatonic scale uses five notes, sometimes with the repeat of the tonic. (*Penta* means "five" in Greek; the Pentagon is a five-sided building.) For example, the five black keys on the piano produce a pentatonic scale. There are many possible combinations of five notes, but the pentatonic scale traditionally appears in only two main types. One specific type of pentatonic scale is the major pentatonic scale. The major pentatonic scale is a major scale without the fourth and seventh degrees (for example, C-D-E-G-A-C). Another type of pentatonic scale is the minor pentatonic scale. The minor pentatonic scale is a natural minor scale without the second and sixth degrees (for example, C-E♭-F-G-B♭-C). As you can see in figure 4.3, the gaps in these scales come in different places. However, they are more closely related than they may originally appear. C minor, as you recall, is the parallel minor of C major. The relative for C major is A minor. Build A minor pentatonic scale on A: A-C-D-E-G-A. These are the same pitches as the C major pentatonic, starting on A (the relative minor) instead of C.

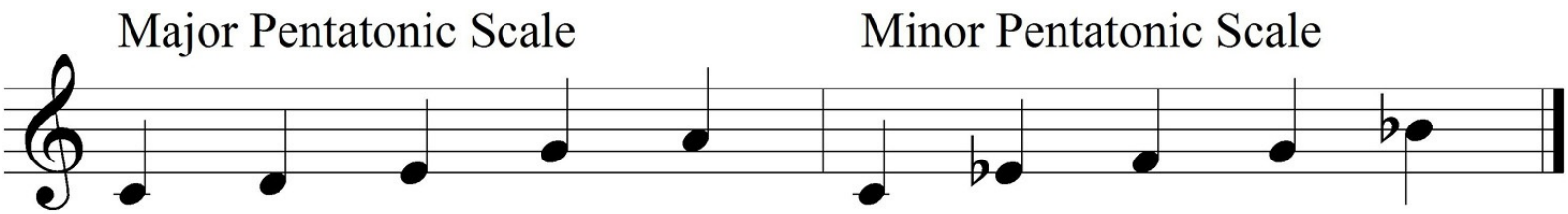


Figure 4.3.

Try building the F major pentatonic scale. First, build the F major scale: F-G-A-B♭-C-D-E-F. Now remove the fourth and seventh degrees of B♭ and E, resulting in F-G-A-C-D-F, the F major pentatonic scale. Build an E minor pentatonic scale. First, build the E natural minor scale: E-F♯-G-A-B-C-D-E. Now remove the second and sixth degrees, resulting in E-G-A-B-D-E. Try it the other way. E is the relative minor of G major. G major pentatonic is G-A-B-D-E-G. Start on E instead of G: E-G-A-B-D-E. As you see, you reach the same result. Use the method that works best for you.

SECRET 32: DORIAN MODE

Other scales include the church modes, which were used prior to the standard major and minor scales. In fact, the major mode/scale is also the Ionian mode and the natural minor scale or mode is the Aeolian mode. At one time there were seven modes, one starting on each of the white notes of the piano. Over time, the Ionian and Aeolian (major and natural minor) replaced the others. A few old hymns are in the old church modes, and some composers use them from time to time. To our modern ears, most of them sound approximately minor, as most of them have one or more pitches lowered from the major (Ionian) mode. These modes are often used in jazz.

One of the most common modes is the Dorian mode. It is formed by playing D to D on the piano's white keys; D is for Dorian. You may also think of it as a major scale with the third and seventh degrees lowered by a half step, or a natural minor scale with a raised sixth degree. If you break the Dorian mode into a tetrachord, a half step occurs between the second and third notes of each tetrachord.

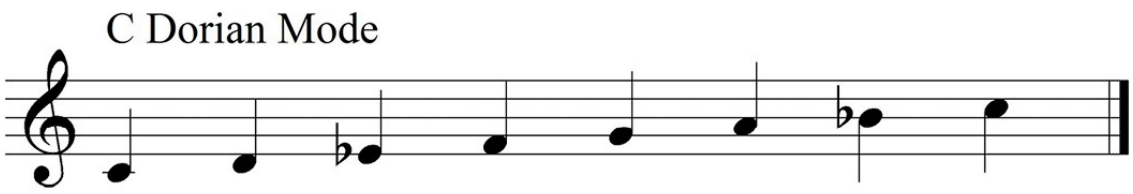


Figure 4.4.

Here is an easy one: build the A Dorian mode. Build the A natural minor scale, A-B-C-D-E-F-G-A, and raise the sixth degree F to F♯, resulting in A-B-C-D-E-F♯-G-A. Let's try it another way. Build the A major scale, A-B-C♯-D-E-F♯-G♯-A, and lower the third degree C♯ to C and the seventh degree G♯ to G, resulting in A-B-C-D-E-F♯-G-A. Either method you choose, major with a lowered third and lowered seventh or natural minor with a raised sixth, works.

You can also build modes using key signatures. Dorian starting on D is built on the second note of the C major scale. Therefore, the key signature is based on the major key a whole step lower than the Dorian key. For Dorian starting on A, go down a whole step to the note G. The key signature of G has one sharp, F♯. Write that key signature, and write a scale starting on the second note, A. Any time you write a scale starting on the second degree of the major key, you have created a Dorian scale. All three of these approaches lead to the same result. A famous melody that uses Dorian mode is "What Wondrous Love Is This." It is easier to find tunes in Dorian mode than the other modes, probably because the Dorian mode is so close to the melodic minor. If you think about it, the Dorian mode is a melodic minor without the raised seventh. This is another easy way to remember the Dorian mode.

SECRET 33: PHRYGIAN MODE

The Phrygian mode is E to E on the piano playing all white keys, or a major scale with degrees two, three, six, and seven lowered by a half step. You might want to think of the Phrygian mode as a natural minor scale with the second degree lowered by a half step. If you break the Phrygian mode into a tetrachord, a half step occurs between the first and second notes of each tetrachord.

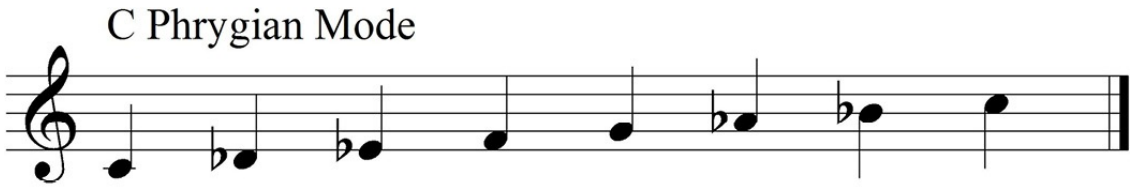


Figure 4.5.

Build a Phrygian mode beginning on the note A. First, build the A natural minor scale, A-B-C-D-E-F-G-A. Now lower the second degree B to B♭, resulting in A-B♭-C-D-E-F-G-A. Notice that there is a half step between A and B♭ (first and second degrees) in the first tetrachord and F to G (first and second degrees) in the second tetrachord.

With key signatures, Phrygian in E starts on the third note of C major. For Phrygian in A, find the scale in which A is the third note. The answer is F, with the key signature of one flat, so the Phrygian mode starting on A is A-B♭-C-D-E-F-G-A.

SECRET 34: LYDIAN MODE

The Lydian mode is F to F on the piano playing all white keys, or a major scale with the fourth degree raised by a half step. The theme to *The Simpsons* television show begins in the Lydian mode. This is the only mode that raises a pitch, compared to the major scale, rather than lowering one or more pitches.

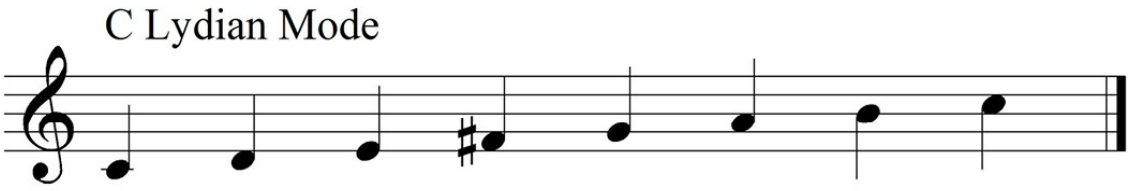


Figure 4.6.

Build a Lydian mode on D. Take the D major scale (D-E-F♯-G-A-B-C♯-D) and raise the fourth degree G to G♯, resulting in D-E-F♯G♯-A-B-C♯-D.

Lydian starts in the fourth note of a major scale. D is the fourth note of the A major scale, with a key signature of three sharps: F♯, C♯, and G♯.

SECRET 35: MIXOLYDIAN MODE

The Mixolydian mode is G to G on the piano playing all white keys, or a major scale with the seventh degree lowered by a half step, as shown in figure 4.7.

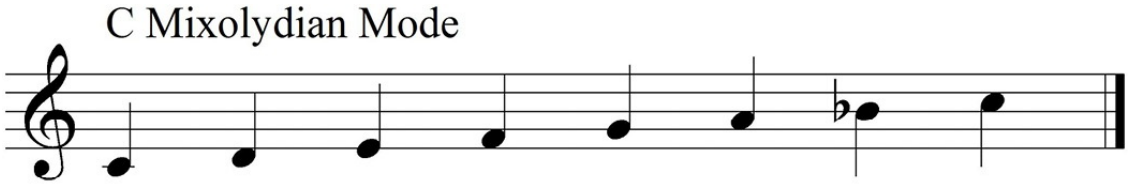


Figure 4.7.

In jazz, the Mixolydian mode is sometime called a dominant scale. If you go to the *dominant* scale degree of your key (the dominant is the fifth degree of the scale, as we will learn in chapter 5)—for example, G in the key of C major—and play from G to G using the key of C major in our example, you are playing a Mixolydian mode.

In addition to Ionian, Dorian, Phrygian, Lydian, Mixolydian, and Aeolian, there is a seventh church mode, the Locrian. This is formed by playing from B to B on the white keys. As you can hear, it sounds disturbingly incomplete; it was never used often, and is now practically extinct.

The easiest way to remember the modes is probably by remembering how to form them on the white keys of the piano.

C—Ionian (modern major scale)
D—Dorian
E—Phrygian

F—Lydian
G—Mixolydian
A—Aeolian (modern natural minor)
B—Locrian

You can remember the order of modes like this: **I**maginary **D**ragons **P**inch **L**ydia's **M**other's **A**ncient **L**egs, or invent your own sentence.

SECRET 36: THE SEVEN-NOTE BLUES SCALE

The blues scale is a favorite among jazz and blues musicians. It is like the difference between oatmeal with sugar and oatmeal with honey or maple syrup. It feels just a little richer. Using notes from the major scale, it works out like this: 1-3♭-4-♯4-5-7♭-8. That is one, followed by a flat third degree, the fourth degree, a sharp fourth degree (or a flat fifth), a fifth, a flat seventh degree, and finally the octave note. Using the key of C major, we then have C-E♭-F-F♯/G♭-G-B♭-C. You will notice it is missing the second and sixth degrees and that the third and seventh are flat from what the major scale is, and that there is an added chromatic note between the fourth and fifth degrees.

Try building a B♭ blues scale. First write out the B♭ major scale: B♭-C-D-E♭-F-G-A-B♭. Now drop out the second and sixth degrees (C and G): B♭-D-E♭-F-A-B♭. Now flat what were the third and seventh degrees: B♭-D♭-E♭-F-A♭-B♭. Now do not forget to add in the chromatic note between what were the fourth and fifth degrees, giving us the B♭ blues scale of: B♭-D♭-E♭-E-F-A♭-B♭.

SECRET 37: THE BEBOP SCALE

Another jazz scale is the bebop scale. Bebop was a fast moving, complicated style of jazz of the late 1940s through early 1950s made popular by the saxophonist Charlie Parker and the trumpeter Dizzy Gillespie. The bebop major scale is simply a major scale with an added sharp fifth degree. Therefore, the C bebop major scale consists of C-D-E-F-G-G♯-A-B-C. Try building the bebop major starting on F. First, build the F major scale: F-G-A-B♭-C-D-E-F. Now add in a sharp fifth degree (remember if you sharp a flat it becomes a natural, sharp a natural and it becomes a sharp, sharp a sharp and it becomes a double sharp). The F major bebop scale is F-G-A-B♭-C-C♯-D-E-F.

Another type of bebop scale is the bebop dominant scale, which is the dominant scale or Mixolydian mode (see secret 35) with an added raised seventh degree. (Remember, the Mixolydian mode is a major scale with a lowered seventh.) Thus, starting on C we have C-D-E-F-G-A-B♭-B-C. Try building the G bebop dominant scale. First, build the G Mixolydian: G-A-B-C-D-E-F-G. Now add in the raised seventh, resulting in the G bebop dominant scale of: G-A-C-D-E-F-F♯-G. You can also think of this as a major scale with a lowered seventh degree added in. The G major scale has F♯; adding in F natural and still keeping the F♯ gives the G bebop dominant scale. If you prefer to use numbers, we have 1-2-3-4-5-6-7♭-7-8 (the numbers relate to a major scale).

Yet another type of bebop scale is the bebop Dorian, sometimes called bebop minor. This is a Dorian scale with a raised third next to the lowered third from the Dorian mode. For example, D Dorian is D-E-F-G-A-B-C-D. D bebop Dorian is D-E-F-F♯-G-A-B-C-D, producing a nine-note scale if including the repeat of the octave. Try building a bebop Dorian scale on C. Review secret 32 if needed. C Dorian is C-D-E♭-F-G-A-B♭-C. To turn this Dorian mode into a Dorian bebop scale, add in the raised third. When you raise the third from E♭, you have E natural. Thus, the C Dorian bebop scale is C-D-E♭-E-F-G-A-B♭-C. You might want to think of this as a major scale to which you flat the seventh and add in an additional flatted third along with the third found in the particular major scale.

There are many, many, types of scales. Some of the less common include the octatonic scale, which is sometimes called a diminished scale. This scale alternates whole step and half step to produce a nine-note scale—for example: C-D-E♭-F-F♯-G♯-A-B-C (C-whole step-D-half step-E flat-whole step-F-half step-F♯-whole step-G♯-half step-A-whole step-B-half step-C).

The jazz melodic minor scale is like the traditional melodic minor scale, except descending is the same as ascending rather than using the natural form of the minor as the traditional melodic minor does. Thus, the A jazz melodic minor is A-B-C-D-E-F♯-G♯-A going up and A-G♯-F♯-E-D-C-B-A going down. Compare this with the traditional melodic minor, which is A-B-C-D-E-F♯-G♯-A going up and A-G-F-E-D-C-B-A going down.

Another fun scale is the Hungarian minor. The Hungarian minor has a flat third degree, a sharp fourth degree, and a flat sixth degree, making it 1-2-3♭-4♯-5-6♭-7-8. If starting on C, this translates to C-D-E♭-F♯-G-A♭-B-C. Because of the wide intervals between E♭ and F♯ and between A♭ and B, this sounds like the second half of the G harmonic minor blended with the second half of C harmonic minor.

Try building the Hungarian minor starting on F. First build the F major scale: F-G-A-B♭-C-D-E-F. Now apply the flat three, sharp four, and flat sixth degrees: F-G-A♭-B-C-D♭-E-F. Remember that when you sharp or raise the fourth degree, the B♭, it becomes a B natural.

I have used this scale in my seminar class to teach beginning improvisation. I normally will write the scale on the board transposed to the proper key for the instrumentation in class (we will discuss transposition in chapter 12). A student will begin by playing the scale up and down, and then start making up a tune using only the notes of the scale. When the student starts to run out of ideas or at my signal, he or she will play the scale once again up and down, holding the last note, which is the first note of the scale. This is the signal for the next student to play the scale up and down and then begin making up a tune or improvising his or her own melody. The student ends the turn in the same fashion and passes the improvisation off to the next student. This can be done with any scale following the same procedure. It is a fun, relaxed way to introduce students to improvisation. It is easier to do this on a less familiar scale, such as Hungarian minor or one of the blues scales, because you will not be constrained by any worry about what the music *should* sound like—the scale itself is already different from our usual tonality.

Do not worry about length, chord structure, or making mistakes. Just have fun. Music is to be fun. If you are not in a classroom situation, you can do the same thing by yourself. Start by playing the scale of your choice (you may want it write it out on staff paper) and then make up a tune using only notes from the scale. Of course you may play outside the basic octave, as high and low as you like.

A chart of scales is shown in table 4.1. Note that numbers used in the chart are based on a major scale, as is displayed in the first row. Therefore, 4♯ if starting on C is an F sharp. If starting on F, 4♯ is B natural because the F major scale has a B flat as the fourth note, and when you sharp a flat it becomes a natural.

Table 4.1. Scales

Scale	*Degree*																	
Major	1	2		3	4		5		6		7	8						
Natural Minor	1	2	♭3		4		5	♭6		♭7		8						
Harmonic Minor	1	2	♭3		4		5	♭6			7	8						
Melodic Minor	1	2	♭3		4		5	6			7	8	♭7	♭6	5	4	♭3	2	1
Jazz Melodic Minor	1	2	♭3		4		5		6		7	8	7	6	5	4	♭3	2	1
Dorian Mode	1	2	♭3		4		5		6	♭7		8							

Phrygian Mode	1	♭2		♭3		4		5	♭6		♭7		8
Lydian Mode	1		2		3		♯4	5		6		7	8
Mixolydian Mode	1		2		3	4		5		6	♭7		8
Dominant Scale	1		2		3	4		5		6	♭7		8
Whole Tone	1		2		3		♯4		♯5		♯6		8
Major Pentatonic	1		2		3			5		6			8
Minor Pentatonic	1			♭3		4		5			♭7		8
Diminished/Octatonic	1		2	♭3		4	♯4		♯5	6		7	8
7-Note Blues/Minor Blues	1			♭3		4	♯4	5			♭7		8
Pentatonic Blues/Major Blues	1		2	♭3	3			5		6			8
Ukrainian Dorian	1		2	♭3			♯4	5		6	♭7		8
Phrygian Dominant	1	♭2			3	4		5	♭6		♭7		8
Lydian Dominant	1		2		3		♯4	5		6	♭7		8
Hungarian Minor	1		2	♭3			♯4	5	♭6			7	8
Bebop Major	1		2		3	4		5	♯5	6		7	8
Bebop Minor/Bebop Dorian	1		2	♭3	3	4		5		6	♭7		8
Bebop Dominant	1		2		3	4		5		6	♭7	7	8

If the scale is the same up and down, only up is noted.

Modern composers frequently invent scales. Any series of notes, if it is repeated often in a piece of music, will eventually be heard as a scale by the listener. However, composers will almost always use one of the normal key signatures and create their new scale using accidentals and altered notes. As long as you practice the major scales, minor scales in all three forms, and chromatic scales, you will be able to play any pattern a composer can invent. Remember, *an etude a day keeps the doctor away*.

Scale Degree Names and Intervals

SECRET 39: SCALE DEGREE NAMES

When musicians speak of scale degrees, they may use names rather than numbers to identify each particular scale degree. The first scale degree is *tonic*. In the C major scale, C is the first degree of the scale and therefore C is tonic. The name of the scale is the tonic. C is tonic in the C scale (be it C minor or C major). In the key of G, G is the tonic. In the G major scale, G is tonic (the first degree).

The second degree of the scale is *supertonic*. Supertonic, able to leap tonic in a single step. Supertonic is one degree above tonic. In the F major scale, F is tonic and G is supertonic. In the key of C major, the supertonic is D.

The third degree of the scale is *mediant*. The mediant is halfway between tonic and dominant (the fifth degree) and is also the middle—or median—of the tonic triad, which will be discussed later. In the A minor scale, A is tonic, B is supertonic, and C is mediant. Find the mediant in the key of C major. Take a C major scale and count to the third degree (C-D-E). The mediant of the C major scale or the key of C major is E.

The fourth degree of the scale is the *subdominant*. Subdominant is just under dominant. In the F major scale, for example, F is tonic, G is supertonic, A is mediant, and B♭ is subdominant.

The fifth degree of the scale is *dominant*. The dominant degree dominates the scale, except for tonic. That is, it is the second most important degree after tonic. In the C major scale, G is the dominant degree. In the A natural minor scale, the dominant is E. The tonic degree has the strongest pull to the ear or strongest tonal center, and the dominant has the next strongest. You can hear this for yourself. Play a C major scale to establish the key. Then play C-G-C. Feel how the note G pulls you back toward C. Play the scale again, and then play C-G-C-G and stop. It is very upsetting to hear a dominant and then not hear the tonic. This drive from dominant toward tonic is the foundation of Western harmony.

The sixth degree of the scale is the *submediant*. The submediant is halfway between subdominant and tonic at the octave. It is a little confusing in that it is the *sub*mediant even though it is higher than the mediant. Think of it as the *mediant* of the *sub*dominant: submediant. In the C major scale, the submediant degree is A. In the key of B flat major, the submediant is G. This is also the tonic key of the relative minor, as you learned previously.

The seventh degree of the major scale is the *leading tone*. The seventh degree of the harmonic and ascending melodic minor scales is also called leading tone. The term *leading tone* is when there is a half step between the seventh degree and tonic because the seventh wants to *lead* to tonic. In the natural minor and descending melodic minor scales, the seventh degree is *subtonic*, because it is a *whole* step below tonic. Whereas the step above tonic is supertonic, the whole step below tonic is subtonic.

In C major: C = tonic, D = supertonic, E = mediant, F = subdominant, G = dominant, A = submediant, B = leading tone, C = tonic.

SECRET 40: THE INTERVAL

An *interval* is the distance between two notes on the musical staff, or the difference in pitch between two notes. If the two notes are played at the same time, it is a *harmonic interval*. If one note is played after the

other, it is a *melodic interval*. When identifying an interval, one must state its quality (for example, major or minor) and a numerical value by counting the lines and spaces between the two notes.

SECRET 41: MAJOR INTERVALS

A *major interval* is an interval between two tones found in a major scale. There is no zero in music. It is as if we were walking up a flight of stairs and counting our steps by counting the places where our feet touched—not counting the paces we took. Where we start is *one* even though we have not moved yet. The interval from C to the same C is called unison, or one.

For example, if we take the C major scale (C-D-E-F-G-A-B-C), the distance or interval between C and E is a third. We count this interval as such: C is one, D is two, and E is three, an interval of a third. We then take the bottom note (C in this example) and say, "Is there an 'E' in the C major scale?" If the answer is yes, then it is a major interval. (We will discuss other alternatives later.) When counting intervals, again, the starting note is number 1, not zero. This is because it is the first note of a scale. In our example, C to E is a major third, or M3. C to D is then a major second, M2. C to A (C-1, D-2, E-3, F-4, G-5, A-6) is a sixth. Is there an A in the C major scale, or is there an A natural in the key of C major? Yes, and therefore the interval is a major sixth, M6. Notice the use of capital *M*s for major and small *m*s for minor. Remember to put the higher note of the two in the key of the bottom note. Although the interval is the same whether we count from the bottom up or the top down, harmony is always built from the bottom up, so counting from the bottom is a very important habit. The intervals 2, 3, 6, and 7 are referred to as major intervals, when from the major scale.

SECRET 42: PERFECT INTERVALS

A perfect interval *sounds* major and is found in the major scale; it is, however, called perfect rather than major. The intervals of a fourth, fifth, and octave are referred to as perfect rather than major, because there is no minor version of these intervals. If the same note is played, tonic repeated, for example, the interval is unison (C to C, the same note and not an octave). A *unison* interval is also called perfect. The intervals in the major scale are depicted in figures 5.1 and 5.2.

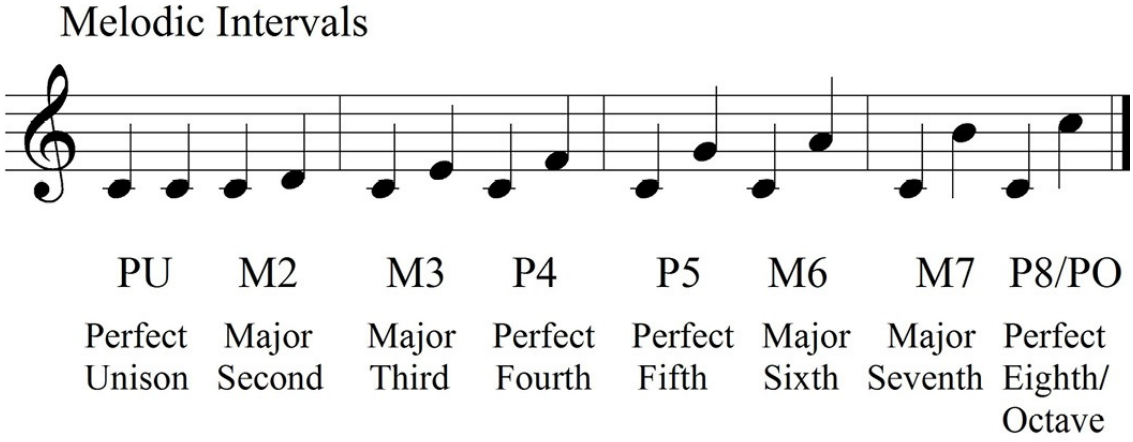


Figure 5.1.

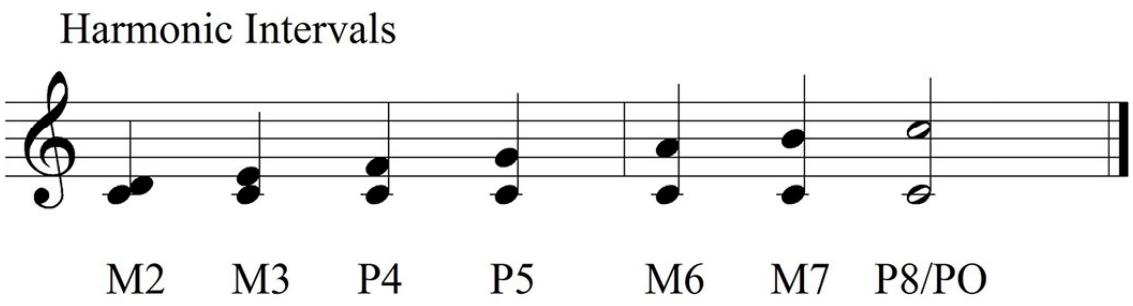


Figure 5.2.

You might want to make a major/perfect interval table, as in table 5.1. Simply write the notes into the table for the major scale you are working with and check out the interval in the column above. You will notice that the first and last columns are perfect, as well as the P4 and P5 in the middle of the table. If figuring the interval C to A, look above A, and see the interval is an M6 (major sixth). If figuring the interval D to A, you can see that the interval D to A is a P5 (perfect fifth), using the D major scale row.

Table 5.1. Major Intervals

PU	*M2*	*M3*	*P4*	*P5*	*M6*	*M7*	*P8/Octave*
C	D	E	F	G	A	B	C
D	E	F♯	G	A	B	C♯	D

SECRET 43: MINOR INTERVALS

If you understand how to build major intervals, you will find building minor intervals to be rather easy. Minor intervals are not built from perfect intervals, only from major intervals. Therefore, minor intervals deal only with degrees 2, 3, 6, and 7. You may build minor intervals two ways. One way is to count up the interval number and apply the key signature of the minor scale (natural form). For example, in the key of C minor there are three flats: B♭, E♭, and A♭. To build a minor third from C, count up three to E and ask yourself, “In C minor, what is E natural: sharp or flat?” The answer is flat; therefore, C to E♭ is a minor third.

This works the same for the sixth and seventh degrees; however, the second degree is the same in the major and minor scale. The first three notes of A major are A-B-C♯; the first three notes of A minor are A-B-C. Therefore, preference will be given to the method that involves first building a major interval, then making those two notes a half step closer to one another, either by lowering the top note or by raising the bottom note. This will produce a minor interval. Remember that minor intervals only occur with degrees 2, 3, 6, and 7. There is no such thing as a minor fourth or minor fifth. Major intervals become minor when made a half step closer, whereas perfect intervals become diminished when made a half step closer. Diminished intervals are discussed later.

To build a minor sixth (m6) beginning on C, first count six from C to get A, the sixth note in a C major scale. For the major key signature of C (no sharps or flats), think of the note on the bottom. C to A is a major sixth (M6). To turn the major sixth into a minor sixth, these two notes, C and A, must be made a half step closer. If we lower the top note from A to A flat, we now have the interval of a minor sixth: C to A♭.

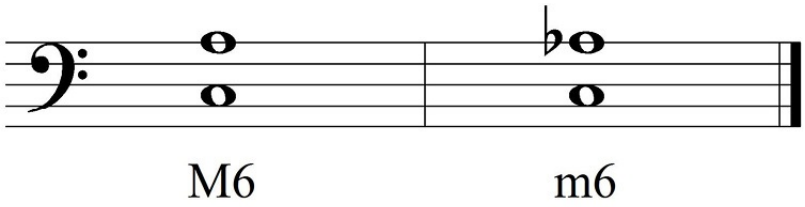


Figure 5.3.

We can also make the bottom note higher, thus making it closer to the top note. C♯ to A is a minor sixth; however, we were trying to build a minor sixth on C and not C♯. When you raise the bottom note, it is still like thinking the major key of the bottom note and lowering the top. If building a minor sixth on C♯ rather than C, think the major key signature for C♯ rather than C. The key of C♯ has all sharps. C♯ to A♯ is a major sixth; lowering the A♯ to A natural gives us the interval of a minor sixth: C♯ to A.

Now build a minor second on B♭. B♭ to C is a major second. (B♭ major has B♭ and E♭ in the key signature.) These are the first two notes of a B♭ major scale; therefore, B♭ to C is a major second. To build a minor second on B♭, lower the C by a half step to C♭. B♭ to C♭ is the interval of a minor second. C♭ is the same pitch as B natural, but when counting up to two we must move to the next line/space. B♭ to B natural is on the same line/space, whereas B♭ to C♭ is counted as a second, a minor second.

Now build a minor seventh on F♯. The major key of F♯ has six sharps, F♯, C♯, G♯, D♯, A♯, E♯. Count up seven from F♯ to get E♯; this is a major seventh. To make it a minor seventh, lower the E♯ to E natural; F♯ to E is the interval of an m7.

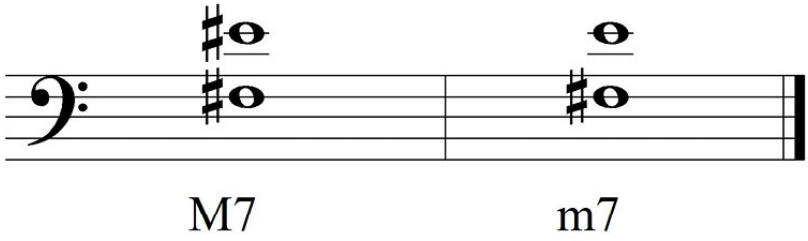


Figure 5.4.

SECRET 44: AUGMENTED INTERVALS

An *augmented interval* (symbol $^{+}$) consists of the distance between two notes that is a half-step greater than that of a major *or* perfect interval. For example, if C to A is a major sixth, then to make that major sixth into an augmented sixth ($^{+}6$), the C to A interval must become a half-step larger or wider. This is achieved in two ways. One way is to turn the A into an A♯ (A sharp), making the distance a half-step wider than the major interval distance: C to A♯ = $^{+}6$.

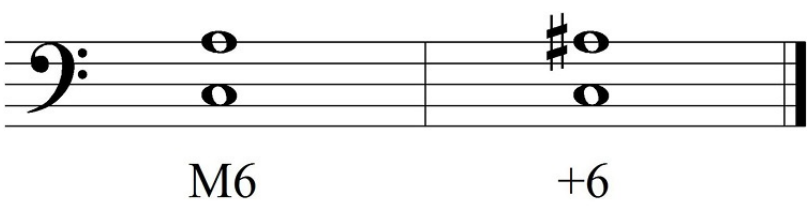


Figure 5.5.

The second way is to lower the bottom note by a half step. Remember, when you lower a sharp by a half step, it becomes a natural. When you lower a natural by a half step, it becomes a flat. When you lower a flat by a half step, it becomes a double flat (symbol: ♭♭). Going back to the example of C to A, the interval of a major sixth; instead of raising the A a half step to A♯, we can also lower the bottom note (the C) a half step to C♭. C♭ to A is the interval of an augmented sixth. You can think of the interval C♭ to A in a different way. Instead of thinking C to A and lowering C to C♭ (giving you C♭ to A), think of C♭ to A♭ (key of C♭, everything flat) as an interval of a major sixth, then raise the A♭ to A natural, which gives you C♭ to A, the interval of an augmented sixth.

A perfect interval made a half-step wider becomes an augmented interval. For example, C to G, a perfect fifth, is made into an augmented interval by raising the G to G♯, thus making the interval between the two notes a half-step wider or larger. C to G♯ is therefore the interval of an augmented fifth ($^{+}5$).

Just as two notes that sound the same can be spelled differently, such as D♯ and E♭, so can intervals. Play the augmented fifth C to G♯ from the previous example. Now play a minor sixth from C. C to A is M6; C to A♭ is m6. The augmented fifth and the minor sixth sound the same. We must still call them by their right names, because they have different meanings in harmony. Think of homophone words like *weight* and *wait*; they also are spelled differently and have different meanings, even though they sound the same.

Figure 5.6.

To build an augmented fourth ($^{+}4$) on F, first build a perfect fourth. The key of F has one flat, B♭. Count up four notes from F to B♭. F to B♭ is a perfect fourth. To turn this into an augmented fourth, raise the B♭ to B natural. F to B is the interval of an augmented fourth ($^{+}4$).

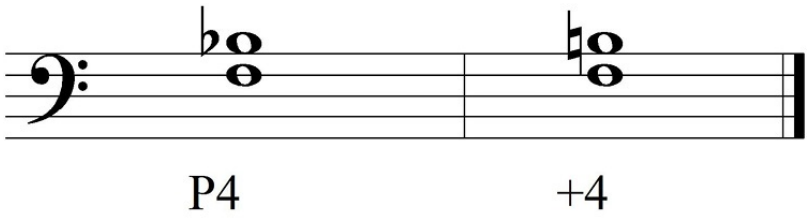


Figure 5.7.

Remember when you raise a flat by a half step it becomes a natural. When you raise a natural by a half step, it becomes a sharp. When you raise a sharp by a half step, it becomes a double sharp (symbol: x). In addition, when you raise a bottom note of an interval, it becomes closer to the top note; however, when you raise the top note, it becomes farther from the bottom note. That is, raising the bottom note makes the interval closer together, while raising the top note makes it wider. Lowering the top note makes the interval closer, while lowering the bottom note makes the interval wider.

To turn the interval of F♯ to A♯, an M3, into an augmented third, simply lower the F♯ a half step to F natural. F to A♯ = $^{+}$3. This is the same as thinking of the key of F and since F to A is an M3, raising the A to A♯ produces an augmented third; F to A♯ is $^{+}$3. It doesn't matter whether you think of the key of F♯ (F♯ to A♯) and lower the F♯ to F, giving you F to A♯, or think of the key of F (F to A) and raise the A to A♯, giving you F to A♯; the answer is the same. If you want to build $^{+}$3 on F♯, however, you must keep the F♯ and alter the interval by changing the A♯ to Ax (A double sharp).

SECRET 45: DIMINISHED INTERVALS

A *diminished interval* (symbol ^{o}) is a half-step smaller or closer than a minor or perfect interval. Please make note of the following: A perfect interval (unison, 4th, 5th, 8th) becomes diminished when made a half-step smaller, *not minor*. However, a major interval when made a half-step smaller (closer together) becomes minor. A minor interval becomes *diminished* when made a half-step smaller (closer together). Please keep the following in mind, from widest interval on the left, to smallest interval on the right: intervals 2, 3, 6, 7 go from augmented to major to minor to diminished. Intervals unison, 4, 5, 8 go from augmented to perfect to diminished, skipping minor.

To build a diminished fifth (^{o}5) on C, first build a perfect fifth (P5). Think of the key of C and count up to the fifth note in the C scale. C to G is a P5. To make a P5 into a diminished fifth (^{o}5), lower the top note (the G) by a half step to a G♭. C to G♭ is an interval of a diminished fifth (^{o}5). Lower it by changing the accidental, not the note name. Even though F♯ and G♭ sound the same, C to F♯ is an augmented fourth, while C to G♭ is a diminished fifth.

Now build an interval of a diminished sixth on C. First, build a minor sixth. C to A is an M6; therefore, C to A♭ is an m6. To make that m6 into a ^{o}6, the two notes must become a half-step closer to one another. This is accomplished in two ways. If the top note is lowered by a half step to get a diminished interval, we have C to A♭♭ (A double flat). We can also raise the bottom note to C♯ instead of lowering the top note, resulting in C♯ to A♭ as an interval of a diminished sixth; however, this is building the diminished interval on C♯, rather than C.

Build a ^{o}2 on F♯. F♯ to G♯ is a major second. G♯ is the second note of an F♯ major scale. To turn that into a minor second, lower the G♯ to G natural. F♯ to G = m2. To turn that into a ^{o}2, lower the G to G♭. F♯ to G♭ = ^{o}2. Of course, F♯ to G♭ is the same pitch; however, to be called a unison, the two notes must be on the same line or space.

Here is one that is not so tricky. Using the key of C♯ (all sharps), build a diminished seventh. Starting on C♯, count up seven notes: C♯ to B♯ is an M7. Lowering the top note B♯ to B natural produces a minor seventh. Lowering the top note B once again to B♭ gives a diminished interval. Therefore, C♯ to B♭ is a °7. You will always be able to create any interval—major, minor, perfect, augmented, or diminished—using the normal symbols of natural, flat, sharp, double flat, and double sharp, as well as the rarely seen triple flat if building diminished intervals in the key of C flat major, although I have never seen one used in composed music.

Now that you understand intervals, another way to find the relative major key or scale from the minor is to go up an interval of a minor third. For example, a minor third up from the pitch A is C (A to C♯ = M3, A to C natural = m3). The relative major of A minor is C major.

SECRET 46: THE TRITONE

The interval of an augmented fourth or diminished fifth has a special name: tritone. A tritone is made of three (*tri*) tones or whole steps. For example, C to D is one whole step, D to E is a second whole step, and E to F sharp is a third whole step. Therefore, C to F♯ is a tritone, also known as an augmented fourth. C to G♭ (the enharmonic spelling of F♯) is a diminished fifth, still a tritone.

Remember, *music speaks louder than words*.

Triads

The previous chapter dealt with intervals consisting of two notes. Three or more notes sounding at the same time produces a *chord*. A three-note chord is a *triad* (*tri-* means "three," as in tricycle and triangle). Triads are the most common chords in Western harmony, and it is essential to understand them. Once you have mastered the triad as the basic chord, it will be easy to add other scale degrees to produce more extensive chord structures.

Chords are harmony. Harmony gives music color, depth, emotion, structure, and shape. Not all music has harmony. The Gregorian chant that was used in the early Roman Catholic Church did not use harmony. It was a single line of music referred to as *monophonic*, meaning "single sounding." *Mono* comes from the Greek *monos*, meaning "single." Music is monophonic if there is only one line heard, regardless of how many musicians are involved: a choir of ten thousand people singing *Happy Birthday* in unison is monophonic, whereas a cat walking on a piano, hitting two keys at once, is not.

Harmony is used in most churches today when the congregation sings a hymn, which is *homophonic*. Homophonic is a melody line that is accompanied, such as a singer accompanying herself with chords on a guitar. Homophonic chords are all essentially triads, some with extra notes added; the triad comes first. A thorough understanding of the triad is required before continuing to the next chapter.

SECRET 47: MAJOR TRIADS

A major triad is constructed by taking the first, third, and fifth notes from the major scale of the bottom note of the triad (when lined up line-line-line or space-space-space); that is, from the scale that is the name of the triad. For example, to build a C major triad, take the first, third, and fifth notes from the C major scale. In a C major scale, C is the first note, E is the third note, and G is the fifth note. The C major triad thus consists of C-E-G. The D major triad consists of the first, third, and fifth notes of the D major scale—D-F♯-A.

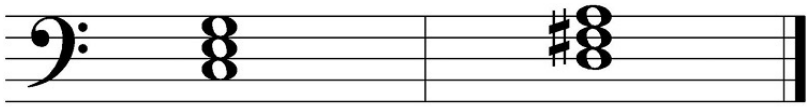


Figure 6.1.

Notice that these notes are space-space-space or line-line-line. The bottom note is called the root, the note that is a third higher is the third, and the note a fifth higher is the fifth. When you build a triad on the tonic, the root is the tonic, the fifth is the dominant, and the middle note is the mediant. When the three notes of the triad look like a snowman, the triad is in *root position*.

Try building the E♭ major triad. Think of the key of E♭, which has B♭, E♭, and A♭ in its key signature. Now take the first, third, and fifth notes out to produce E♭-G-B♭. As you can see, it is very important that one knows the key signatures very well. Building intervals, triads, and various types of chords all depend on knowing the key signatures.

The lower third of the triad—in this example, E♭ to G—is a major third. The upper third of the triad—G to B♭—is a minor third. You might suppose that when you add one third to another third, you would get a sixth. Try it: the interval from the lowest note, E♭, to the top note, B♭, is a fifth—not a sixth. This, once again, is because there is no zero in music. Try it by adding steps. Add a major second to a minor second starting on A. A goes up to B; this is a major second. B goes up to C; this is a minor second. However, the interval from A to C is a minor third—not a fourth. Therefore, in music, two plus two equals three, not four.

SECRET 48: MINOR TRIADS

To build a minor triad, simply take a major triad and lower the third a half step. Turning the C major triad (C-E-G) into the C minor triad, we get C-E♭-G. Notice that the outer interval, the fifth, is still the same and it is still made of two thirds, one major and one minor; the difference is that now the minor third is built on the root. The D major triad is D-F♯-A; the D minor triad is D-F-A (though it is traditional to use lowercase letters when speaking of the minor key, I am using capital letters to ensure clarity). You may also build a minor triad by taking the first, third, and fifth notes of the minor scale for the minor triad, just the same as we took the first, third, and fifth notes of the major scale for the major triad. The D minor scale is D-E-F-G-A-B♭-C-D. The D minor triad is D-F-A, the first, third, and fifth notes from this D minor scale. The C minor scale is C-D-E♭-F-G-A♭-B♭-C (the relative major being E♭ major). The C minor triad is the first, third, and fifth notes of the C minor scale: C-E♭-G. Whether you take a major triad and lower the third a half step or take the first, third, and fifth notes from the minor scale of the same name (D major and D minor, for example), it comes out to be the same answer.

SECRET 49: AUGMENTED TRIADS

Building an augmented triad (symbol: $^{+}$) is very simple if you can build a major triad. To build an augmented triad, first build a major triad in root position. To turn this major triad into an augmented triad, simply raise the fifth degree of the triad a half step. Remember, when building the triad with all notes on lines or all notes on spaces, it is in root position. That is, root-third-fifth. To turn a C major triad (C-E-G) into a C augmented triad, raise the fifth, G, to a G sharp. The C augmented triad (C^{+}) is, thus, C-E-G♯. You can also consider the augmented triad to be built of two major thirds. C to E is a major third, and E to G♯ is another major third.

To build a D augmented triad, first build a D major: D-F♯-A. Raising the A to A♯ produces D-F♯-A♯, a D augmented triad. Notice that the name of the triad, the same as the name of the scale, takes its name from the root note. The augmented triad has an interval of a major third sitting on top of a major third. Students will sometimes get *augmented* and *diminished* mixed up. Remember, when you augment something, you give it more. If you augment your income, you make more money. When you augment a triad, you give it more half steps.

The major and minor triads took their name from the quality of the third above the root. If the third is major (C-E-G), the triad is major. If the third is minor (C-E♭-G), the triad is minor. Augmented and diminished triads, however, take their name from the quality of the fifth above the root, not the third. We do not build triads with augmented or diminished thirds, because they would not sound like triads. In order for a chord to sound like a triad, we must hear that it is made of major and minor thirds. Once again, I cannot stress enough the importance of knowing the key signatures. In order to build intervals, you need to know key signatures. In order to build triads and chords, you need to know intervals.

SECRET 50: DIMINISHED TRIADS

The diminished triad (symbol: °) may take a little more thinking. First, build the minor triad, and then lower the fifth to get the diminished triad. Remember that the augmented is *raising* the fifth from the *major* and the diminished is *lowering* the fifth from the *minor*. If C-E-G is major, then C-E♭-G is minor. To get the diminished, lower the G to G♭. C-E♭-G♭ is a C diminished triad (C°). Build a D diminished triad. D-F♯-A is major; lower the third to get the minor, D-F-A. Now lower the fifth to get the D diminished triad: D-F-A♭. The diminished triad has an interval of a minor third sitting on top of a minor third.

Always build the major triad first; then from the major triad build augmented, minor, or diminished. For example to build an A flat diminished triad, the thought process is (A♭ major has four flats) A♭-C-E♭ is a major triad, A♭-C♭-E♭ is a minor triad, and A♭-C♭-E♭♭ is a diminished triad. Remember, when you diminish something, you make it smaller. When you diminish a major triad, you take half steps away from it, thus making it smaller.

If you are a keyboard player, a guitarist, bass player, singer, or jazz musician, you may have to read from a *lead sheet*. A lead sheet has the melody with chord symbols above the melody indicating to the musicians what chords to play with particular parts of the melody. Using the information from this chapter, let's see what some chord symbols may look like. Let's use the C major triad for an example. C, Cma, Cmaj, and CM can all indicate a C major triad in root position. We will talk about chords that are not in root position in chapter 9. For C minor, the chord symbol may be c (lowercase), Cmi, Cm, C-. The C augmented chord may look like C+ or C aug. The C diminished chord may be C° or C dim. As you can see, there is no standard notation. Lead sheet symbols are also used for more complex chords, not just triads. These will be discussed in the next chapter, but still with regard to root position.

Yes it is true, *early to bed, early to rise, makes your practicing healthy, wealthy, and wise*.

SECRET 51: THE MAJOR SEVENTH CHORD

The seventh chord consists of four notes; therefore, it must be termed a chord and not a triad. Whereas the triad consists of a root, third, and fifth, the seventh chord consists of the root, third, fifth, and seventh degrees of the scale. Like the triad, it is built by stacking major and minor thirds. Once again, in root position if the root starts on a line, then all notes of the seventh chord will be on a line, and if the root starts on a space (in root position), then all notes (root, 3rd, 5th, 7th) of the chord will be on a space. If the triad in root position looks like a snowman, then the seventh chord is a snowman with a big hat.

There are four forms of triad: major, minor, diminished, and augmented, all built of major and minor thirds. In theory, this creates eight possible forms of seventh, as we can add a major or a minor third to the top of each triad. In practice, only five of these are commonly used: major, major-minor, minor, half-diminished, and fully diminished.

The major seventh is a major triad with a major third on top. This is the triad that forms naturally on the tonic note of the major scale. To build a major seventh chord on C (CM^7), use the first, third, fifth, and seventh notes of a C scale; the notes C-E-G-B. Let's build a DM^7 (D major seventh) chord. Use the D major scale, taking the first (root), third, fifth, and seventh notes out and stacking them from the bottom up. This produces a chord consisting of D-F♯-A-C♯. This is a D major triad with an interval of a major seventh above the root. D-F♯-A is a D major triad and the interval from D to C♯ is a major seventh. This type of seventh chord is sometimes called a major-major seventh (MM^7) or simply a major seventh (M^7). If reading a lead sheet (see chapter 6), the indication for a C major chord with the interval of a major seventh, for example, is Cma^7 (or CM^7, $CMaj^7$) The C in uppercase indicates the C major triad and the ma^7 (or M^7, Maj^7) indicates the interval of a major seventh above the C.

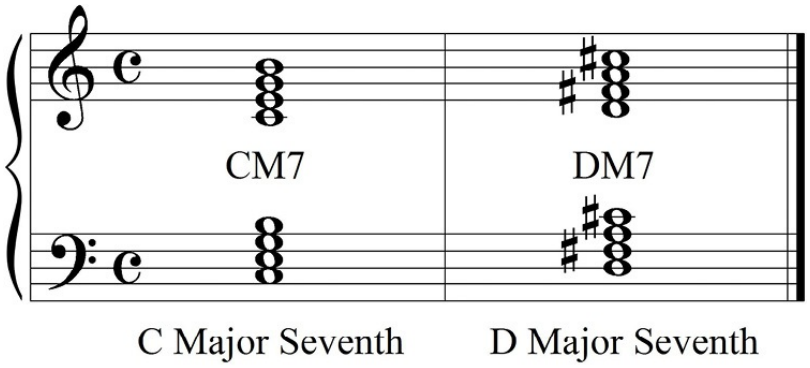


Figure 7.1.

SECRET 52: THE MAJOR-MINOR SEVENTH CHORD

One of the most common types of seventh chord is a major triad with a minor seventh interval rather than a major seventh. This type of seventh chord is often used on the dominant degree of the scale or key. To make a major-minor seventh chord (Mm^7), build a major triad with a major seventh and then lower the

seventh by a half step, producing the interval from root to seventh of a minor seventh. In the example of the C major-major seventh (C-E-G-B), lower the B natural to B flat. C-E-G-B♭ is a C major-minor seventh or CMm^7 chord, a C major triad with a minor seventh interval from the root. The major-minor seventh is found more often than the major-major seventh. Since the major-minor seventh is usually built on the fifth or dominant degree of the major scale, rather than the tonic, this means that no accidentals are necessary, as the seventh will be minor according to the key signature. The note C, for example, is the dominant degree of the F major scale. In the key of F, B is flat, so a seventh chord built on the note C in the key of F will be C-E-G-B♭, the major-minor seventh.

If reading a lead sheet, the indication for a C major chord with the interval of a minor seventh, for example, is C^7. The C in uppercase indicates the C major triad and the ^{7} by itself indicates the interval of a minor seventh above C. Figure 7.2 compares the major-major seventh and the major-minor seventh (the small *m* is used for clarity).

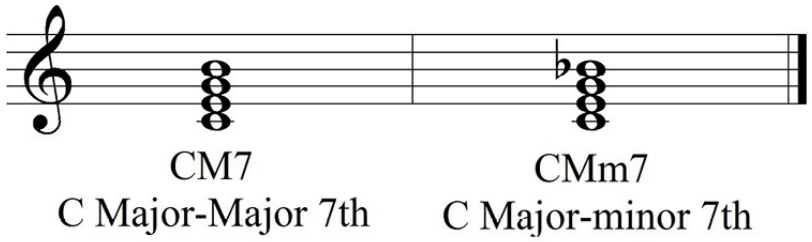


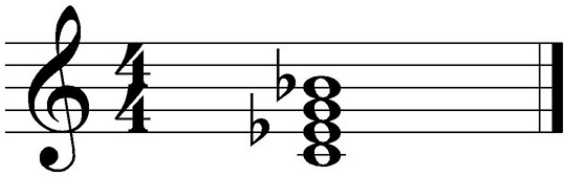
Figure 7.2.

SECRET 53: THE MINOR SEVENTH CHORD

Using the minor scale, we can build a minor-minor seventh (mm7), sometimes simply called a minor seventh, by taking the first, third, fifth, and seventh notes from the minor scale. For example, using the key of A minor (natural form, no sharps or flats), we build the A minor seventh (am7) chord using the notes A-C-E-G (right out of the A minor scale). A-C-E is a minor triad; A to G is the interval of minor seventh.

Another way to build a minor-minor seventh chord is to first build the major triad, then change that to the minor triad and add on the interval of a minor seventh. For example, think of A-C♯-E as the A major triad (1-3-5 from the A major scale), and lower the third (C♯) to C natural, thus producing the minor triad (A-C-E). Then look at the root to seventh ratio. A to G♯ (key of A has three sharps) is a major seventh. We need a minor seventh interval; therefore, drop the G♯ a half step to G natural. A to G is the interval of a minor seventh. That gives the minor triad A-C-E and the minor seventh interval A-G for the minor-minor seventh chord of A-C-E-G, a minor triad with a minor seventh.

Build a minor seventh (mm7) starting on C. First, build a C major triad, which is C-E-G. Turn this into the C minor triad by lowering the third E to E♭. C-E♭-G is the C minor triad. Now add the interval of a minor seventh on top of the C. C to B is a major 7th, C to B♭ is a minor 7th. C-E♭-G-B♭ is a C minor-minor seventh chord (Cm7). Or think of the C minor scale (three flats) and take the first, third, fifth, and seventh notes and stack them up with the root on the bottom, and you have C-E♭-G-B♭, the Cm7. The minor seventh chord occurs naturally on the tonic of the minor key, which means that it occurs on the sixth degree of the scale in a major key. E♭ major is the relative major of C minor. C is the sixth degree of E♭. Build the seventh chord on C in the key of E♭: C-E♭-G-B♭.



Cm7

C minor-minor 7th

Figure 7.3.

Either way of thinking works. Use what works best for you, but make sure you can understand both ways in case you have to teach it to someone who prefers one way to another. If you are most comfortable with major keys, then build the major triad, turn it into the minor triad, and add the minor seventh interval, and simply get into the habit of always working from major triads or intervals. If reading a lead sheet, the indication for a C minor chord with the interval of a minor seventh, for example, is Cmi^{7} (or Cmin^{7}, c^{7}) The Cmi indicates the C minor triad (sometimes lowercase c) and the ^{7} indicates the interval of a minor seventh above C.

SECRET 54: THE DIMINISHED SEVENTH CHORD

Another type of seventh chord is the diminished seventh chord. This comes in two types: fully diminished, which is a diminished triad with a diminished seventh, and half-diminished, which is a diminished triad with a minor seventh interval from the root. The symbol for a fully diminished seventh chord is a circle: °. The symbol for a half-diminished seventh chord is a circle with a line through it: ø. As you see, you must first determine the quality of the triad before defining the type of seventh.

SECRET 55: THE HALF-DIMINISHED AND FULLY DIMINISHED SEVENTH CHORD

To build the half-diminished seventh chord, first build a diminished triad. Let's build one on C. C-E-G is a major triad; C-E♭-G is a minor triad, so C-E♭-G♭ is a diminished triad. Notice that to get the minor triad, you have to lower the third of the major triad. To turn the minor triad into a diminished triad, lower the fifth. Now simply add a minor seventh above the root C. C to B is a major seventh, so C to B♭ is the minor seventh. Thus, the C half-diminished seventh chord (C^{ø}7) consists of the notes C-E♭-G♭-B♭.

Try building one on E. E-G♯-B is a major triad, E-G-B is minor, and E-G-B♭ is diminished. E to D♯ is a major seventh; E to D is minor seventh. The E half-diminished seventh chord is E-G-B♭-D, a diminished triad with a minor seventh. Remember that the half-diminished seventh chords use a circle cut in half, E^{ø}7.

The fully diminished seventh chord has a diminished triad with the interval of a diminished seventh between the root and seventh. To build a fully diminished seventh chord on C, follow the procedure above to get a diminished triad of C-E♭-G♭. Now add the interval of a diminished seventh above the C. C to B is a major seventh, C to B♭ is a minor seventh, and C to B♭♭ (B double flat) is a diminished seventh. The fully diminished seventh chord on C (C^{o}7) is C-E♭-G♭-B♭♭. Building one on E, we have the diminished triad of E-G-B♭. The diminished seventh above E is D♭. The E fully diminished seventh chord is E-G-B♭-D♭. Notice the types of seventh chords as they appear on the staff in figure 7.4.

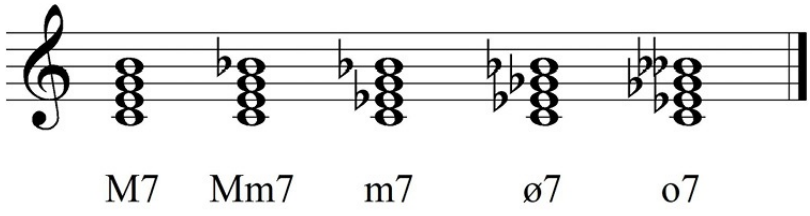


Figure 7.4.

The diminished triad occurs naturally in the major only on the leading tone of the scale. Take the key of C and build a triad on its leading tone: B-D-F. Adding the seventh in the key signature gives you A: B-D-F-A, the half-diminished seventh. There is no fully diminished seventh in major unless you alter a note. Now consider the key of C minor, which has three flats: B♭, E♭, and A♭. In harmonic minor, the B♭ would be raised to B. Now build the triad on B; it is still B-D-F, a dimimished triad, as in C major. But when you add the seventh on top, it is A♭, making the chord B-D-F-A♭, a fully diminished triad.

These five seventh chords, major, major-minor, minor, half-diminished, and fully diminished, are all built on major, minor, or diminished triads. Although seventh chords built on the augmented triad are possible, they are not in common use, as there is no augmented triad occuring naturally on any degree of the major scale.

You will notice that I call the seventh degree of the scale the leading tone. This is to avoid confusion. The leading tone is the seventh degree of the scale, while the seventh is the seventh of a chord. This is a practice one should become accustomed to in order to avoid misunderstanding when working with scales and chords. Also, chords do not always appear in block chord style (as in figure 7.4), where one note is on top of the other and played simultaneously. A chord may be arpeggiated, that is, where one note is played after the other to outline a chord.

SECRET 56: OTHER CHORDS

If you take the seventh chord and add yet another third to the top of the chord, this will produce a ninth chord. Notice here that chords are counting by odd scale degrees. The jazz musician will find this chord quite useful. If you see the chord symbol C^9, these are the notes C-E-G-B♭-D. That is a C major triad with a minor seventh interval and a major ninth interval. If you want a major triad with a major seventh and a major ninth, then using our example, we would have CMa9: an uppercase C for the major triad, Ma for the interval of the major seventh, and 9 for the interval of a major ninth, producing the notes C-E-G-B-D. Let's do one more. Cmi9 is a C minor triad (Cmi) with the interval of a minor seventh and interval of a major ninth, resulting in the chord of C-E♭-G-B♭-D. Let's say you want a slightly different sounding chord, say C-E♭-G♯-B♭-D. This is indicated as Cmi9(♯5), a C minor triad that has the fifth sharped, but still with the minor seventh and major ninth. Altered tones, as in the G♯ that is altered from the C minor triad, are best placed in parenthesis, but this also is not standard practice.

You may notice that the ninth degree is also the second degree of the scale. Now that you know this, here is a trick to remembering how to build a major pentatonic scale. The major pentatonic are the notes from the 6/9 chord, a chord with an added sixth degree and ninth degree (the sixth degree replaces the seventh). Using the C6/9 chord, we have the notes C-E-G-A-D. Drop the D an octave to have C-D-E-G-A, the C major pentatonic scale. Of course, this works for any major pentatonic scale starting note.

The chord with an eleventh and thirteenth works the same way as the ninth, but these may get a little messy. Look at the notes of a C13 chord, C-E-G-B♭-D-F-A (remember the seventh is minor unless

otherwise indicated). Notice that if you unscramble these notes into a scale, you will have a Mixolydian mode. Of course, you can have different qualities of thirteenth chords, but in this case, the notes of the Mixolydian mode are present.

If you are playing the piano or a stringed instrument, you may not have enough hands to play a thirteenth chord and might want to leave the fifth and the ninth of the chord out. You do not want to leave the third off because that tells you whether the fundamental triad is major or minor. The seventh gives flavor. That leaves five, nine, or eleven to leave off. Nine, eleven, and thirteen produce another triad, and since the ninth is not functioning as the root, it is best to choose this. Thirteen is the maximum; if you try to write a C15 chord, you will get C-E-G-B♭-D-F-A-C. The chord begins to repeat itself, and the repeated note adds nothing to the harmony. As you can see, this can get rather complicated and is really beyond the scope of this book. Just as any endeavor in life, it takes practice and experience to develop a skill in chord-reading.

Be it ever so humble, there's nothing like practice.

Roman Numeral Analysis

So far, we have considered chords in isolation, each as its own individual entity. Like people, however, chords exist in relationships with their families and neighbors, and can only be fully understood in the context of these relationships. It is not enough to know that a chord is a major triad. What key is it in? On which degree of the scale is it built? What came before it, and where is it going? In order to answer these questions, we must be able to identify chords by their *function* within the music, as well as by their individual quality.

SECRET 57: ROMAN NUMERAL QUALITY

When analyzing a musical composition in Bach or Baroque style, musicians will use a series of roman numerals to represent chords rather than calling the chord by the chord name. The roman numerals I through VII are used to represent scale degrees 1 through 7. However, when the chord is a major chord the roman numeral will be upper case. When the chord is minor, the roman numeral will be lower case—for example, I for major or i for minor. When writing analysis by hand, be particularly careful with the number 5, as the large V and small v have very different implications.

For augmented chords, use uppercase and a plus sign, for example, III^{+}. For diminished chords, use lowercase and ^{o}, for example, vii^{o}.

SECRET 58: ROMAN NUMERALS IN MAJOR KEYS

Within a major scale, not all triads are major; many, in fact, are minor, and one is diminished. There are no augmented chords in major. Just as the intervals within a major scale are predictable, so too are the triads. As there are seven degrees of the scale, there are seven triads. When building a triad on each degree of the major scale, the triads will have the following qualities:

Table 8.1. Roman Numerals in Major Keys

Scale degree	1	2	3	4	5	6	7
Major key	I	ii	iii	IV	V	vi	viio

Notice that I, IV, and V chords are major when in a major key, and that ii, iii, and vi chords are minor with vii^{o} being diminished when in a major key. Notice that I + IV = V, the major chords in a major key. Also, the intervals of unison, fourth, and fifth (1, 4, and 5) are the perfect intervals. Remember that ii and iii are next to each other and that 2 x 3 = 6 (vi), the minor chords in a major key. Lastly, the triad built on the leading tone is diminished. The leading tone takes a short little half step to get to the tonic.

Notice the chord qualities (major, minor, or diminished) compared with the roman numerals in figure 8.1. Note also that these chords are in *root position*—that is, with the root of the chord on the bottom to produce a chord that is line-line-line or space-space-space, like seven snowmen standing on a flight of stairs. If the triads look like a snowman, it is in *root* position; the snowman is *rooted* to his spot. At least until he melts.

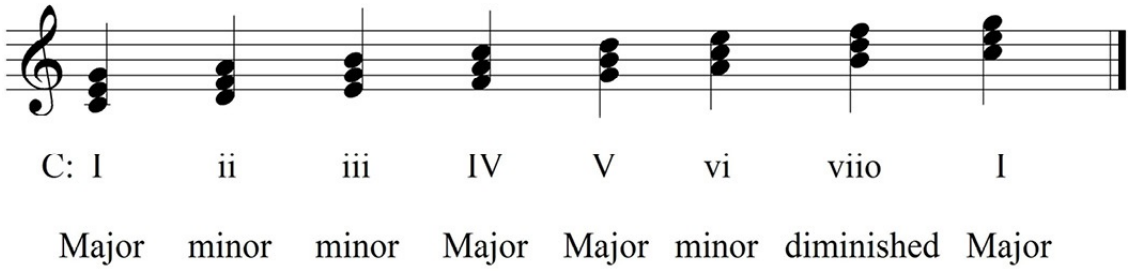


Figure 8.1.

Many students have difficulty remembering roman numerals; I and V are easy enough, but students frequently mix up IV and VI. This, of course, can lead to terrible difficulties in analysis. With regard to reading roman numerals, if the smaller number is on the right of the bigger number, then add the smaller to the bigger. For example, vi is the number six (5 + 1 = 6). If the smaller number is on the left of the bigger number, then subtract the smaller from the bigger. For example, iv is the number four (5 – 1 = 4).

To help remember the difference between IV and VI, think of them like this. IV is for ivy. Ivy grows in the *for*est; it grows on *for*tresses in *for*eign lands. VI is for violet, a flower with *five* petals on every *one* stem (five plus one is six). Also, violet has six letters. Violet is a shade of purple, which also has six letters.

This seems like it should be easy. Over many years of teaching, I have observed that every student makes this error at least once. For some students, learning to distinguish IV from VI makes the difference between passing and failing freshman theory. Make sure you are perfectly confident of these numbers before you continue.

SECRET 59: ROMAN NUMERALS IN MINOR KEYS

The situation with minor scales is more complicated, because of the variety of altered notes within the minor mode. When putting roman numerals to minor scales, the quality of the chords (augmented, major, minor, or diminished) will vary depending on the type of minor scale—natural minor, harmonic minor, or melodic minor—as seen in table 8.2.

Table 8.2. Roman Numerals in Minor Keys

Scale degree	1	2	3	4	5	6	7
Natural minor	i	iio	III	iv	v	VI	VII
Harmonic minor	i	iio	III+	iv	V	VI	viio
Melodic minor	i	ii	III+	IV	V	vio	viio

This may seem overwhelming, but in practice, it is much easier than it appears at first. Although the altered submediant and leading tones mean that every chord except the tonic has more than one version, if we take it one step at a time, it will all make sense.

Notice that the minor one chord (i) is the same in each scale.

The two chord is diminished in the natural and harmonic forms, but it is minor in the melodic form due to the raised sixth degree.

The three chord is major in the natural form, because it is the chord built on the tonic of the relative major; remember, the third of A minor is the note C, and in natural minor, the triad above C is C-E-G. It is

augmented in the harmonic and melodic forms due to the raised seventh degree.

The four chord is minor in the natural and harmonic forms, but is major in the melodic form due to the raised sixth degree.

The five chord is minor in the natural form, but major in the harmonic and melodic forms due to the raised seventh degree. In fact, composers' desire for a major chord on the fifth degree of the scale is the reason the harmonic minor, with the raised leading tone, came to exist in the first place.

The six chord is major in the natural and harmonic forms, but is diminished in the melodic form due to the raised sixth degree. It may seem odd that the alteration of a single semitone can change a chord from major to diminished, rather than from major to minor. It works like this: The major six chord (VI) is F-A-C in A minor. That is a major triad, consisting of a major third and a minor third, with an outer interval of a perfect fifth. The triad is called major because of the quality of the lower third; it is not called perfect for the perfect fifth, because both the major and the minor triad have the same perfect fifth. When we raise the F to F♯, we now have the minor third, F♯-A, and another minor third, A-C. The outer interval is now F♯-C, a diminished fifth. Although the lower third of the triad has been reduced from major to minor, the chord as a whole has been reduced from major to diminished.

The seventh chord is major in the natural form, but is diminished in the harmonic and melodic forms due to the raised seventh degree. This works in the same way as the alteration of the sixth chord.

Did you get all that memorized? That would be a lot of work. Surely, you have something better to do. Rather than memorizing the chord quality of the roman numeral in each form of the minor scale, simply make sure that the roman numeral chord quality, whether augmented, major, minor, or diminished, matches the chord notes. Figures 8.2, 8.3, and 8.4 show the A minor scale in all three forms with roman numerals.

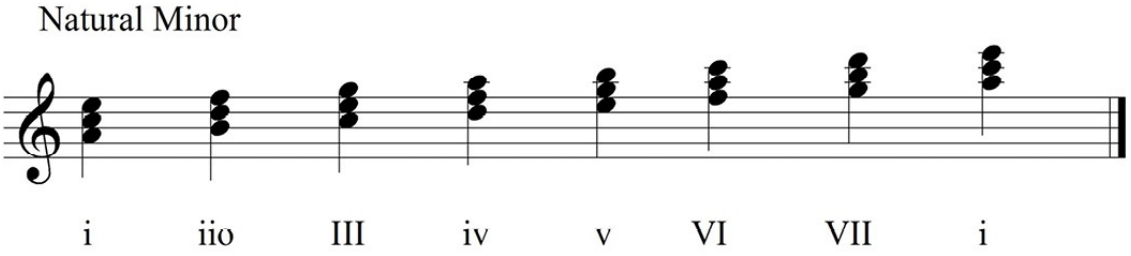


Figure 8.2.

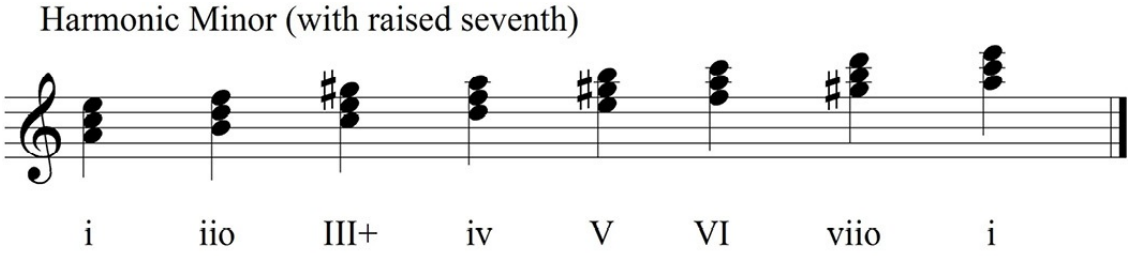


Figure 8.3.

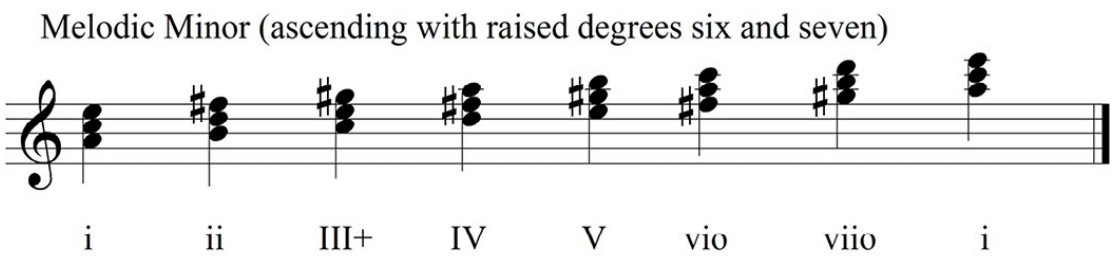


Figure 8.4.

When working in one of the forms of the minor scale, the most often encountered problem is forgetting to use the key signature at the beginning of the piece or forgetting to carry an accidental through the measure. Accidentals are good for the entire measure until canceled by the bar line. For example, if working in harmonic minor you encounter a v chord (minor v chord), then you have missed carrying the accidental of the raised seventh through the measure as V chords are major in harmonic minor.

There tend to be many accidentals in the minor mode. Over the last hundred years, there has been a shift in the way accidentals are used. In the some modern notation, an altered note is altered for the whole measure but *only* in the octave in which the alteration occurred. This is probably due to the use of computer notational programs that do not carry the accidental at the octave. In slightly older music, an alteration in a single octave applies to all other octaves; a sharp sign on C4 would also apply to C6 or C2. This can lead to some confusion. If you are trying to analyze a piece of music and the harmony suddenly becomes extremely strange, try reading the accidentals as if they applied to all the octaves. However, when you write music, be sure to write the accidental again if the altered note appears in a different octave.

SECRET 60: FOUR-PART ROMAN NUMERAL ANALYSIS

Roman numeral analysis is used to analyze four-part writing in Baroque style. This is soprano, alto, tenor, bass (SATB) vocal music, for the most part, as in Bach chorales. The soprano and alto are the high and low female voices. The tenor and bass are the high and low male voices.

Since a triad has three notes and in SATB style there are four parts, one voice will have to be doubled. For example, a C major triad may have the pitches C-E-G-C, thus doubling the root of the triad, the C. The soprano, alto, and tenor parts will then have the other notes of the triad (the third, fifth, and doubled pitch; either the root, third, or fifth). It does not matter where these remaining notes of the triad are placed, as long as the root is in the bass (or the lowest note if just using one clef), the chord is said to be in root position. If the third or fifth appear in the bass, then different terms are used. These are discussed in the next chapter.

One of the skills in analysis is to take the four notes of the chord and unscramble them to determine the chord, which may be a triad or a seventh chord. If the chord is a seventh chord, it will consist of a root, third, fifth, and seventh; therefore, each voice (soprano, alto, tenor, bass) will have just one pitch.

I have encountered some individuals who find it difficult to unscramble chords in SATB style. One common mental error is accidentally reading bass clef as treble clef. Oddly enough, there does not seem to be the same problem going the other direction, which is, reading the treble clef as bass clef. Perhaps this is due to a greater number of treble readers who are not as proficient reading bass clef.

Once the pitches are identified, in the correct clef and with key signature and all accidentals applied, one must be able to recognize triads and seventh chords, even when they are not in the simple snowman configuration. If you are in any doubt, you can write the chord notes in the simplest way possible on an extra sheet of staff paper. Remember, you must always keep the lowest note the same, because changing the bass note changes the definition of the chord. Write the bass note, and then write all the other notes as close to it as possible. For example, if the notes are G2, D4, G5, B5, you would copy the G2 and then bring the other pitches as close as possible to it while still staying above it: B2, D3, G3. And there is your snowman. You don't even need an extra piece of staff paper; you can simplify the chords by writing the pitches in order. Look for a pattern of every other letter of the alphabet, CEG, DFA, EGB, FAC, and so on. Triads and seventh chords will not use two consecutive letters of the alphabet.

When in SATB style, one voice will be doubled in a triad, or in the case of seventh chords, no voices will be doubled . . . usually. It is permitted to leave off the fifth degree of a seventh chord and double the root, producing a chord with two roots, one third, and the seventh; so if you simplify your chord and find you have a snowman with a floating head, do not panic. If you are still finding it difficult to figure the chord at this point, try building a root position chord on the bass note. If a chord built on the bass note does not include pitches available in the given chord, then move to the tenor voice and build a chord using the tenor as the root. If that does not work, move to the alto, then soprano. One of the four voices will be the root. This is trial-and-error chord-building, but sometimes it is necessary if the chord does not present itself right away.

Figure 8.5 shows an analysis using roman numerals. Note that the key is placed at the beginning of the analysis.

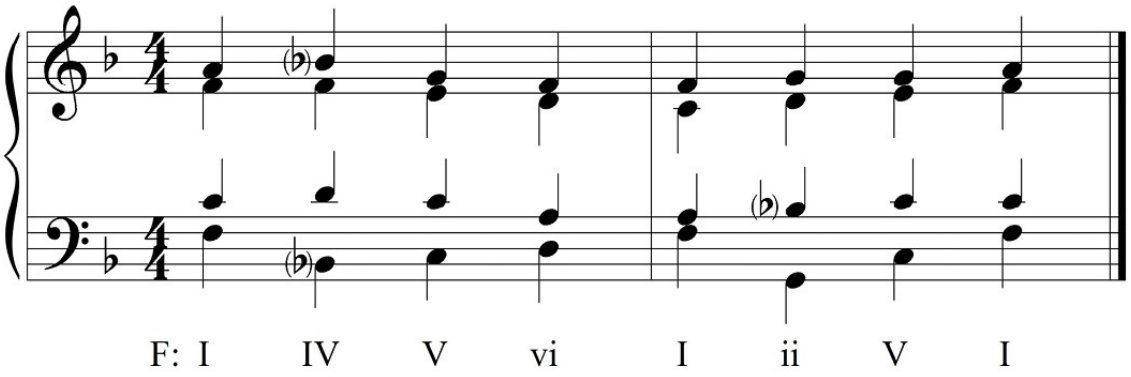


Figure 8.5.

Finding the key is a two-stage process. First, determine the major key based on the key signature. Second, determine whether the piece is in major or in the relative minor with the same key signature. What is the chord on the first downbeat? If it is tonic in major, the piece is likely major, but if it would be a vi chord in major, that would be tonic in minor. For example, F major and D minor share the key signature of one flat; if the first downbeat is the chord D-F-A, D minor is more likely than F major. What is the final chord of the piece? Even more than the first downbeat, the final chord is likely to be in the tonic key. Also, check for accidentals. Both harmonic and melodic minor modes will include many accidentals. If the key signature is one sharp (G major and E minor) but most of the Ds and many of the Cs are sharped, the piece is definitely in E minor. You must be absolutely confident of the key before you

begin your analysis, because if you are analyzing in the wrong key, *every single chord* will be wrong. Find the key first: you need the key to get into the music.

Uppercase letters refer to major keys while lowercase refers to a minor key. The example in figure 8.5 is therefore in the key of F major. Remember that in a major key, I, IV, and V are uppercase major chords. Lowercase, minor chords are ii, iii, and vi, and vii^{o} is diminished (note the little circle indicating the diminished sign).

You will notice in figure 8.5 that the B flats have been indicated as such with the use of a flat sign. This is not necessary since the key signature appears at the beginning of the piece. However, I have had many students over the years who will forget to figure the key signature into the piece being analyzed and will use an incorrect chord quality. It may be a good idea, at least until you gain some experience, to put in any note changes that are produced due to the key signature. This is especially true for accidentals in the harmonic and melodic form of the scale that may need to be carried through the measure. Remember that accidentals carry to the octave.

If you see an augmented three chord, you are not in a major key; there are no augmented chords in a major key. If you see a dominance of six chords rather than one chords, then you are probably trying to analyze the piece in a major key when it is really minor, probably natural minor. (If it were harmonic or melodic minor, you would have noticed the raised leading tones.) For example, if the piece has a key signature of one flat, B flat, and begins and ends on F, then it is in the key of F major, which has one flat. If, however, the piece begins and ends on D, then it is in the key of D minor, which also has one flat, B flat. The fact that there are no accidentals written into the music simply means the piece is in the natural minor form.

As you become familiar with roman numeral analysis, you will notice that most pieces have several points where the music tends to slightly rest, not in the musical sense of silence, but like a period at the end of a sentence. This point is called a *cadence*, and is found at the end of a musical phrase and is defined by the underlying harmony. In vocal writing, such as a chorale or hymn, this will most often coincide with the period or comma in the text. Singers will instinctively breathe at a cadence. In Bach's chorales, the cadence is often marked by a fermata. Cadences have specific types or names based on the cadence chord, the chord at the end of the phrase or under the fermata in the case of Bach, and the chord that immediately comes before the cadence chord. This means you must identify *two* chords in order to name a cadence.

One popular cadence that many people have heard in church is the plagal cadence. This cadence sounds on the two syllables of the word *amen* at the end of the hymn, and is thus referred to as an amen cadence. The chord progression for this cadence is IV to I—that is, the last two chords moving from left to right will be IV to I.

Another standard cadence is the chord progression of V to I. This is called an authentic cadence, and is very complete or final sounding. Remember from chapter 5 that the I chord or tonic (I is the tonic chord) has the strongest pull to our ear and the V or dominant chord is the next strongest. Therefore, the authentic cadence consists of the two strongest chord pulls, the second strongest to the first strongest. Remember something that is *authentic* is real, and V to I has a *real* strong pull to our ears. The final chord of a piece of music will be either plagal or authentic. Plagal cadences sound "churchy"; most secular, concert, or popular music ends with an authentic cadence.

The half cadence is often found at the end of the first phrase of a question and answer (or antecedent and consequent) phrase. When asking a question, the voice goes up at the end. When answering, the voice goes down. Therefore, in the question phrase the music stays up, to cadence on the V chord. In the answer, the cadence most likely is an authentic or plagal cadence. So, any chord to a V chord is a half cadence. If

you ask a question, your thought is only *half*-finished, thus the half cadence. A half cadence is more of a pause, not an ending.

The other type of cadence I will mention here is the deceptive cadence. The deceptive cadence is V to some other chord (other than I). Most often, the deceptive cadence is V to vi. This cadence is deceptive because when you hear the V chord, you expect to hear the I chord next, but you do not, thus a deceptive sound, the deceptive cadence. Like the half cadence, the deceptive cadence is more like a pause, not an ending.

Remember, home is where the music stand is.

Inversions of the Chord and Figured Bass

So far, we have analyzed music through identifying the key signature and naming the chords according to the scale degree on which they are built. However, there is one more step. Up until this point, the lowest-sounding note of the chord has been its root; the *bass* and the *root* have been the same. This will not always be the case. Composers are just as likely to shuffle the order of the notes in the chord and put some other note in the bass. This is called *inversion*, and the various forms of inversions are called *positions*.

SECRET 61: THE ROOT-POSITION TRIAD

When we speak of inversions of a chord or triad, we are speaking of which note of that chord is in the bass or bottom voice: root, third, fifth, or seventh. Some inversions are far more common than others are. Each inversion has its own rules about how it may or must be approached and left. In Baroque-style or Bach-style harmony, we will be writing in four-voice style (SATB). You must look to the bass voice for the inversion in four-part style. If not in four-part style, you must look to the lowest part, the bottom voice's note for the inversion. The inversion tells what part of the chord is in the bottom voice. Harmony is built from the bottom up: as long as you know what the bass is doing, you are halfway there. The *bass* is *basic*.

When in *root position*, the root of the chord or triad is in the bass. This is the form of the chord we have examined thus far. That is, if a triad is in root position, it can be reduced to notes that are written line-line-line or space-space-space (our friend the snowman). When writing in four part style (SATB style), the inversion is defined only by which note is in the lowest voice; it does not matter in what order the other notes appear in the other voices. Remember, the root is the same as the name of the chord/triad. In a C major triad, the root is C. In an A minor triad, the root is A. In SATB style, since a triad consists of three notes, one note will have to be doubled. Quite often, the root is doubled, as in the example of an F major chord in figure 9.1. Notice that the root F is in the bass (thus root position) and alto voices. The third, A, is in the soprano voice, and the fifth, C, is in the tenor voice. A doubled note has no effect on the harmony; when you are defining the chord, you may ignore the doubled note.

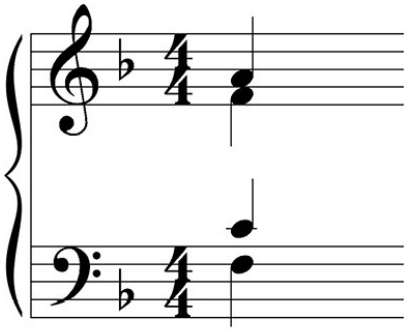


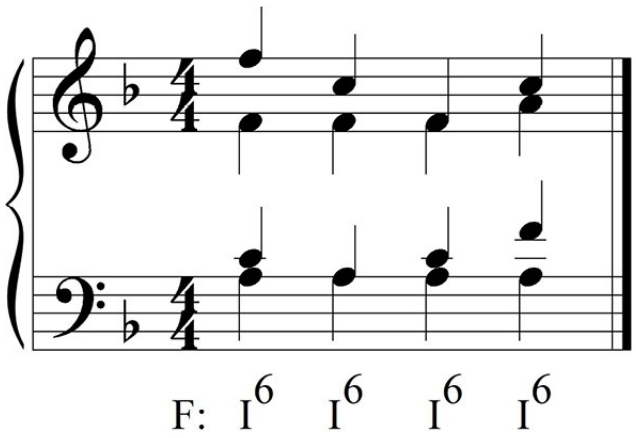
Figure 9.1.

SECRET 62: THE FIRST-INVERSION TRIAD

If you were to invert this C major triad or move the root out of the bass and into the soprano, alto, or tenor, leaving the third now in the bass, it is called *first inversion*. Think of inversion as taking away the bass's notes. When you take away the bass's first note (the root), you have created the first inversion, and the bass is left with the next note in the chord, which is the third, the body of the snowman. Therefore, when in first inversion, the third of the chord/triad is in the bass. If a C major triad (C-E-G) is in first inversion, the E is in the bass. The E is the third, with the C being the root and the G being the fifth.

When the root note has been taken away from the bass, it must be added somewhere else. The chord C-E-G in first inversion will have the E in the bass, and some other voice *must* have the C. In some chords, we can omit some notes, but we can never omit the root. If you hear a chord with some Es and Gs, and no C, you will not hear it as a C major chord; you will hear it as E minor, even if there is no B. Your ear will naturally interpret an incomplete chord in the easiest and most logical way, and this means that if you hear the interval of a third (either major or minor), your ear will assume there is a fifth. When you are analyzing and you come across an incomplete chord, you may be certain that one of the notes present is the root.

Reading from the lowest voice up, our first-inversion triad may be E-C-G or E-G-C. It makes no difference; there are not separate terms for all the possible variations of a triad based on the voicing of the inner and upper voices. In four-part style, we will have to double one of the voices because a triad consists of three notes. (If we were to add another note, it would no longer be a triad; it would become a seventh chord.) In figure 9.2 in F major, notice that all the chords or triads have an A in the bass voice, making them all in first inversion, even though the voicing of the soprano, alto, and tenor may vary. The number 6 next to the I (I^6) will be discussed later.



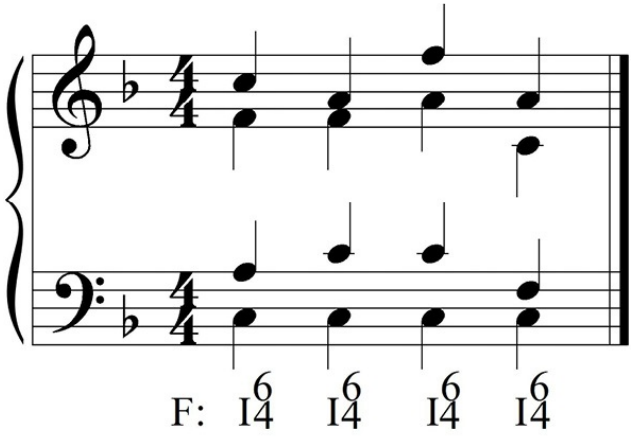
All first inversion I chords

Figure 9.2.

SECRET 63: THE SECOND-INVERSION TRIAD

If you invert this triad once again and move the third out of the bass and into the soprano, alto, or tenor, leaving the fifth in the bass, it is then in *second inversion*. We have now taken away the lower two notes from the bass, leaving it with the third note of the triad. Obviously, in a triad there is no third inversion, because if we were to take away the third note, the bass would be back to the first note and would be in root position again.

When in second inversion, the fifth of the chord/triad is in the bass. This is the least stable sounding of the triad inversions and is the one least commonly seen; there are special rules for the use of second inversion. In a C-E-G triad, the G is the fifth and is in the bass. Therefore, we may have G-C-E or G-E-C. As long as the fifth is in the bass, it is in second inversion, no matter which voices (soprano, alto, or tenor) the root and the third are in. As a rule, in second-inversion triads, the fifth (bass voice) should be doubled. In figure 9.3 in F major, notice that the fifth, the C, is in the bass voice even though the voicing of the soprano, alto, and tenor vary. The fifth C is also doubled in another voice. The numbers 6 and 4 next to the I will be discussed next.



All second inversion I chords

Figure 9.3.

SECRET 64: FIGURED BASS

In Baroque harmony, we use numbers for shorthand identification of inversions called *figured bass*. Remember the term *figured bass* as figures, another name for numbers, which appear below the bass. In the Baroque Era, quite often the harpsichordist would only have the bass line with the figured bass. The harpsichordist would fill in the harmony by figuring out what chord was to be played after looking at the figured bass. Because the harpsichordist had to read and interpret very quickly, figured bass is an extremely efficient way of writing chords. Modern guitarists have to read lead sheets in the same way; lead sheet notation provides exactly the same information as figured bass, but written in a different way.

SECRET 65: ROOT-POSITION FIGURED BASS

A chord in root position generally uses no number for the figured bass or can use the numbers $^{5}_{3}$, meaning there is a note five intervals above the bass note and a note three intervals above the bass note. The only time a composer would use the numbers $^{5}_{3}$ is when there might be some doubt—for example, if the same chord is moving through a series of inversions. Unless there is a specific marking otherwise, we assume a chord is in root position.

SECRET 66: FIRST-INVERSION FIGURED BASS

The number used for first inversion (chord with the third in the bass) is the number 6. Notice the first-inversion one chords in figure 9.2. The six appears next to the roman numeral, which is placed under the

chord, just below the staff. The number is actually $^{6}_{3}$, which means one chord tone is six degrees (intervals) above the bass note and one is three degrees above the bass; however, the three is assumed and we just use the number 6. Remember the figured-bass number for triads in first inversion in this manner: if the third is in the bass, double three, which is six. The figured bass symbol for first inversion triads (with the third in the bass) is ^{6}. Remember, it does not matter in what voice (soprano, alto, or tenor) the root and the fifth appear as long as the bass note (the lowest note) is the third; then it is in first inversion.

SECRET 67: SECOND-INVERSION FIGURED BASS

The number used for second inversion is $^{6}_{4}$, which means there is a note six degrees above the bass and a note four degrees above the bass. This should be written vertically with the six on top of the four to appear as if it were a fraction, but without the line between the two numbers. Refer to the second-inversion one chords in figure 9.3. Remember the figured bass number for triads is second inversion in this manner: if the fifth is in the bass, double five, which is ten. Six and four is ten, with the higher number on top. You can also remember it by counting down by twos: six, four, (two) to second inversion—six and four mean *second* inversion. The figured-bass symbol for second-inversion triads (with the fifth in the bass) is then $^{6}_{4}$.

SECRET 68: SEVENTH-CHORD FIGURED BASS

With a seventh chord in root position (root in the bass), that is, root-third-fifth-seventh, simply use the number 7; for example, CMm^{7} is a C major-minor seventh (C-E-G-B♭), or if in the key of F major, V^{7}. The figured-bass symbol for a root-position seventh chord is just ^{7} next to the roman numeral under the chord. Remember, a chord without an inversion number is assumed to be a simple root position *triad*, not a seventh chord.

For first inversion, with the third in the bass and the root, fifth, and seventh above somewhere in the soprano, alto, and tenor lines, use $^{6}_{5}$. Make note of the difference between the markings for first-inversion seventh chords and first-inversion triads: ^{6} for the triad, and $^{6}_{5}$ for the seventh. For second inversion, with the fifth in the bass and root, third, and seventh in the voices above, use $^{4}_{3}$. And for third inversion, which we only have with a four-note-chord seventh chord, use $^{4}_{2}$ or just ^{2} as the figured bass symbol; this is with the seventh in the bass and the root, third, fifth above in the soprano, alto, and tenor voices (as in V^{2}). An easy way to remember the figured-bass numbers or inversion numbers for seventh chords is included in table 9.1.

Table 9.1. Seventh Chord Figured Bass

Bass Note	*Figured Bass*	*Inversion*
Root	7	Root position
	6	
Third	5	First inversion
	4	
Fifth	3	Second inversion
Seventh	2	Third inversion

Notice that the bass note counts by odd numbers, one or root, third, fifth, seventh. The figured-bass number counts backward from seven. In table 9.1, the first number (7) is by itself. The inner sets (6-5 and

4-3) are paired together. The last number (2) is, like the first number (7), by itself.

Figure 9.4 shows the five chord with a seventh in the key of F major using the four inversions discussed. Once again, notice that root position has the root as the bass note, first inversion has the third as the bass note, second inversion has the fifth as the bass note, and third inversion has the seventh as the bass note.

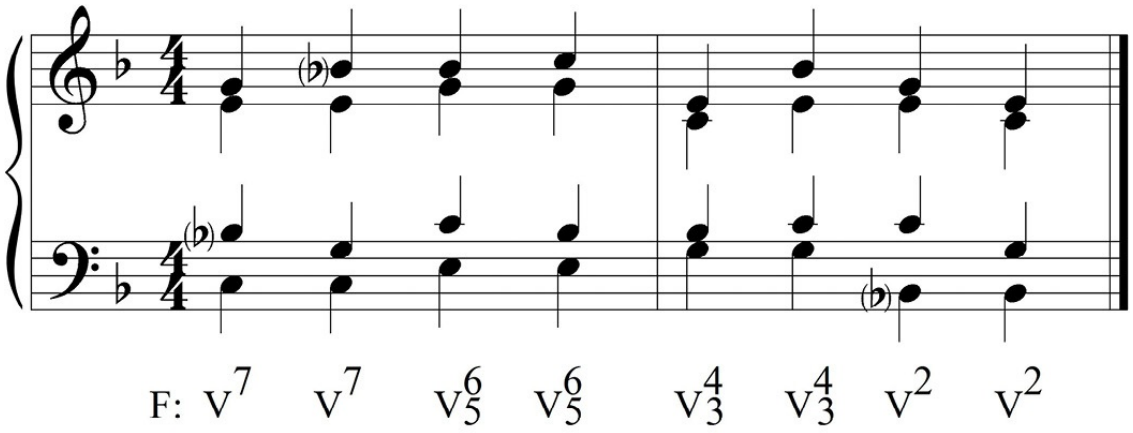


Figure 9.4.

Notice, for example, that even though the V^7 chord is voiced differently in figure 9.4, it is still a V^7 chord because the root is in the bass voice.

Please note that when the figured-bass seventh-chord number appears next to the roman numeral, the interval is considered a minor seventh interval (except for diminished chords, which use the circle or circle with a line through it to identify diminished sevenths or minor sevenths—see secret 55). Since the dominant chord (V) is the chord most often used as a seventh, and this chord is always a major-minor seventh in a major key (G-B-D-F is V^7 in C major), the major-minor seventh is the default form of seventh. Every other form must be specified.

When the interval between the root and the seventh is a major seventh rather than a minor seventh, as in the case of I chords and IV chords in a major key for example, the letter M must be placed along with the figured bass: I^{M7} (for root position seventh chord) or $IV^{M6}{}_5$ (for first inversion seventh chord).

When analyzing music with inverted chords, especially inverted sevenths, it is better to identify the chord first, and then the inversion, rather than trying to work it all out at once. First, name the notes of the chord and stack them like a snowman. If the notes are G-E♭-B♭-E♭, then the simplified order is E♭-G-B♭ (the repeated E♭ makes no difference). It is a major triad. Now go back to the original chord. Which degree of the chord is in the bass? The bass note is G, which is the middle note of the chord: this is first inversion. If the notes are G-A-E-C♯, the simplified order is A-C♯-E-G, a snowman with a hat, or a seventh chord—specifically, a major triad with a minor seventh on top, or a major-minor seventh. Which degree of the chord is in the bass? The seventh. Remember, 7-6-5-4-3-2: this is a major-minor seventh in third inversion, and in the key of D it would be written V^2.

When writing chords, follow the same procedure. First, make sure you know exactly which notes are in the chord. Then, bearing in mind the inversion, write the bass note. Then fill in the rest of the chord. Imagine you want to write a V^7 chord in the key of A major. A major has three sharps: F♯, C♯, and G♯. The fifth note of the A major scale is E, so the chord is built on E. A triad on E is E-G♯-B, and when you add the snowman's hat to make it a seventh chord, the last note is D. The chord is in root position, so give

the E to the bass. Now spread the other three notes around the other voices, in any way you like. Now suppose that instead of root position, you want to write the same chord in second inversion. Root position is E, first inversion is G♯, and second inversion is B. Give the B to the bass, and let the three higher voices take the other three notes.

SECRET 69: LEAD-SHEET INVERSIONS

Root-position lead-sheet symbols have already been discussed. We now turn our attention to lead-sheet symbols with inversions. A first-inversion chord will use a slash and give the third of the chord. For example, F/A is a first inversion F triad, that is, F-A-C with A (the third) in the bass. F/C is a second inversion triad, with the C in the bass. Just remember that the chord is on the left side of the slash and the bass note is on the right side of the slash, so you can translate F/C as meaning an F chord with C in the bass. Lead-sheet notation uses some of the same symbols as Baroque figured bass, but they do not necessarily mean the same thing, just as the same letters have different sounds in different languages. C^6, for example, is not a first inversion C chord (C-E-G with E in the bass), but rather a C triad with an added sixth degree (C-E-G-A in this example). In fact, if you were to analyze C-E-G-A in Baroque figured bass, you would not call it a C chord at all; you would consider it to be an A chord, A-C-E-G in first inversion. An example showing a lead sheet compared to Baroque-figured-bass style may be as follows:

Key of C major: C F G^7 F/A C^6 G/B C
Baroque style: I IV V^7 IV^6 vi^6_5 V^6 I

Practice is the best medicine.

Nonchord Tones

Before we discuss nonchord tones, we must establish the concepts of *consonance* and *dissonance*. Both these terms refer to how two or more notes sound together; that is, they are not qualities of the notes themselves, but of the relationships between them. Notes that are consonant sound good together; they have a pleasant blend and are restful to the ear. The notes of a major triad are consonant. Notes that are dissonant clash when they are played together; when you hear a dissonant chord, your ear waits for this dissonance to *resolve*—that is, one or more of the notes must change in order to create a consonant chord.

Consonant intervals are major and minor thirds, major and minor sixths, perfect fourths and fifths, perfect unisons and octaves, and any other interval that sounds like one of these, even if it is spelled differently. For example, an augmented second sounds like a minor third and will be heard as consonant. Dissonant intervals are major and minor seconds, major and minor sevenths, the tritone (augmented fourth or diminished fifth), and any other interval that sounds like one of these. For example, a diminished octave sounds like a major seventh and will be heard as dissonant.

In music, consonance and dissonance work together to create interest, drama, and beauty. Music that is all dissonant would be painful to hear, and music that is all consonant would be boring. The use of nonchord tones is an important tool for introducing and resolving dissonance.

SECRET 70: NONCHORD TONES DEFINED

Nonchord tones or nonharmonic tones are notes that do not belong to the chord. When analyzing a piece of music, every note must be accounted for, so if a note does not belong to a particular chord, it is a nonchord tone and is given a name based on how the note functions with regard to the chord. Nonchord tones are particularly common in the melody line, because chords contain notes that are a third apart (such as G-B-D), whereas melodies frequently move by step up and down the scale. If the chords changed every time a melody line moved by step, chords would change on every sixteenth note in a fast passage. This would be confusing to listen to, and extremely difficult to play. The next time you listen to a piece of music, pay attention to the way the chord and the bass notes stay the same while the melody moves quickly over the harmony. Sometimes a harmony will stay the same for a whole measure while the melody is full of sixteenth notes.

In addition to the melody, nonchord tones may be found in the bass and the inner voices. The examples shown below are in the soprano voice for easier viewing; the identity of the nonchord tone, and the rules governing its use, are the same regardless of where it is found in the chord. Nonchord tones are named based on how the nonchord tone is approached and how it is resolved to the next chord tone. This means that in order to understand a nonchord tone, we must look at three notes: the preceding note, the nonchord tone itself, and the following note. With this in mind, be sure that you do not *jump* voices. That is, if viewing a nonchord tone in the soprano voice, make sure that the approach and resolution remain in the soprano voice and do not jump, for example, to the alto voice. Keep track of the stem directions to help keep track of the voices: soprano, alto, tenor, and bass.

SECRET 71: THE PASSING TONE

A passing tone is a nonchord tone that passes between two chord tones, as in figure 10.1. Notice that the B♭ in the soprano voice occurs while an F chord (F-A-C) is held. There is no B♭ in the F chord, so the B♭ is a nonchord tone; it does not belong to the chord. The note before the B♭, the A, is in the F chord; therefore, it is a chord tone. The note after the B♭, the C, is in the next chord to sound, the C chord, and therefore it is a chord tone. This is the simplest form of nonchord tone.

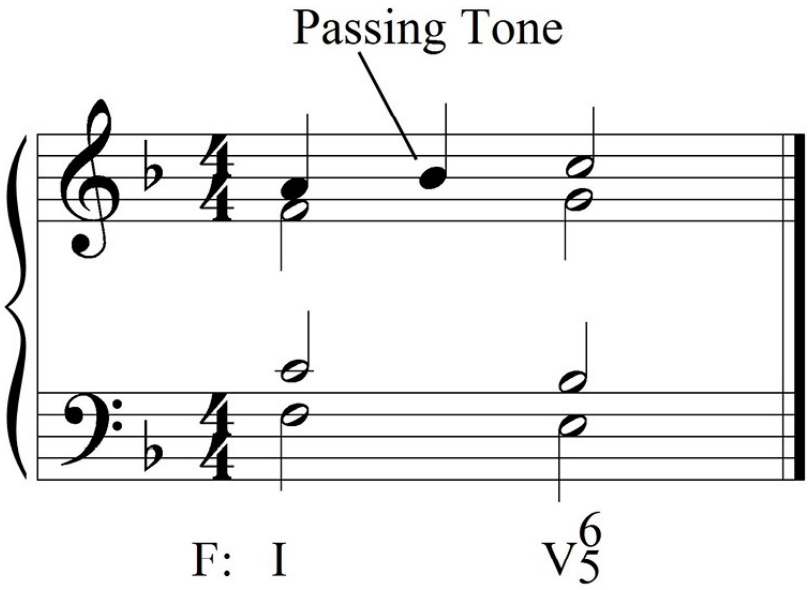


Figure 10.1.

It is possible to have two passing tones in a row, in the same voice. These are *consecutive* passing tones, meaning that one passing tone is following the other passing tone, as in figure 10.2. As long as the passing tones are bridging a gap between chord tones, it makes no difference how many passing tones there are. Passing tones always move steadily by steps, either diatonically (in the key) or chromatically (by half steps). There are never any gaps or leaps in a series of passing tones.

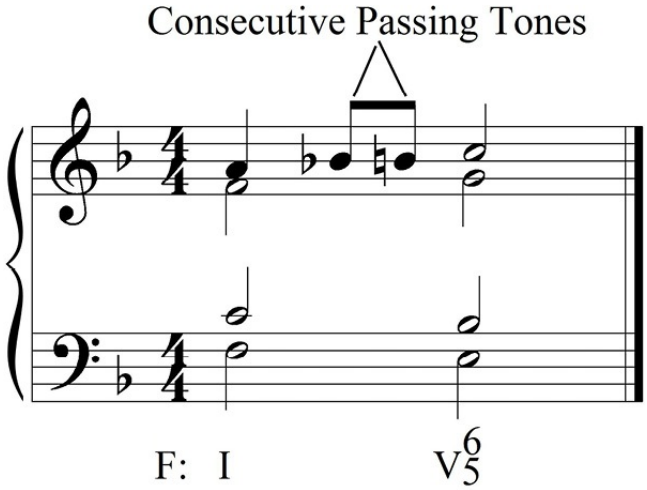


Figure 10.2.

A passing tone may be diatonic, meaning in the key, as is the single passing tone in figure 10.1, or may be chromatic, as in figure 10.2. Do not call these *double* passing tones, because that implies two passing tones at the same time that are in different voices. When there are chromatic passing tones, there are usually several, as the chord tones are most often a major or minor third apart, and it takes more half steps than whole steps to fill in that gap. To remember *passing tone*, think of someone at the dinner table asking you to pass the salt. You do not reach in front of the person next to you or throw the salt to the other end of the table (musically, that is jumping an interval), but rather pass the salt to the person next to you who is turn passes it along. By passing the salt, you have filled the space between you and the person next to you just the same as a passing tone fills the space between two chord tones. Passing tones always go in the same direction; they never zigzag.

SECRET 72: THE NEIGHBOR TONE

The neighbor tone may be an upper neighbor or a lower neighbor. An upper neighbor goes up a half step or whole step to a nonchord tone and returns to the chord tone instead of continuing in the same direction to the next chord tone. A lower neighbor goes down a half step or whole step to a nonchord tone and returns to the chord tone, as in figure 10.3. Like the passing tone, the chord tone may be diatonic (in the key signature) or chromatic (moving a half step away and then returning, using an accidental).

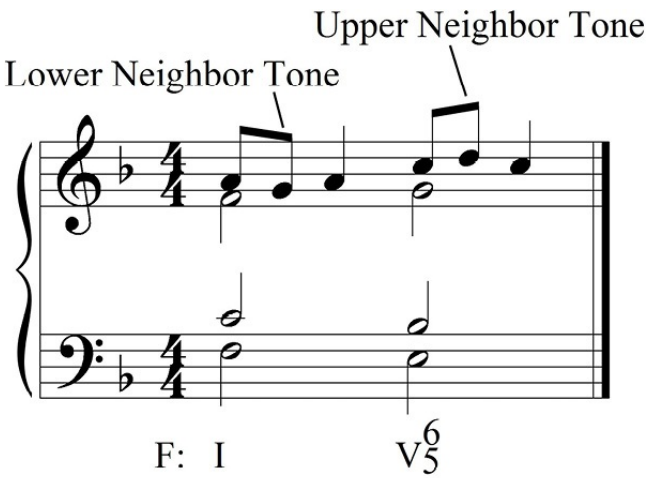


Figure 10.3.

To remember the neighbor tone, try thinking that the neighbor tone is a nonchord tone that lives next door. If you visit your neighbor next door, you must return to your own home quite soon; you cannot decide to stay in the neighbor's house forever. The neighbor tone must always end by going back to where it started.

There is also a combination of lower and upper neighbor tones (or upper and lower), which has a leap of a third in the middle. This combination is called a neighbor group and is identified in figure 10.8 later in this chapter. A neighbor group is like when a whole family goes to visit the neighbor; however large the group, they all have to go home.

SECRET 73: THE ESCAPE TONE

The escape tone is a nonchord tone that steps and then leaps or jumps an interval of a third or more. The step may be up or down, and the leap is usually the opposite direction of the step (step up, leap down;

step down, leap up). Remember it this way: for step up, leap down, if you want to *escape* from theory class, first *step* up on the windowsill and then *leap* down out the window. For step down, leap up, think of jumping on a trampoline. Figure 10.4 shows an escape tone.

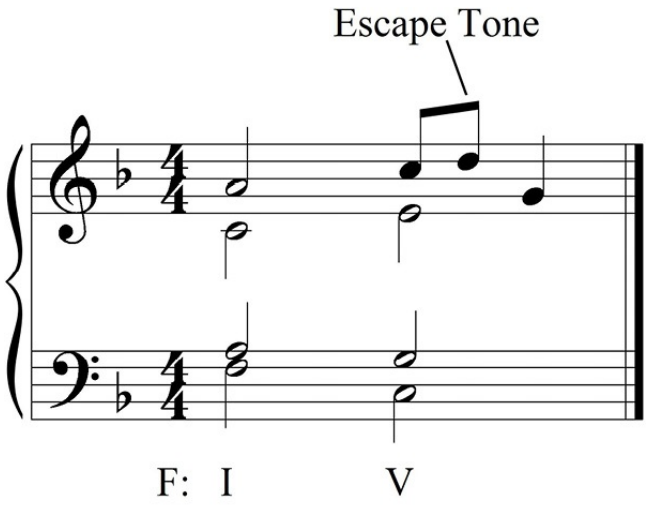


Figure 10.4.

SECRET 74: THE APPOGGIATURA

The appoggiatura is the opposite of the escape tone. The appoggiatura leaps, then steps. The step is usually in the opposite direction of the leap. For the appoggiatura, think of a cat jumping. A cat jumping *to* a high place jumps high above her landing spot and then ends the upward jump with a downward landing: leap up, step down. A cat jumping *from* a high place lands with her limbs loose so that her body descends close to the floor, and then straightens her legs to stand up to her full height: leap down, step up.

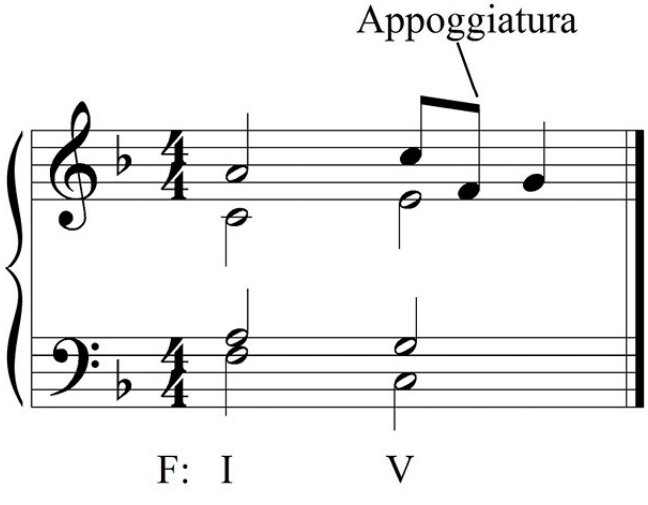


Figure 10.5.

SECRET 75: THE ANTICIPATION

The anticipation is a nonchord tone that *anticipates* or foretells the chord tone to follow. Remember that nonchord tones create dissonance, for the most part. If the nonchord tone sounds consonant, in may just be a chord tone, perhaps the seventh of the chord. The anticipation must be a note that will appear in the following chord. It is like a guest who has come early, before the host has finished setting the table: the anticipation causes trouble because it is an expected (anticipated) note that has arrived too soon, before the harmony is prepared to receive it.

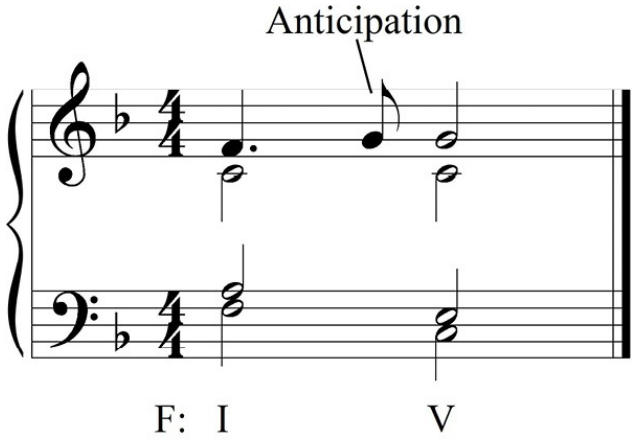


Figure 10.6.

SECRET 76: THE SUSPENSION

The suspension is a nonchord tone that suspends or hangs over after the other chords have already changed to a new chord, after which it resolves down to a chord tone. If the anticipation is a guest who arrives too soon, the suspension is a guest who stays long after everyone else has gone home and the hosts have left the room. Since the other voices have changed to a new chord, the note of the suspension, which was consonant in the previous chord, becomes dissonant to the new chord, and thus becomes a nonchord tone even though it has not changed. If the suspended note is a member of the new chord, then it is a chord tone, even if, melodically, it looks like a suspension. You can also think of the suspension as a chord tone that did not get along with the other chords and had to stay behind or was suspended from play with the other chords, only to resolve down after it sounded its dissonant voice to join the other chord members.

Suspensions are often identified by number based on their distance from the bass note of the chord they are dissonant to. In figure 10.7, count from the bass note G to the suspended note C to get the number 4. Then count from the bass note G to the resolution note B to get the number 3. This is a 4-3 suspension, because it is a nonchord tone on the fourth and resolves down to a third. (Even though our modern ears hear the perfect fourth as consonant, it was originally considered a dissonant interval, and in the suspension, it is still treated as a dissonance that must be resolved. Also, sometimes an interval, though consonant in itself, is still not part of the chord, like the interval of a sixth in a root-position triad.)

Remember the pattern for a suspension is note-same note (the dissonant note)-resolution down. A nonchord tone that works the same way as a suspension but resolves up rather than down is called a retardation. The identification by use of numbers is the same, except the second number will be higher than the first rather than lower because it resolved up and not down.

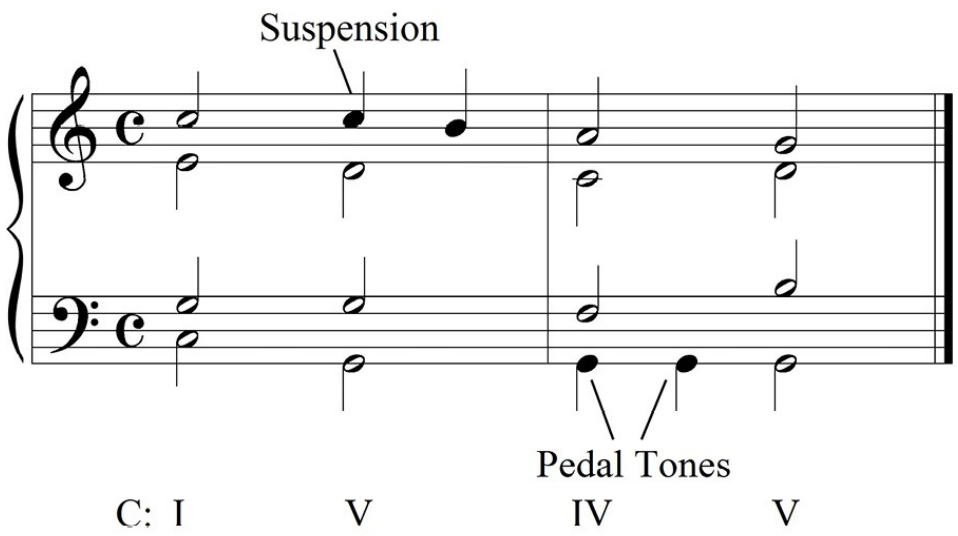


Figure 10.7.

SECRET 77: THE PEDAL TONE

The pedal tone is a note that does not change pitch, and thus keeps repeating, or one that is held as the other voices change to a new chord; it eventually becomes a chord tone once again. The example in figure 10.7 is repeated, but if it were held as a half note rather than two quarter notes, it is still a pedal tone. Pedal tones occur mostly in the bass. If it occurs in the soprano voice, it is termed an *inverted pedal* tone. The reason the pedal tone is a bass nonchord tone is because the name comes from the *pedal* or keyboard of the organ that the feet operate. Some organs have three keyboards, two for the hands to play and one for the feet to play. This is why organists wear special *organ shoes*. You can imagine that if you are playing three keyboards at once, you could get a cramp in your leg and just sit on that foot note for a while, causing a dissonant note to be held. Well, at least that is my theory (no pun meant)—the cramp part, that is.

Remember that nonchord tones or nonharmonic tones are not part of the chord or harmony. Figure 10.8 shows a complete analysis of a two-measure piece, including how to identify nonchord tones.

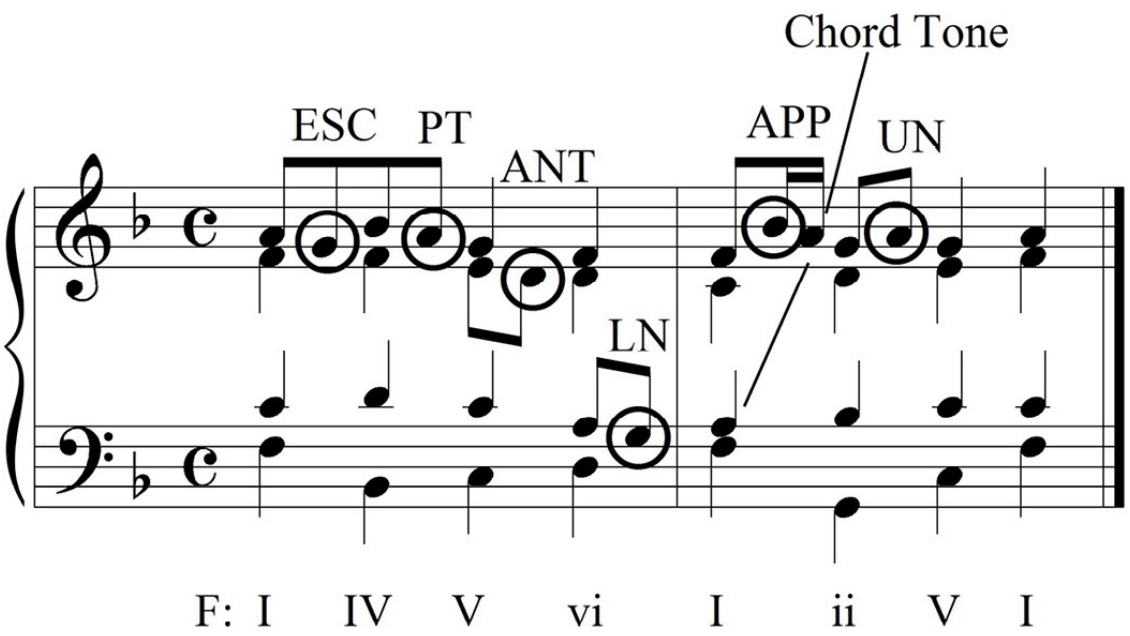


Figure 10.8.

SECRET 78: USING NONCHORD TONES TO IMPROVISE

Nonchord tones not only are identified in musical analysis but also are useful when improvising in jazz. To practice improvising on a melody, take a familiar tune and add nonchord tones. The example in figure 10.9 shows the tune "Mary Had a Little Lamb," first as the tune we all know, then with nonchord tones added. The following abbreviations are uses: UN = upper neighbor, LN = lower neighbor, NG = neighbor group, PT = passing tone, and ET = escape tone.

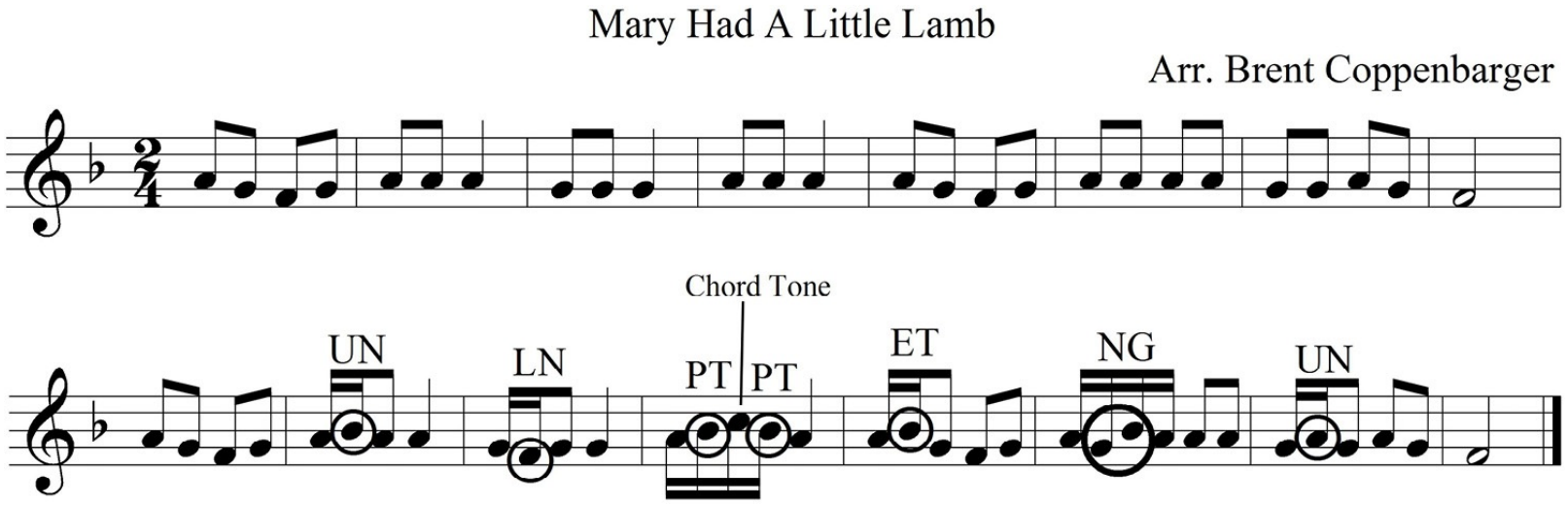


Figure 10.9.

Once you are comfortable with adding nonchord tones, try adding a chord or one of the jazz scales discussed in chapter 4. Figure 10.10 takes the children's tune "This Old Man" and jazzes it up a little by adding nonchord tones, a seventh chord (in measure 9), a triad (measure 10), and a blues scale (measures 11–13). In addition, it swings the eighth note and uses syncopation in a number of places.

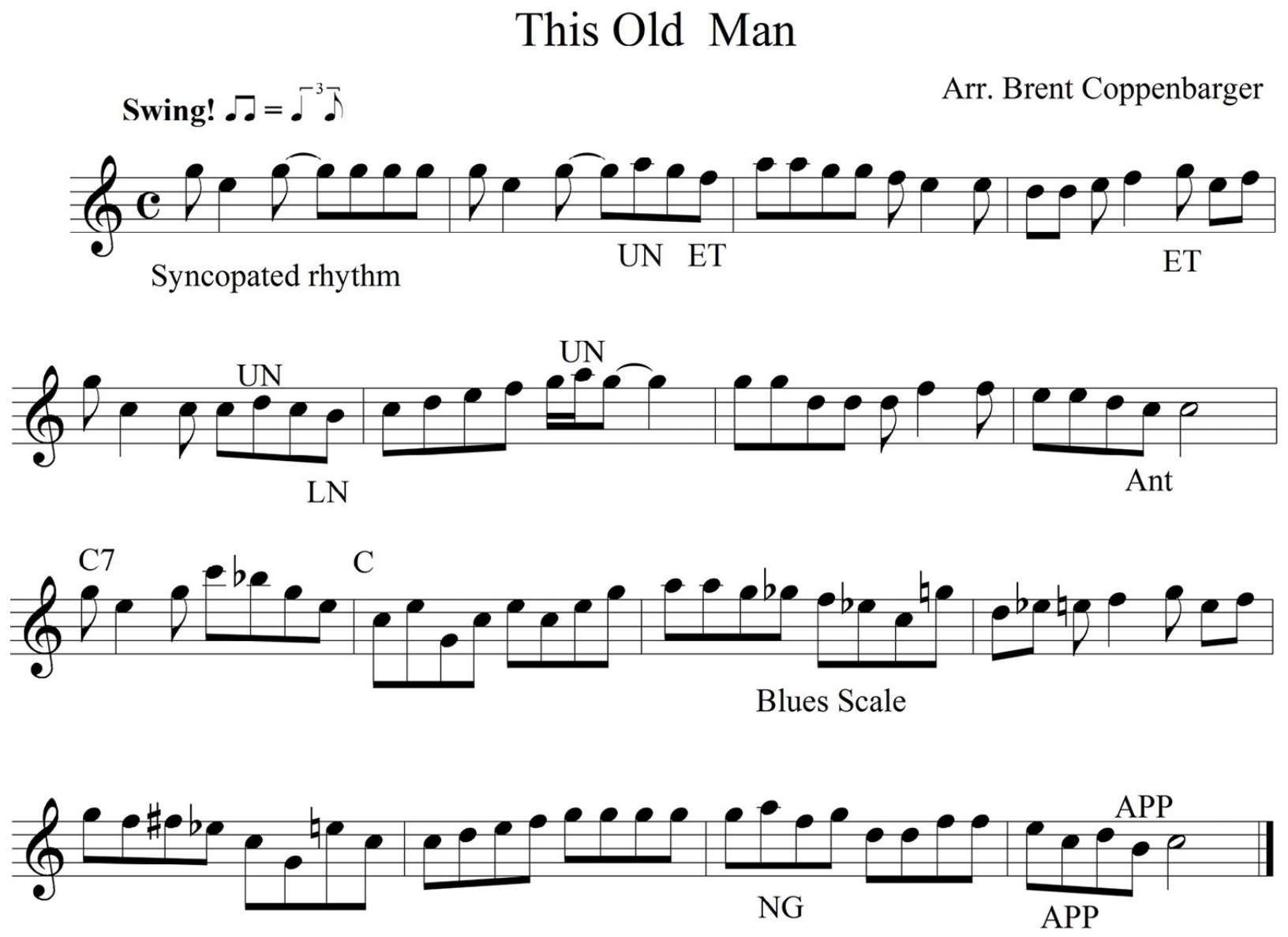


Figure 10.10.

Remember, nothing practiced, nothing gained.

Singing with Solfège Syllables

SECRET 79: SIGHT-SINGING

The ability to sing pieces at sight is a valuable tool for the musician. It is obviously useful for singers, and yet many voice students begin their college studies with little to no experience in sight-singing; they have never learned to read music from the written notes directly, but only from hearing the notes played on the piano or sung to them by their teachers. They can imitate the notes, but not anticipate them. The ability to sight-sing helps a vocalist to be more confident of his or her notes, particularly in modern music, where the harmonies might be confusing, or when singing as a soloist. It also helps the vocalist to learn music more quickly.

As important as sight-singing is for the vocalist, it is equally so for the instrumentalist—perhaps even more so. If a flute player, for example, sees the note G, fingers the note G, and produces a sound, she can be fairly confident the resulting pitch is in fact a G, even if she doesn't hear the note in her mind. However, is it a good G? Is it well in tune with the note she played previously, and with the harmony around her? The ability to hear the note before it sounds, and to anticipate how it should sound, is vital to developing musicianship and playing beautifully, melodiously, and well in tune.

Sight-singing helps with audio skills, score-reading, teaching, and performing. One of the most effective methods of sight-singing is the use of syllables in a centuries-old method called solfeggio or solfège. In this method, each note of the diatonic scale is assigned a syllable.

SECRET 80: SOLFÈGE SYLLABLES IN MAJOR

The following syllables are used in major. Tonic is do (as in *doe*), supertonic is re (as in *ray*), median is mi (as in *me*), subdominant is fa (as in *father*), dominant is sol (as in *so*, although maybe more properly pronounced *sole*), submediant is la (as in *lah*), leading tone is ti (as in *tea*), and the octave is once again do. If these syllables make you hum a familiar melody as you read them, it is because they are the syllables Maria used to teach the von Trapp children how to sing in the song "Doe, a Deer" from *The Sound of Music*. She was not inventing the syllables; this was how she herself had been taught, and how generations of musicians have learned to sing, both before and since. The syllables are presented on the staff in figure 11.1 in both clefs, in the key of C, along with their numerical degree.

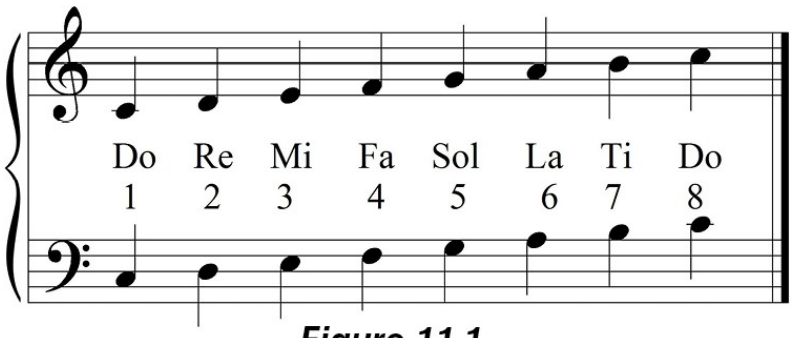


Figure 11.1.

The major scale (no matter what the key) in solfège syllables is thus: up—do re mi fa sol la ti do—and down—do ti la sol fa mi re do. The syllables are useful because they are consistent. The interval from do to mi is always a major third, for example, and after sufficient practice, you will hear the major third whenever you see do-mi.

SECRET 81: SOLFÈGE SYLLABLES IN NATURAL MINOR

In minor, the syllables are based on the sixth degree to the sixth degree so that the syllables stay the same between the major and relative minor. In this way, you can go from the major key into the relative minor key without having to change syllables. Therefore, in the natural minor form, tonic is la. Notice in figure 11.2 in A natural minor that the syllables are the same as in the relative major, C major: C is still do. The syllables remain the same going down.

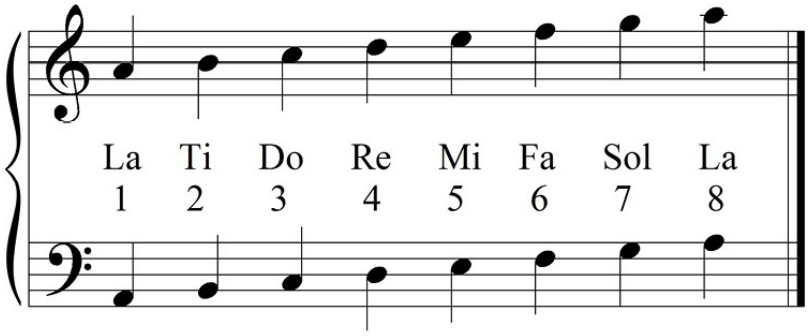


Figure 11.2.

The natural minor scale (no matter what the key) in solfège syllables is thus: up—la ti do re mi fa sol la —and down—la sol fa mi re do ti la. An effective way to learn this natural minor scale is to start with the major scale. Sing up and down the major scale first; however, when you reach do on the way down, continue down to la and then sing the natural minor from la to la. This works out to be: do re mi fa sol la ti do ti la so fa mi re do ti la ti do re mi fa sol la sol fa mi re do ti la. When you think you have an *ear* for the natural minor, then sing from la to la. This means that when you are singing with syllables, you only need to determine do from the key signature; it is not necessary to determine whether the piece is in major or minor mode.

SECRET 82: SOLFÈGE SYLLABLES IN HARMONIC MINOR

The harmonic form of the minor scale has a raised seventh degree. Thus, sol rises to si (as in *see*): la ti do re mi fa si la. The syllables are the same going down: la si fa mi re do ti la. Remember when you sing si to raise your voice a half-step higher from the sol pitch.

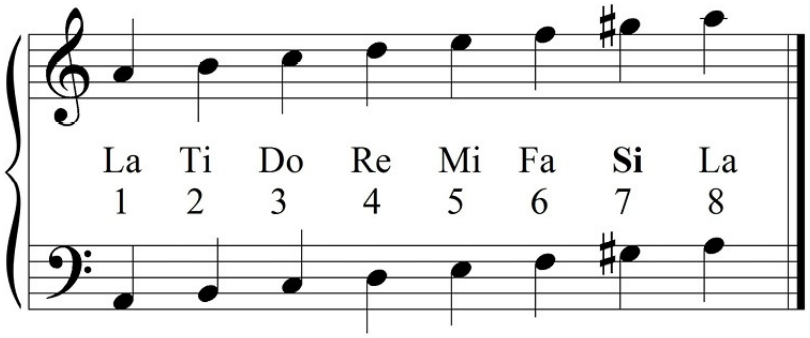


Figure 11.3.

SECRET 83: SOLFÈGE SYLLABLES IN MELODIC MINOR

The melodic form of the minor scale has a raised sixth and seventh going up, but uses the natural form when going down. Therefore, fa rises to fi (as in *fee*) and sol rises to si. The melodic minor scale (no matter what the key) in solfège syllables is thus: up—la ti do re mi fi si la—and down—la sol fa mi re do ti la. Once again, remember to raise your voice a half step for fi and si, and then lower the pitch of your voice when you sing sol and fa on the way down.

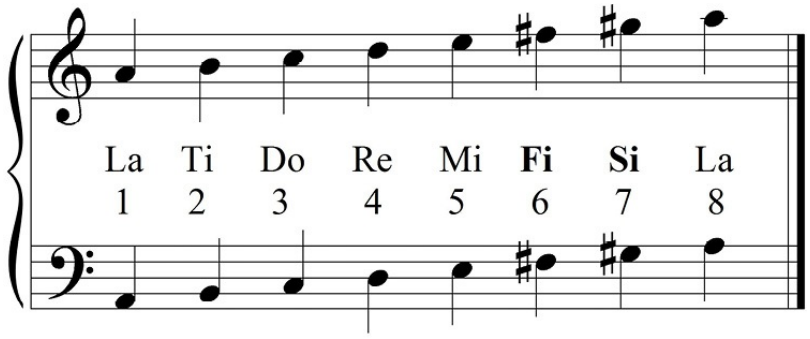


Figure 11.4.

SECRET 84: OTHER METHODS OF SIGHT-SINGING

Another method of sight-singing that is currently in use is to use scale degree numbers rather than syllables. Thus, tonic is one, supertonic is two, mediant is three, and so on. In the minor scale forms, the same numbers are used (tonic, one; supertonic, two; etc.) but the voice simply lowers the pitch of the number to reflect the form of the minor scale. When you take a major scale and lower degrees three, six, and seven, it produces the parallel minor (not relative minor) in the natural form, so three, six, and seven are sung a half-step lower. With this method of sight-singing, the distance between one and three is a major third in the major mode and a minor third in a minor mode; when using numbers, you must determine both the key signature *and* the mode in order to sing correctly. This is more difficult than simply determining the key signature and calling the major tonic do even if the mode is actually minor. On the other hand, when sight-singing with numbers, you do not have to learn extra syllables such as fi and si for altered notes. The seventh degree of the minor scale will be seven whether the pitch is a raised leading tone or the unaltered subtonic.

Still another method of sight-singing is to call tonic in the minor form do rather than la, thus using the parallel minor. This is similar to using number, and therefore when lowering degrees three, six, and seven for the natural form, mi in the major becomes me (*may*), la becomes le (*lay*), and ti becomes te (*tay*). In natural minor with tonic as do the syllables are: do re me fa sol le te do. To form the parallel harmonic minor from the major, lower degree three and six to produce do re me fa sol le ti do. (Compare this with minor tonic la, in which the same pitches in harmonic minor will be pronounced la ti do re mi fa si la. The notes sound the same, even though you are using a different set of syllables.) For the melodic minor form, lower just the third degree when ascending to get do re me fa sol la ti do. However, when descending you must use the natural minor form of do te le sol fa me re do. Keep in mind that if using this method and singing a piece that starts in major and modulates—that is, changes key—to the relative minor, you will have to change la to do and then employ the method above. If using minor based on la you can go in and out of major and relative minor or minor and relative major without changing syllables.

If you are new to sight-singing, the methods presented in secrets 80–83 will be easier for you to learn. However, it is important to be aware of the different systems, as you are likely to encounter them at some point. Figures 11.5–11.9 depict short one- and two-line pieces that may be used for sight-singing. Try to sing these without writing in the solfège syllables. Although the sight-singing is in different keys and different clefs, it is okay to sing them in your particular voice range, so sopranos have the opportunity to read bass clef, and basses have the opportunity to read treble clef. Simply raise or lower the octave to bring the music into your singing range.

Sight-singing is a valuable technique and not to be taken lightly. It is an invaluable skill when you start to study ear training, also called aural skills. In the study of aural skills, one will identify intervals played, write down chord progressions, take melodic dictation (writing down a melody as someone plays it), and many different ear-training skills. If you are so fluent in your syllables that the syllables sing out in your head as you hear a melody, then you simply write them down and plug them into whatever key you are taking melodic dictation. For example, if you hear a melody and the following syllables pop into your head—sol do ti do mi sol la fa sol mi re do—and you are asked to write this melody in the key of C major, you have the notes G-C-B-C-E-G-A-F-G-E-D-C. If asked to write the melody in the key of F major, you have: C-F-E-F-A-C-D-B♭-C-A-G-F. This will be explained more in the next chapter on transposition. Regardless of the key signature, your fluency in sight-singing will help you be confident of the relationship between the pitches. Figures 11.5–11.9 contain some sight-singing for practice.

Praise the young musicians, and they will blossom.

Sight Singing

All keys are major unless otherwise noted.

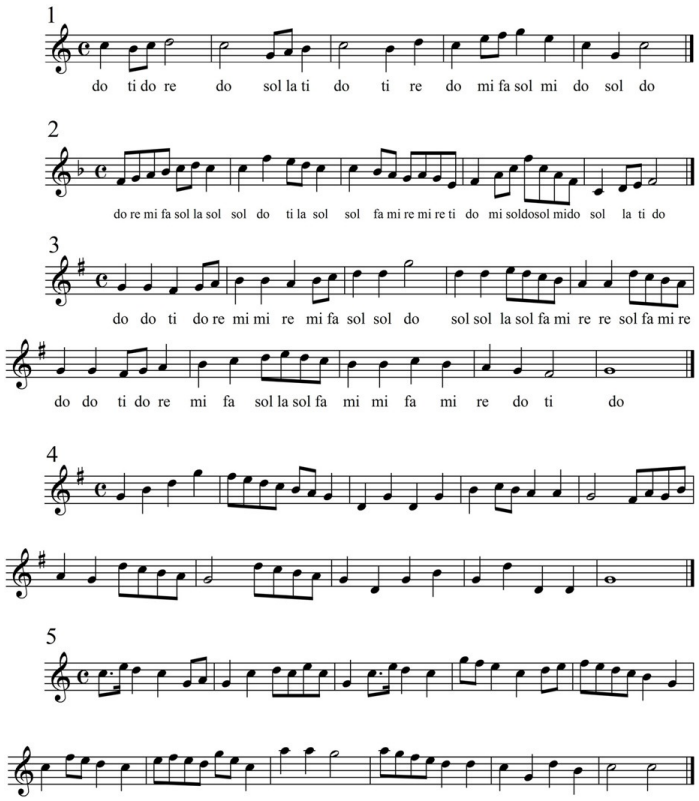


Figure 11.5.

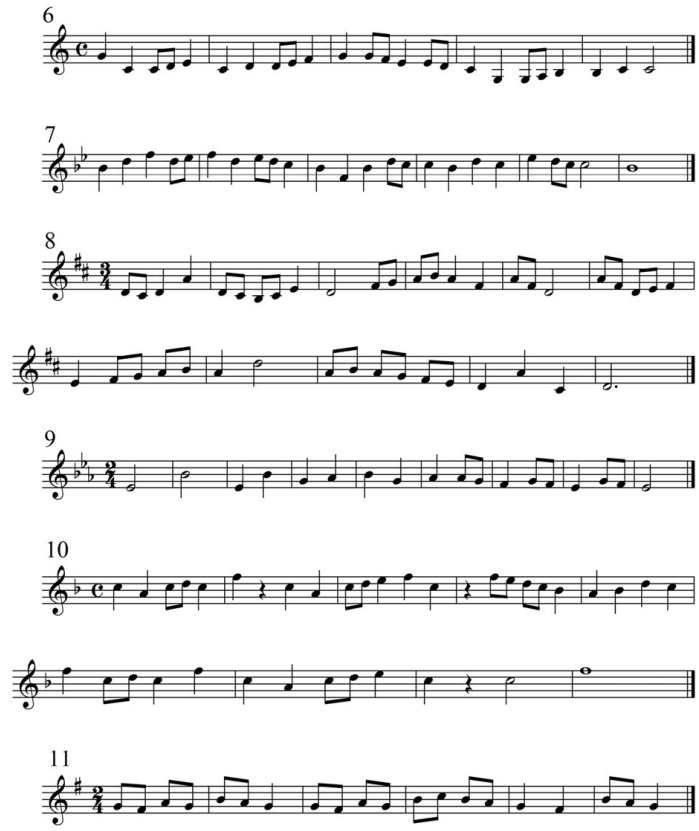


Figure 11.6.

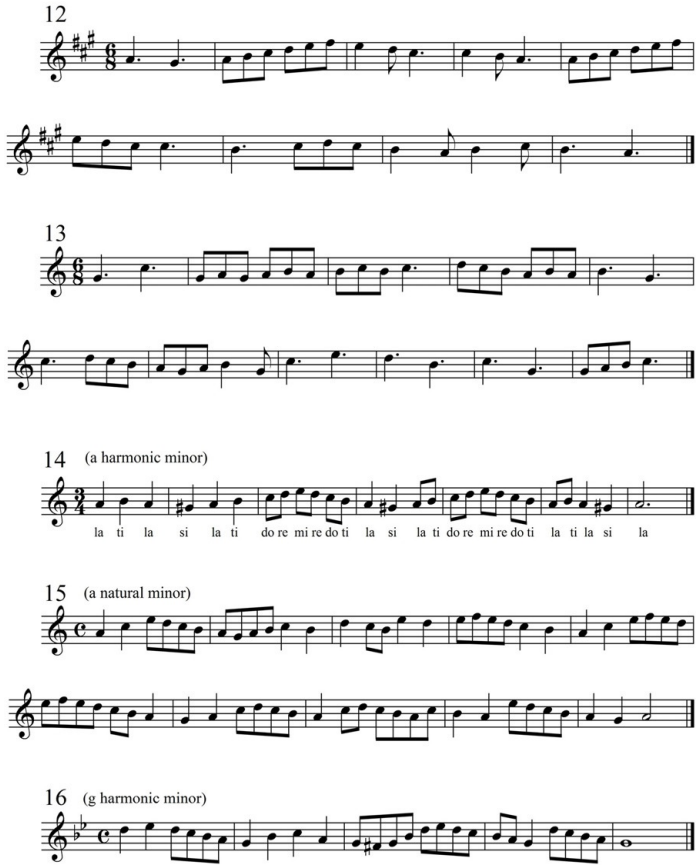


Figure 11.7.

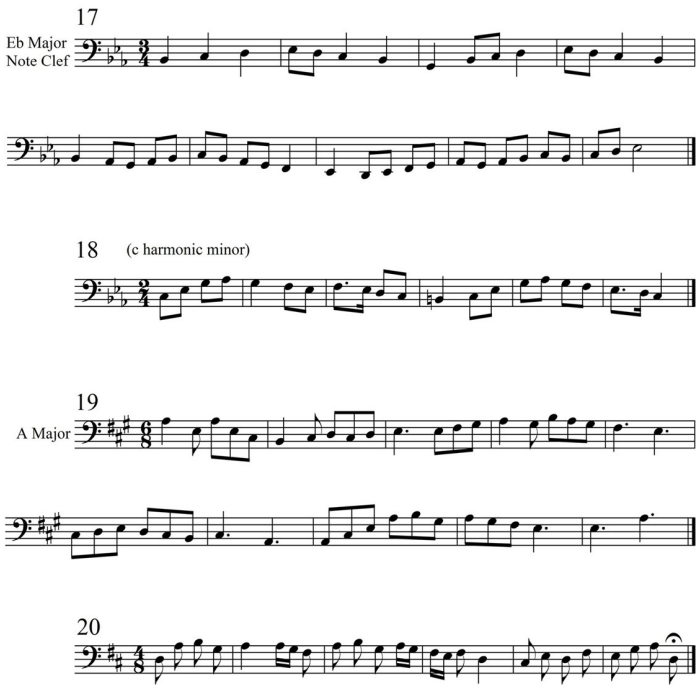
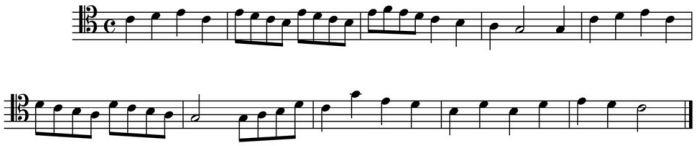
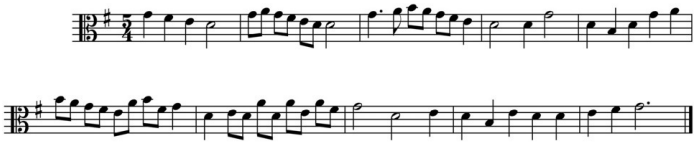


Figure 11.8.

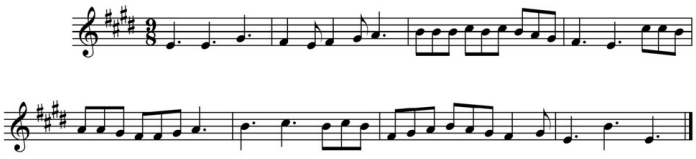
22 (Tenor clef, key of C Major; C = Do)



23 (Alto clef, key of G Major; G = Do)



24



25

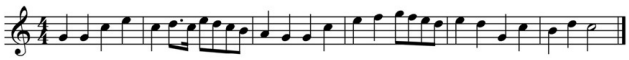


Figure 11.9.

Transposition

Transposing is a very useful and in some cases required skill. When a piece of music is transposed, it means it has been written in a different key. Singers transpose naturally when they determine that a melody extends out of their range; they will try the melody again starting on a higher or lower note in order to make it singable. For instrumentalists, and for singers who are trying to transpose on paper rather than purely by ear, the process is more complicated.

A piece of music may need to be transposed due to a particular range in order to make it easier to play or sing, it may need to be transposed to a different key in order to play with other instruments, or it may be transposed to a different key in order to make it easier to play. Some instruments, such as French horns and clarinets, transpose regularly, and if a different instrument has to play from a transposed part, chaos can ensue. It is particularly challenging when a nontransposing instrumentalist, such as a flute player, is asked to play from a transposed part, such as a clarinet part. Instrumentalists who are already familiar with transposing for their own instrument find it easier to play in an unfamiliar transposition.

Notation programs such as Finale will transpose automatically, and can easily shift a part from one transposition to another. Even so, ensemble directors must be very skilled in mental transposition, and not depend on the computer. If a student in band asks what a note should be in their music, the band director will have to know the transposition to see if the note is written correctly in the part or if it is wrong in the score. One cannot leave the podium and run to a computer to use a notation program to see if the note is correct. The situation is even more challenging for the director of a small theater ensemble, accompanying a musical performance or special church service. These musicians will often find themselves trying to play parts that were actually written for other instruments, or having to switch between transpositions that were once widely used and are now no longer common.

Musical scores either are written as *C* scores, meaning they are in *concert pitch* and the director will hear the pitches he or she sees, or are written as transposed scores, meaning the instrumental parts in the score are already transposed. In this case, for example, the B flat clarinet line in the score will *look* the same as the part in front of the clarinet player, but the clarinet line in the score will have a different key signature from the oboes, flutes, and violins.

A score that is in concert pitch means all the parts in the score are in the same key. The parts are in concert, or in union with one another. If a student were to ask for clarification of a note from a concert pitch score, the director must transpose at sight the pitch from the score into the key of the instrument the student is playing.

If reading from a transposed score, the music is already transposed for the various instruments of the ensemble. However, if there is question as to whether a note in an individual's part is correct, the ensemble director will have to transpose that note into concert pitch, along with the notes of the other instruments in the score for that particular chord, to see if the note fits into the chord. I prefer to use a concert pitch score so that the pitches I see are the pitches I hear, and then transpose any needed pitches for a particular instrument if needed. However, you will usually not have a choice; a piece of music typically comes with one score, either at concert pitch or transposed.

SECRET 85: CONCERT PITCH INSTRUMENTS

Instruments come in various *keys*—that is, the piano is a C instrument or concert-pitched instrument, as are the flute, oboe, bassoon, violin, cello, and so on. These instruments play at concert pitch: when they see the note C in their music, they play a C, and it sounds like a C. Some instruments, partly because of acoustical considerations, are pitched in other keys, such as the B♭ clarinet, the B♭ trumpet, the horn in F, the E♭ alto saxophone, and so on. When a B♭ instrument sees a C and plays the fingering for a C, it sounds like a B♭. If you wanted to hear a concert C from the clarinet, you would ask the musician to play a D.

SECRET 86: TRANSPOSING INSTRUMENTS

Nonconcert-pitched instruments, those not in C, are called transposing instruments because the music they play must be written or transposed to a different key in order to play the same note as a concert-pitched instrument. For example, when an oboe fingers the note C, it sounds the concert pitch C. However, when a B♭ clarinet fingers the note C, it sounds the concert pitch B♭; that is why the clarinet is called a B♭ clarinet. Think of the piano as the concert-pitched instrument to which you compare all other instruments. If the flute wishes to play in unison with the piano, both the pianist and the flutist play the same notes, because both instruments are concert-pitched instruments. However, if the B♭ clarinet wants to play in unison with the piano, the clarinetist must read one step (major second) higher to play in unison. Fortunately, for clarinetists and all transposing instruments, music publishers publish clarinet parts, for example, that are transposed up a step so the clarinetist does not have to do this at sight. Please note that there is a clarinet in the key of C. If playing a C clarinet, a concert-pitched clarinet (which is a little smaller than the typical B♭ clarinet), the clarinetist will play concert-pitched notes. Therefore, a clarinetist playing the C clarinet can play oboe parts without having to change the notes he or she would finger. Clarinets also come in the key of A, often in use in the orchestra to reduce the number of accidentals in key signatures. Likewise, the B♭ trumpet is most often in use in band, but you may find the concert-pitched trumpet, the C trumpet, used in orchestra. The horn (what used to be called French horn) comes as a B♭ horn, an E♭ horn, and an F horn. Most often now, composers write horn in F only.

Although transposition makes life more difficult for the director and complicates matters for the instrumentalists, there is logic behind it. Instruments like the clarinet and saxophone come in many different sizes from high to low. If they were all written in concert pitch, the musician would have to learn a new set of fingerings for each instrument, as the fingering that plays a C on one instrument might play a B♭ on the same instrument in a larger version. Every time the instrumentalist switched from one instrument to another, he would have to switch to a different set of fingerings. Transposition means that the fingerings stay the same: a written C is fingered the same way on each size of clarinet, even though sometimes it sounds like E♭, sometimes like B♭, sometimes like A, and even sometimes like C.

Generally, if an instrument has a name without a *key* designation in front of it, as in piano, flute, oboe, violin, it is a concert-pitched instrument (except English horn and alto flute). The note it fingers or plays is the note you hear. If the instrument has a key designation in front of it, as in a B♭ trumpet, when an instrumentalist fingers a C on the instrument, it sounds a concert pitch that is the key designation of that instrument. For example, if a B♭ trumpet fingers a C, the pitch one hears (the pitch you will hear on the piano) is a B♭ (a major second lower). If the A clarinet fingers a C, the pitch you hear on the piano, the concert pitch, is an A (a minor third lower). If the E♭ alto saxophone fingers a C, the concert pitch you will hear is an E♭ (a major sixth lower).

To remember if the instrument in question plays a higher note than the written pitch or a lower one, compare it to a flute. If the instrument is longer than a flute, the pitch one hears is lower. The E♭ alto saxophone is longer than a flute, so it plays E♭ *below* the written C. If the instrument (such as an E♭ piccolo clarinet) is shorter than the flute, then the pitch one hears is higher.

Figure 12.1 shows what we have learned thus far. B♭ instruments include B♭ trumpet, B♭ clarinet, B♭ soprano saxophone, B♭ bass clarinet, and B♭ tenor saxophone. Both the bass clarinet and tenor saxophone sound an octave lower than written. E♭ instruments include E♭ alto saxophone, E♭ alto clarinet, E♭ horn, and E♭ baritone saxophone (sounding an octave lower than written). F instruments include F horn and English horn, the low relative of the oboe. Alto flute plays in G.

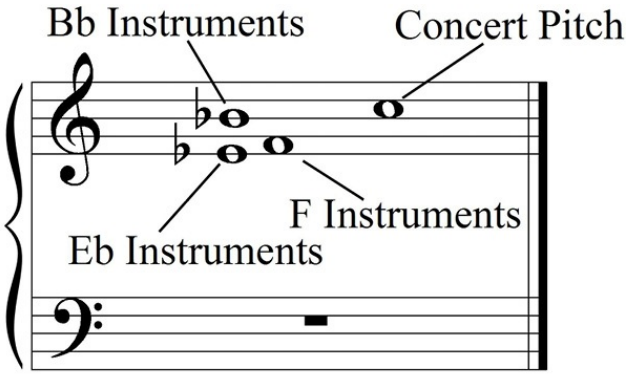


Figure 12.1.

SECRET 87: TRANSPOSING PARTS

Students often have trouble with writing transposed parts. Remember that if an instrument sounds lower, we must write it *higher* in order to compensate. Notice that B♭ to C is a major second; therefore concert-pitch parts must be written up a major second for B♭ instruments since they sound a major second lower. The clarinetist will see and finger a C and the note will be a B-flat. If you want to hear a G you must write a note a whole tone higher than G, which is A. If the key signature of a piece of music is G major, one sharp, it follows that the B♭ instruments will have the key signature of A major, three sharps (a major second higher).

Once you have mastered the transposition to B♭, the rest follow the same pattern at different intervals. F to C is a perfect fifth; therefore concert-pitch parts must be written up a perfect fifth for F instruments since they sound a perfect fifth lower. E♭ to C is a major sixth; therefore concert pitch parts must be written up a major sixth for E♭ instruments since they sound a major sixth lower. Remember that the purpose of transposition is to allow the instrumentalist to switch between different sizes of the same instrument. Large instruments, such as bass clarinet and baritone saxophone, are still written in treble clef even though they play as low as bassoons and cellos. This means that they transpose down an extra octave. The bass clarinet is in B♭, and a written C sounds an octave plus a major second lower than written. Tenor and soprano saxophones are both written in B♭, and the tenor transposes an extra octave below the soprano. Baritone and alto saxophones are both written in E♭, and the baritone similarly transposes an extra octave below the alto, sounding an octave and a sixth below its written note.

Transposing a C part to a B♭ part is rather simple; write everything up a major second or a step; but what about transposing for an E♭ instrument? Writing a line up a major sixth may increase the possibility for errors.

SECRET 88: TRANSPOSING USING SOLFÈGE SYLLABLES

This is where your sight-singing skills come into play again. One of the easiest ways to transpose is to put solfège syllables to the pitches in the original key, then simply use the same solfège syllable in the new key and fill in the proper pitches, as in figure 12.2. Concert pitch may be a piano part, oboe part, violin part, and so on.

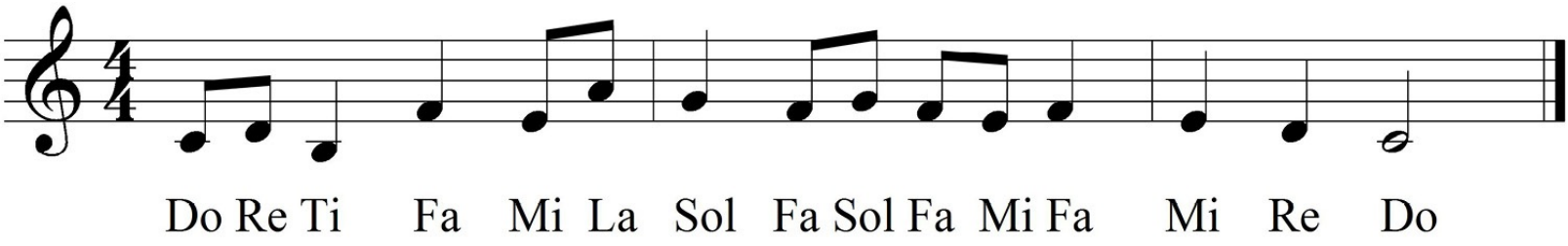


Figure 12.2.

In figure 12.2, solfège syllables have been added to the tune. If an E♭ alto saxophone were to play in unison, that is, play the same pitches as in figure 12.2, the alto saxophone part must be written up a major sixth. This is because the E♭ alto saxophone sounds a major sixth lower. To transpose this tune for alto saxophone, first change the key signature. The example in figure 12.2 is in the key of C. Go a major sixth interval up from C to get the key of A major. When transposing, the very first thing you must do is to change the key signature. This will be easier than writing the correct accidentals into the piece itself. Now with the key signature changed, A is do. Keeping the same syllables, plug in the new notes based on A as do, a major sixth up from C. The transposed tune for E♭ alto saxophone appears in figure 12.3.

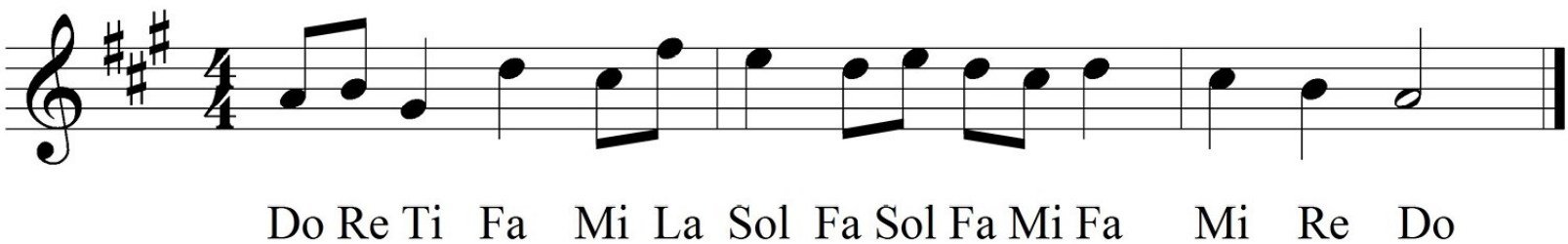


Figure 12.3.

SECRET 89: TRANSPOSING KEYS

Transposition is not only used for transposing instruments. Let's say a piece is too high for a vocalist to sing and must be lowered by a step. If accompanied by piano, the pianist will have to transpose the accompaniment down a step to play in the key that the vocalist is singing; otherwise, the resulting performance would be very disturbing. For example, if a piece is in the key of G major and the vocalist must drop it a step, then the new key (a step down from G) is the key of F major, and every note must be lowered by a step to the new key of F major.

Let's say you want a pair of sixth-grade oboe players to play a duet on a concert, but the duet they have goes too high for them at this point in their study of the oboe. If the duet does not go out of their low range, you could transpose the duet down a third. For example, if the duet is in the key of E♭ major, it could

possibly be lowered or transposed down a minor third to the key of C major (assuming the piece did not go below the range of the oboe). The ability to transpose at sight while playing is a useful skill for musicians. In this case, though, the musician is reading a particular interval above the concert pitch notes and not using solfège syllables for transposition. If you prefer to simply count up the proper interval rather than using solfège syllables, this is perfectly acceptable.

SECRET 90: THE TRANSPOSITION TABLE

The transposition table shown in table 12.1 may be useful. Note that the concert pitch is given in the top row, while the transposed equivalent is given next to the corresponding instrument's row.

Remember, early to practice, early to play, makes a musician happy all day.

Table 12.1. Transpositions

Flute, Oboe, Violin, Piano	C	C♯D♭	D	D♯/E♭	E	F	F♯/G♭	G	G♯/A♭	A	A♯/B♭	B/C♭
B♭ Clarinet, B♭ Trumpet	D	D♯/E♭	E	E♯/F	F♯	G	G♯/A♭	A	A♯/B♭	B	B♯/C	C♯/D♭
A Clarinet	E♭	E/F♭	F	F♯/G♭	G	G♯/A♭	A/B♭♭	B♭	B/C♭	C	C♯/D♭	D/E♭♭
Horn in F, English Horn	G	G♯/A♭	A	A♯/B♭	B	C	C♯/D♭	D	D♯/E♭	E	E♯/F	F♯/G♭
E♭ Alto Saxophone, E♭ Horn, E♭ Alto Clarinet	A	A♯/B♭	B	B♯/C	C♯	D	D♯/E♭	E	E♯/F	F♯	Fx/G	G♯/A♭

Advanced Concepts

SECRET 91: FOUR-PART ANALYSIS

Now it is time to put it all together. Analyzing a piece of music might seem complicated and overwhelming, but it is not so difficult if you take it one step at a time. Always begin by determining the key of the piece. This seems elementary, and it is, but it is surprising how often people will skip this step. If you attempt to analyze a piece of music in the wrong key, every single chord will be wrong. Remember, identifying the key signature is only half of this step. You must also be sure you know which mode the piece is in. If the key signature is three sharps, it might be A major, but it could also be F♯ minor. Is the final chord an A major chord or an F♯ minor chord? Are the notes mostly unaltered, or are there several sharped Es? In more complex analysis, music can even be in a key other than that represented by the key signature, but that level of complexity is beyond the scope of this book.

Once you are certain of the tonality, go through the piece and identify each chord as follows: the degree of the scale, represented by a roman numeral; whether the chord is major or minor, represented by the roman numeral being in upper- or lowercase letters; whether the chord is diminished or half-diminished (common if there is a seventh) or augmented (less common), represented by the appropriate symbols; and the inversion and whether there is a seventh in the chord, represented by an inversion number. On the first pass through the piece, circle the nonchord tones but do not worry about them otherwise. After the roman numeral analysis is complete, go back and identify the nonchord tones.

The chorale illustrated in figure 13.1 shows a complete roman numeral and nonchord tone analysis of an eight-measure chorale using the information that has been presented thus far. Note that the cadence at the end of the first line is IV to V, which is a half cadence. The cadence at the end of the second line is V to I, an authentic cadence. The abbreviations used are as follows: App = appoggiatura, UN = upper neighbor tone, ET = escape tone, PT = passing tone, and Ant = anticipation.

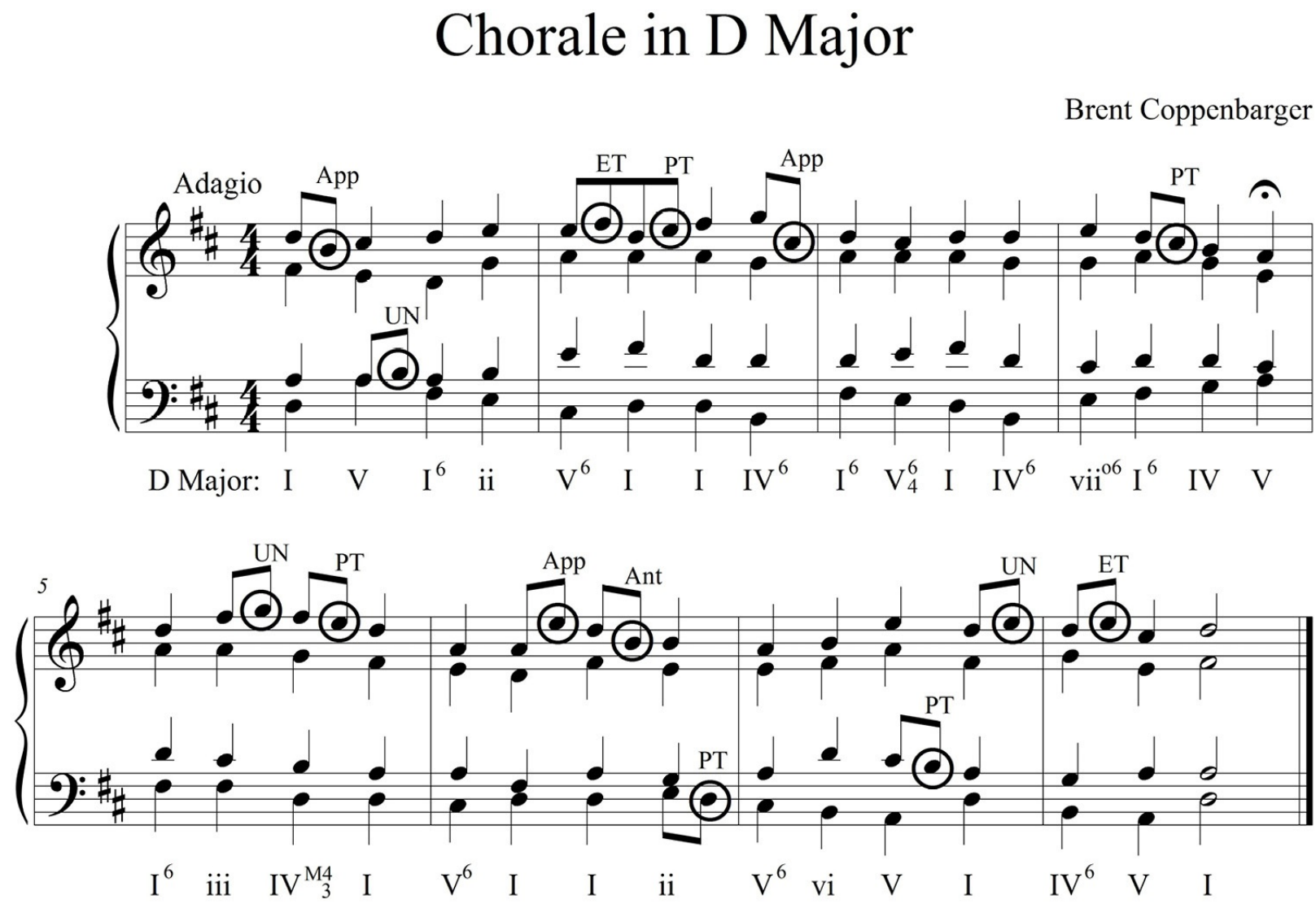


Figure 13.1.

SECRET 92: PART-WRITING RULES

These part-writing rules developed not as rules per se, but more as a style during the Baroque Period, a period from 1600 to 1750. The United States did not become a nation until 1776, so we are talking about a style prevalent in Western Europe during what was the colonial period in North America. This is the period when we find such names as Johann Sebastian Bach, George Frideric Handel, Antonio Vivaldi, and many others whose music is still widely performed today. These composers were not thinking of a set of rules to use when composing. Music theorists throughout history have studied their compositions, particularly J. S. Bach, and have developed a set of rules to describe the styles and habits of these composers. It is in part through using these rules why Baroque music sounds like Baroque music.

Although this book has focused on basic music theory, which is used in Baroque style analysis, and not focused on composing in the Baroque style, a few rules with regard to four-part SATB writing are in order here. If you can write correctly in the Baroque style, you can be sure of analyzing correctly. Understanding Baroque style, even though it is three hundred years old, is still a vital part of any music education.

In order to keep track of each part, the soprano line will use stems that go up, even if the voice is on the middle line or above. The alto voice will use stems that go down. Both the soprano voice and the alto

voice use the treble clef, or the top staff of the grand staff. The tenor voice and the bass voice use the bass clef or the bottom staff. The tenor line uses stems that go up, while the bass line uses stems that go down. In this way, all four lines can be compressed to two staves, and the music can conveniently be played on the keyboard. Tenor singers, by the way, prefer not to read their vocal parts in bass clef; usually their parts are written in treble clef, an octave higher than they sound. However, in four-part harmony the women share the treble staff and the men share the bass staff.

If writing in SATB style, the soprano and the alto voices should stay within an octave or less to one another. The alto and tenor voices should follow the same rule having no space greater than an octave between the voices. However, the tenor and the bass do not follow this rule. The bass may be more than an octave below the tenor. This means that the three upper voices are generally close together, while the bass might be far below the rest of them. In fact, it is better for the tenor and the bass to stay fairly far apart; otherwise, the lower part of the chord might sound muddy and unclear.

Another rule is that the alto voice should not sing higher than the soprano voice, nor should the soprano voice sing lower than the alto. This is called *voice crossing*, crossing into another voice's territory. Each voice must respect their boundaries. The same is true for the alto and tenor and the tenor and bass. In band and orchestra, the instruments might cross frequently; in Baroque vocal style, they never do. This is easy to spot because the stems will look like they are going in the wrong direction. If you find that your soprano and alto stems are getting tangled, or your bass and tenor stems, you have probably crossed voices. Voice-crossing between alto and tenor is not so easy to spot because of the difference in clef and the visual space between the two staves. If either the alto or the tenor voice has moved into leger lines around middle C (the alto singing below middle C or the tenor singing above it), be sure to check that these two voices have not crossed. A strangely common error in student part-writing is the voice-crossing of the alto singing a middle C or B below middle C while the tenor sings a D above middle C.

Generally, the seventh of the chord will resolve down, especially if it is in an outside voice, as in measure three, beat five in the soprano line in figure 13.1. Think of the seventh as a bad dog that jumps up on you. Whenever you see it coming, you say, "Down, Seventh!" The leading tone of the key will resolve up to tonic, if in an outside voice (unless going down the scale by step), as in measure one, beat two in the soprano voice in figure 13.1. This is why the I^7 is an unusual chord: the leading tone is the seventh, and so how is it to be resolved, when as a seventh it should resolve down and as a leading tone it should resolve up? When you use I^7, keep the leading tone in an inner voice and resolve it down.

Root-position chords usually double the root, though it is permitted to double the third in a minor chord. First-inversion chords will often double the chord member that is in the soprano voice. If, however, this breaks a part-writing rule—for example, if the soprano voice has the leading tone (as in a three chord with the fifth in the soprano)—then double one of the other voices. Second-inversion chords double the fifth of the chord (which is also the bass note) and appear less often due to the fact that they are normally only used if the bass note functions or appears like a passing tone, neighbor tone, or when arpeggiated. Remember it this way: root-position chords are like salt, used rather often. First-inversion chords are like pepper, used maybe a little less often. Second-inversion chords are like garlic powder, only used under certain circumstances.

Diminished triads are usually found in first inversion, and should double the third, which is the bass note. Remember this by the fact that the word *diminished* has three syllables; thus double the third. Never double the root of a vii^o because that is the leading tone. The leading tone is called a *tendency tone* because it tends to want to go somewhere, in this case to tonic. Tendency tones occur where half steps occur in the scale; therefore, the fourth degree, or subdominant, is also a tendency tone, although it does not have as strong of a pull as the leading tone. Still, it does have a tendency to want to resolve down to

the third degree, or submediant degree, since the third degree determines chord quality in a tonic chord. This is another reason why doubling the third degree of a diminished triad creates the strongest chord quality. The fifth degree of a diminished seven triad (vii^{o}) is the fourth degree of the scale. For example, the vii^{o} chord in C major is B-D-F. B is the leading tone, and F is the fourth degree. Both are tendency tones, so this leaves the D as the ideal note to double. Remember, we are speaking about triads here; seventh chords are made of four notes, and so there is no voice to double. Having said this, if there is a situation where the fifth is in the soprano voice, then the fifth is often doubled, but both fifths should resolve in contrary motion by step when going to a I chord. The vii^{o6} often goes to a I chord.

In both the natural and harmonic form of the minor scale, the two chord is diminished, ii^{o}. Once again, the diminished two chord should be in first inversion with the third doubled. The fifth degree of the chord is once again a tendency tone, being the sixth degree of the scale (because the natural and harmonic minor scales have a half step between five and six). Therefore, the best doubling is the third degree, and only doubling the fifth if it is in the soprano voice.

The ii^{o} has no leading tone in the triad; however, the root (which is the second degree of the scale) is the leading tone in the relative minor and has a strong pull to the third. You can see this by looking at the first three notes of the minor scale. Using the A minor scale (any form), the first three notes are A-B-C. Now look at the first three notes of the A major scale: A-B-C♯. It is the third note that is going to determine whether you play or sing a major or minor scale. That half step between degrees two and three pull you into the minor form. It is not until you get to half steps between degrees three to four in the major scale that you are pulled into the major form of the scale.

Yet another rule that students find difficult to spot is called traveling octaves and traveling fifths, also referred to as parallel octaves and parallel fifths. That is, if there is an octave between the soprano and alto voice, for example, the next notes cannot still be an octave between the soprano and alto. You may not *travel* from an interval of an octave to another interval of an octave within the same two voices. You *may*, however, repeat the notes. If you repeat notes, that is, if the notes do not change to new notes, then the voices are *not* traveling. Therefore, if the soprano voice is singing a G and the alto voice is singing a G an octave lower, both voices cannot move a step to the note A. Even if one voice moved down a seventh to the A below rather than up a second to the A above, it is not allowed. The same rule applies for the interval of a perfect fifth between voices. These traveling perfect octaves and perfect fifths can be between any two voices, even the bass and soprano (everything is reduced to an octave, even if it is two or three octaves). This is where you must keep track of stem direction. Often a student will see an octave or perfect fifth between the alto and tenor, for example, and then see that same octave/perfect fifth interval between the tenor and soprano, for example. This is not an error. The traveling intervals must be between the *same* two sets of voices. Figure 13.2 shows a traveling or parallel octave between the soprano and bass voices.

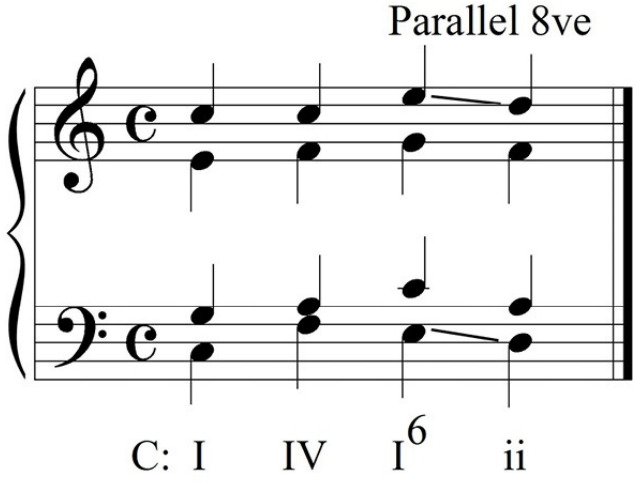


Figure 13.2.

Even though it was mentioned earlier, it bears repeating that one should not double the leading tone. Since the leading tone resolves up, if it is doubled, this will cause parallel octaves. If you resolve only one of the leading tones up and not the other, the chord will not sound good. Therefore, you do not double the third in a V chord, because the third of a V chord is the leading tone. Also, you do not double the root of a VII chord, because the root of a VII chord is the leading tone, as is the fifth of a III chord.

Some of the part-writing rules are conditional. This rule against traveling/parallel octaves is absolute. They are never permissible and will always be counted as an error by any theory teacher. Eventually, you will learn to be on the alert for these fifths and octaves, and they will leap to your attention. Until then, you must check every single chord change for parallels. I generally start with the bass note and check it against the tenor, then alto, then soprano. Then I move to the tenor, and check it against the alto, then soprano. Finally I move to the alto voice and check it against the soprano. If I find an interval of a fifth or octave, I immediately check the notes in the next chord to see if the fifth or octave is traveling. I do this for every chord.

There are also rules for writing the melody line, that is, the soprano line. These rules are based on singability; the melody must sound like a tune a person could comfortably sing. If the melody has a series of leaps (does not progress by steps), these leaps should outline a triad. The triad is such a strong pull to our ears that it is rather difficult to sing a series of leaps that progress in any other way, such as fourths or a combination of different intervals. You should also avoid large jumps in the melody line. If the soprano line leaps or jumps an interval greater than that of a perfect fourth, the soprano voice must step into and step out of that leap in the opposite direction of the leap. Therefore, if the melody jumps up, the voice will approach the jump and leave the jump by a step down. If the soprano line jumps down, the note before and after the jump will be by step up. Think of this as producing a zig-zag line.

These rules for composing in SATB style may seem rather restrictive, but once again, this is what makes Baroque music sound like Baroque music. Think of it as a game, like *Sudoku*. Everything fits together, and every correct decision makes further correct decisions easier; unfortunately, a single error will magnify itself through the harmony.

SECRET 93: THE SEQUENCE

A sequence is a pattern that is repeated at a different pitch level. This pitch level may be either higher or lower. For example, if you have the notes C-D-E-D-E-D-C (do re mi re mi re do), to sequence this up a step you will have D-E-F-E-F-E-D (re mi fa mi fa mi re). To sequence it yet another step, E-F-G-F-G-F-

E (mi fa sol fa sol fa mi). The first statement of the sequence is called Leg. 1, the second statement Leg. 2, and the third statement, Leg. 3.

Sequences add flavor to music. If composers want to go up a scale, rather than simply playing up a scale, composers can use a sequential pattern to work their way up the scale, thus adding interest to the musical line. When I was in graduate school, my teacher had me play Baroque pieces. Baroque music is noted for its use of sequences. Since I am a clarinetist and the clarinet was not really in use during the Baroque Period (although it was invented around 1700, it did not catch on until the Classical Period), I was not used to literature with such intense use of sequences. I had to work to use different articulation, dynamics, and phrasing to bring out the sequences. What was difficult is that sometimes one would find a sequence within a sequence or a second set of sequential patterns that started before the first set had completed. Therefore, there would be competing sequences. Which sequence does one bring out? Do you try to bring out both by varying the dynamics in one and the articulations in another? It was a way of making me think outside my area of comfort.

This is good training for those musicians interested in jazz improvisation. Find some Baroque pieces and play them, paying particular attention to the sequential patterns. Then to learn how to start improvising, make up a six-note motive and sequence this motive up a step or down a step and then sequence it once or twice again. Try sequencing the motive up a scale, then back down. Play the same motive and sequential patterns in different keys. Take a different six-note pattern and do the same thing; then put the two patterns together. Add a scale or play a chord between the set of sequences. Before you know it, you will be improvising.

SECRET 94: FORM

A few words are in order here with regard to a brief discussion of form. Form in music gives the composer a blueprint to follow when composing a piece of music. Form also gives the educated listener some idea as to what to listen for during a performance, be it thematic material, contrasting material, the repeating of primary or secondary themes, and so on.

There are many books dedicated just to the subject of form, so a few of the more common types will briefly be discussed here. One common form is *strophic* form. Strophic form is when each verse uses the same music, but different text. *Strophe* is Greek for "verse." The typical church hymn is in strophic form.

Through-composed form is when new music is composed throughout a piece, rather than repeating themes in particular spots. This is a song in which each verse has new music.

Binary form is an A section followed by a B section. An example of this is "Row, Row, Row Your Boat." Section A: Row, row, row your boat, gently down the stream. Section B: Merrily, merrily, merrily, merrily, life is but a dream. These two lines of music are clearly related, but they are different. Binary has two parts, as a bicycle has two wheels.

Ternary form is an A B A form. *Ternary* means "three parts." Remember this by the fact that the word *ternary* has three syllables and starts with the letter *t*. The standard minuet and trio is in ternary form with the minuet the A section, the trio the B section, and the repeat of the minuet the A section. In *tern*ary form, the original music will re*turn*.

The *rondo* form consists of a theme that keeps returning with different melodic material in between, diagrammed as A B A B A. More complicated versions with C and even D sections are possible, but as long as the main theme, the A section, returns more than the other sections and they alternate, it is rondo in form. *Rondo* means "round." In a rondo, the original music comes around again and again.

One of the most favored forms, especially for concerto and symphonic composition, is called *sonata-allegro* or simply *sonata* form. This is an expanded, elaborate version of A B A ternary form. Without

getting too complicated, the form consists of the presentation or exposing of material called the exposition, the A section. This is followed by a section where the composer plays around with thematic fragments, modulating through different keys, and presenting sequences, among other things, called the development section, the B section. The form concludes with a repeat or recap of the exposition called the recapitulation. This is a restatement, more or less, of the exposition, the A section. Sometimes to make the work sound more finished, the composer will add a brief section called the *coda*. *Coda* means "tail" in Italian, and it comes at the tail end of the composition. This form is usually found in the first movement of a symphony and a concerto, and sometimes in the last movement also. In fact, the name *sonata-allegro* implies that it is in the allegro movement, which is usually the first movement of a symphony.

Another device that is part of the form of the concerto, which is a three-movement solo for an instrument with orchestra accompaniment, is the *cadenza*. The cadenza was popular during the Classical Period (1750–1820). You may be familiar with a concerto that uses a piano accompaniment, but the piano part has been reduced from the original orchestral accompaniment. Usually, but not always, found toward the end of the first or last movement of the concerto is the cadenza. To set up the cadenza, the orchestra will cadence on a chord, usually a second-inversion tonic chord, along with the soloist. The orchestra then fades out, allowing the soloist to play an improvised, unaccompanied flourish of notes meant to show off the performer's technique. Some early teachers and musicians felt the cadenza should be the length of only one or two breaths, but this fast lost out to those performers who got carried away with their own improvisatory and technical skills. This is not the first form of improvisation, but an early form that predates jazz. At the end of the cadenza, the soloist would most often trill a note, which signals the orchestra to get ready to come in. The soloist would cadence as the orchestra entered and the concerto would continue. With the conclusion of the Classical Period and the entrance of the Romantic Period, composers of concertos wanting more control over their music started to write their own cadenzas. This may have been in part to limit the length, but maybe more so because the improvisatory skills of the performers may have been lacking in many cases. Just imagine if you had written a beautiful concerto and some performer played their own cadenza that was poorly conceived and simply did not sound good. How would this reflect on your composition? Would the audience think you as the composer had written the cadenza? You can see why many composers of the Romantic Period did not want to put the trust of such an exposed section in the hands of an unknown performer.

Finally, just a few words with regard to the twelve-bar blues, a favorite form among jazz and blues musicians. The twelve-bar blues consist of three four-bar phrases, corresponding to the poetic form of the blues verse. The first four bars are I or I^7 chords, following the first line of poetry. The next four bars consist of two bars of IV or IV^7 chords and two bars of I or I^7 chords, and the words are generally very similar to the first line of the poem, with some intensification. The last four bars consist of a V^7 bar followed by a V^7 or IV/IV^7 bar and finally two bars of I/I^7 chords, and the line of verse is different, a response or conclusion to the first two lines. This is the basic twelve-bar blues, though there are a number of variations found: I | I | I | I | IV | IV | I | I | V^7 | IV | I | I.

Figures 13.3–13.7 contain some SATB chorales that may be used for analyses. When analyzing, place roman numerals under the chords, as in figure 13.1. Then circle and label all nonchord tones using the following abbreviations: App = appoggiatura, UN = upper neighbor tone, LN = lower neighbor tone, NG = neighbor group, ET = escape tone, PT = passing tone, CONS PT = consecutive passing tone, Ant = anticipation, SUS = suspension, RET = retardation, and PED = pedal tone. Do not forget to label the type of cadence as authentic cadence, plagal cadence, half cadence, or deceptive cadence. Cadences are marked with a fermata or with whole notes. Turn to appendix 1 to find the analysis of these chorales.

Some chord progressions may not be standard Baroque fare. These are not meant to compete with J. S. Bach, but are for analysis purposes.

Live long and practice.

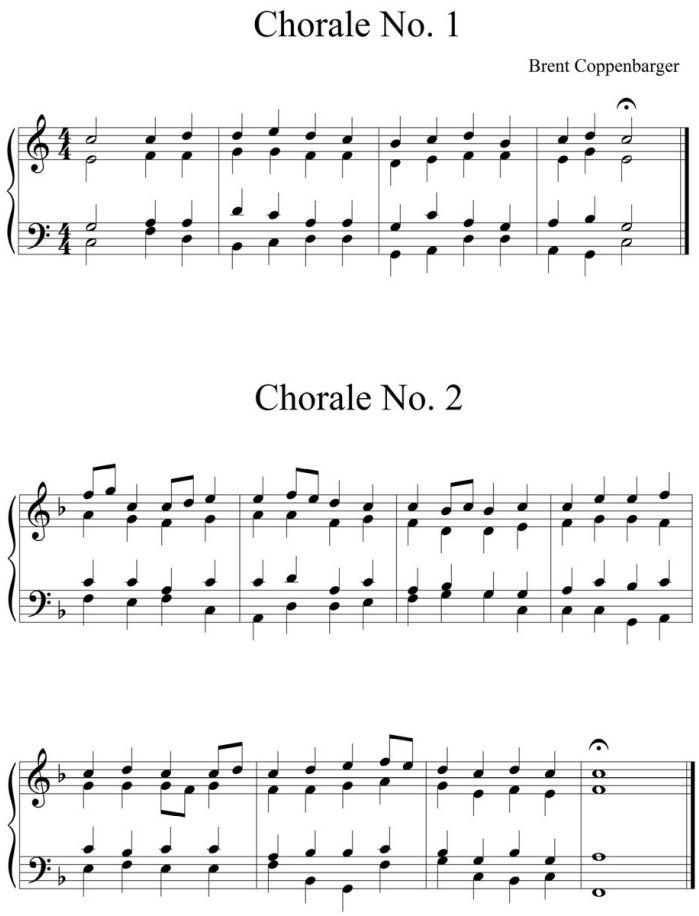
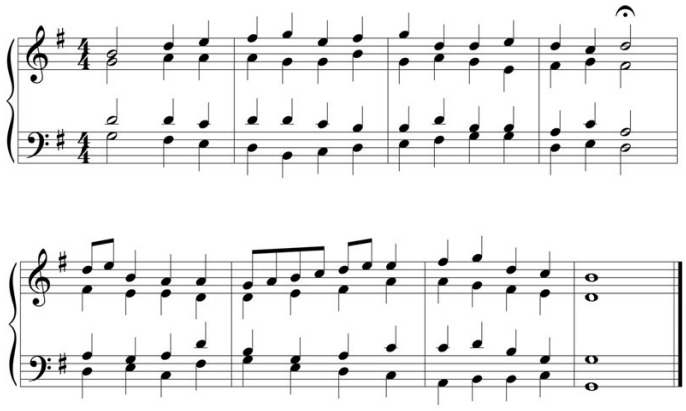
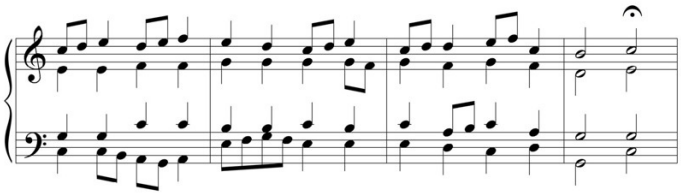


Figure 13.3.

Chorale No. 3



Chorale No. 4



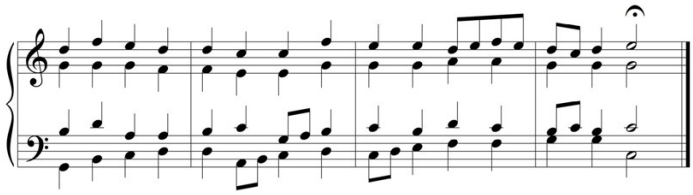
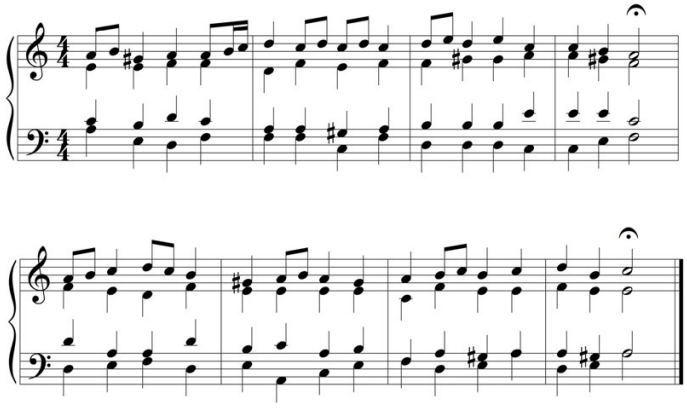
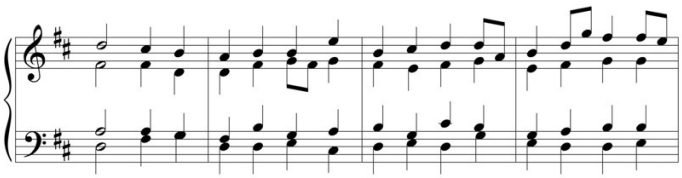


Figure 13.4.

Chorale No. 5



Chorale No. 6



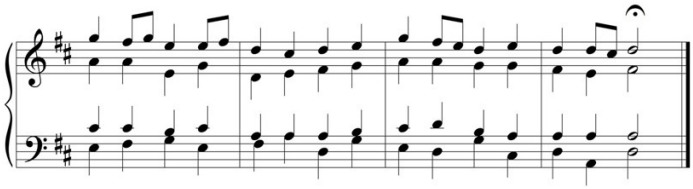
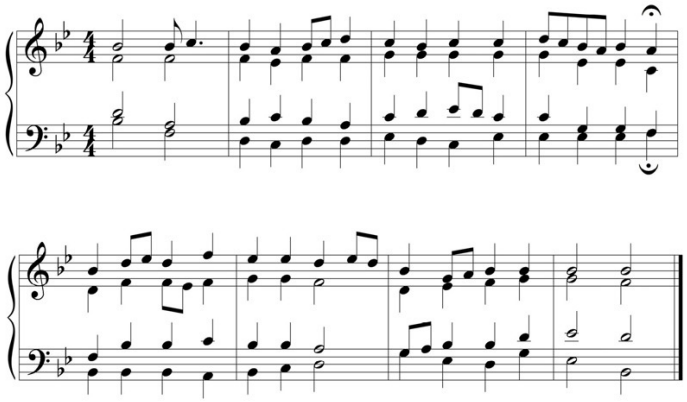


Figure 13.5.

Chorale No. 7



Chorale No. 8

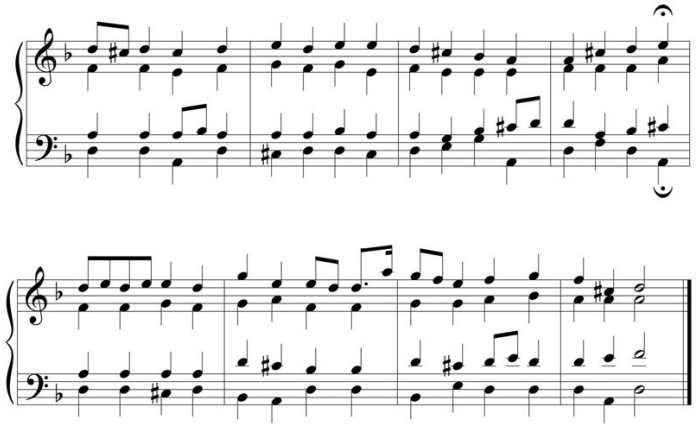
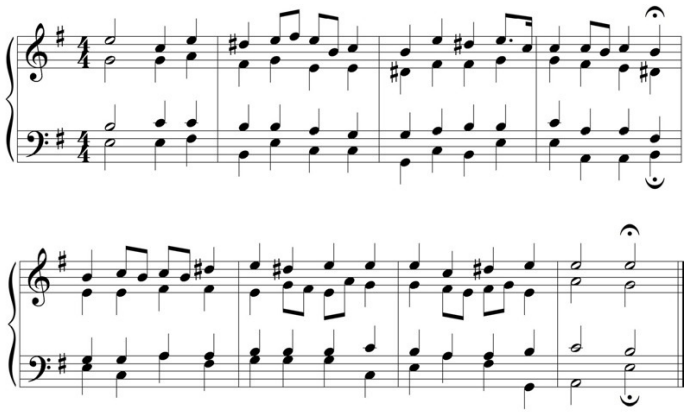


Figure 13.6.

Chorale No. 9



Chorale No. 10

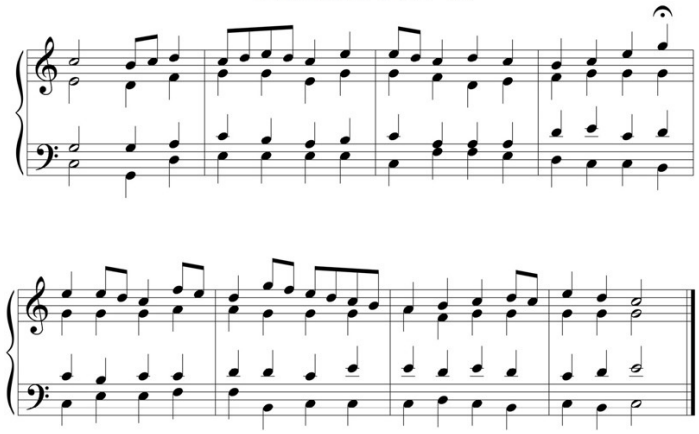
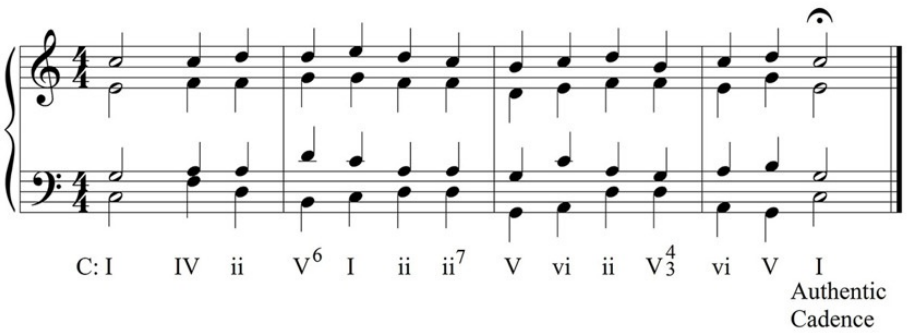


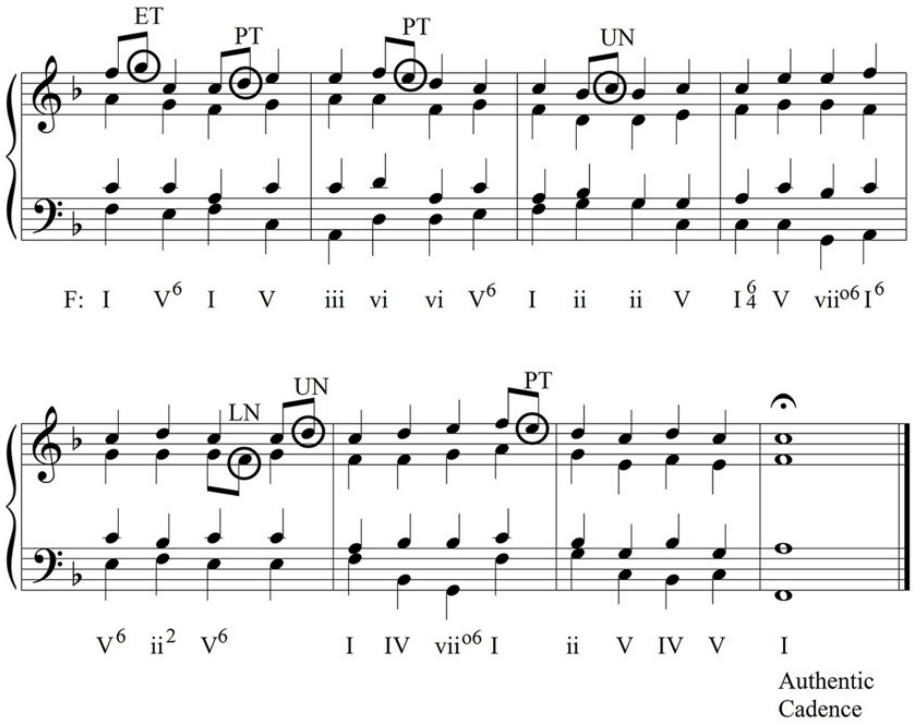
Figure 13.7.

Chorale No. 1

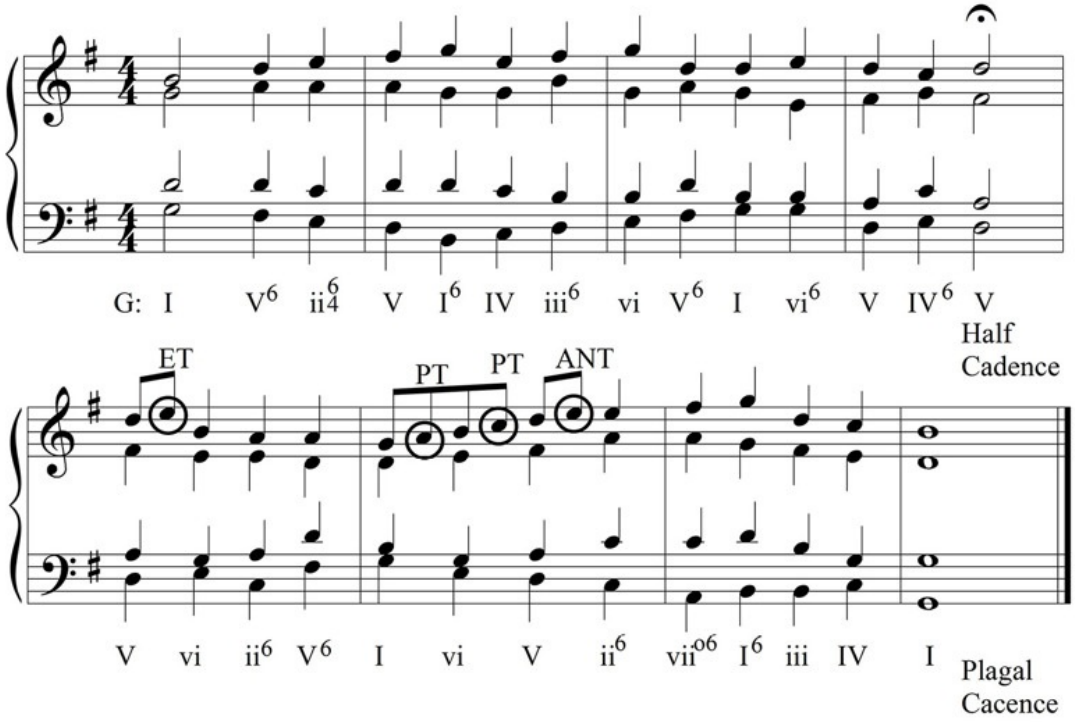
Brent Coppenbarger



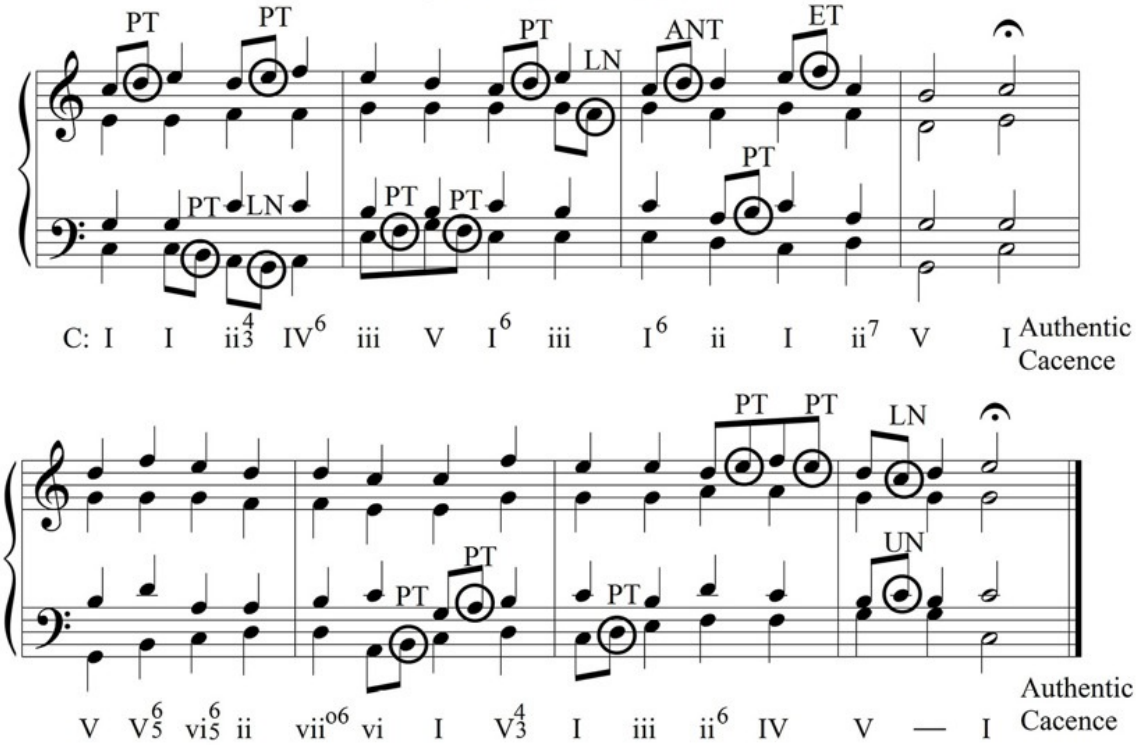
Chorale No. 2



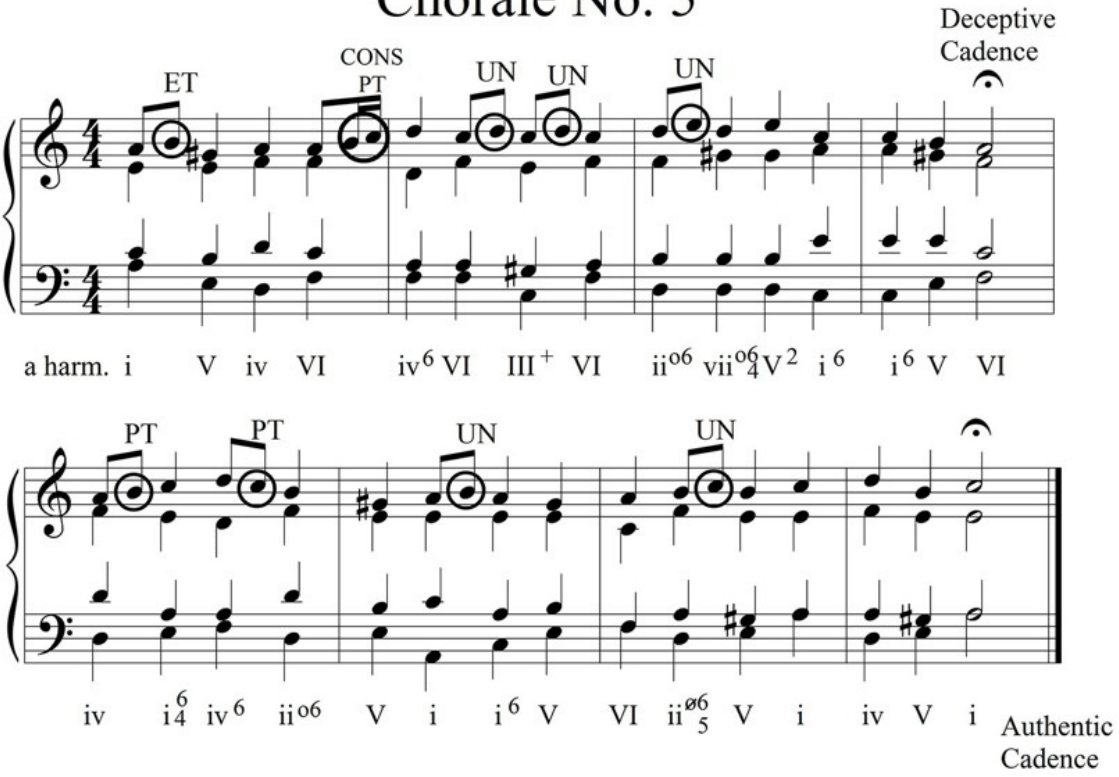
Chorale No. 3



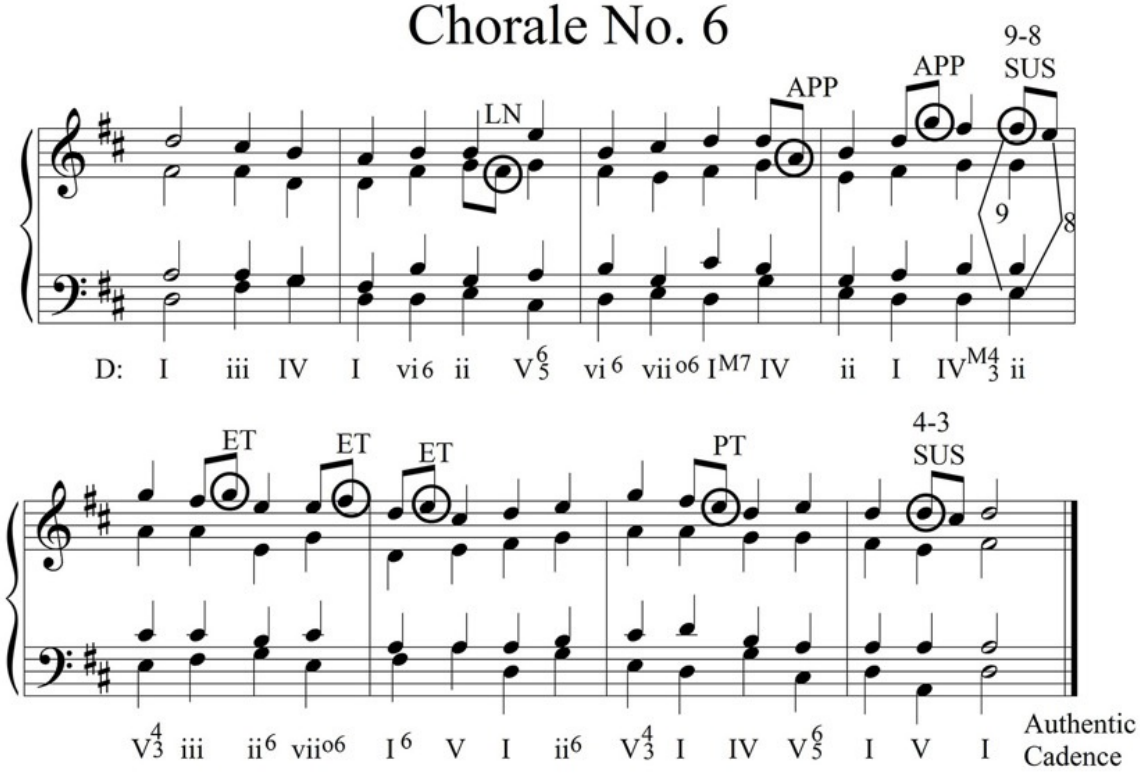
Chorale No. 4



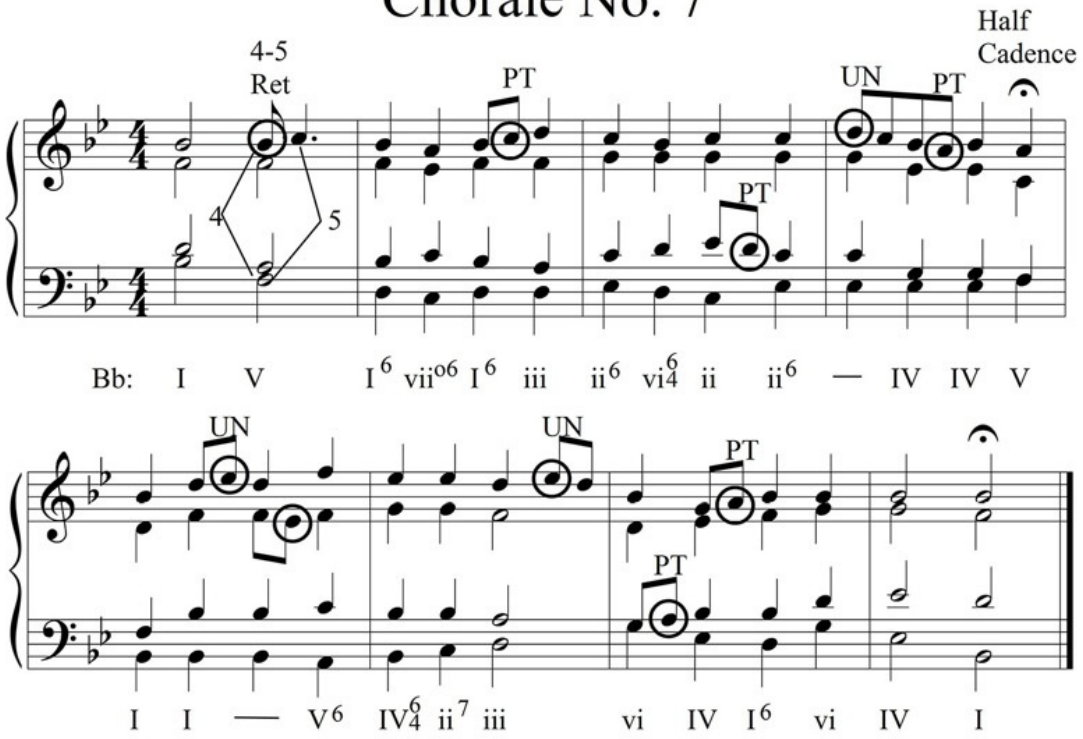
Chorale No. 5



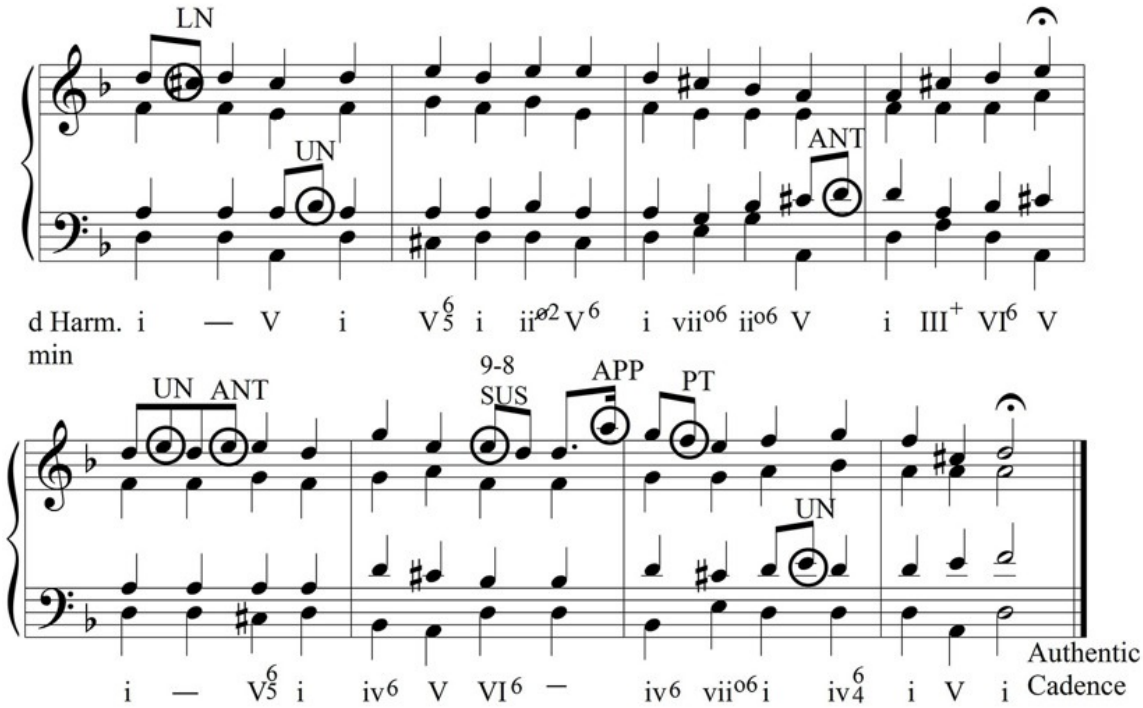
Chorale No. 6



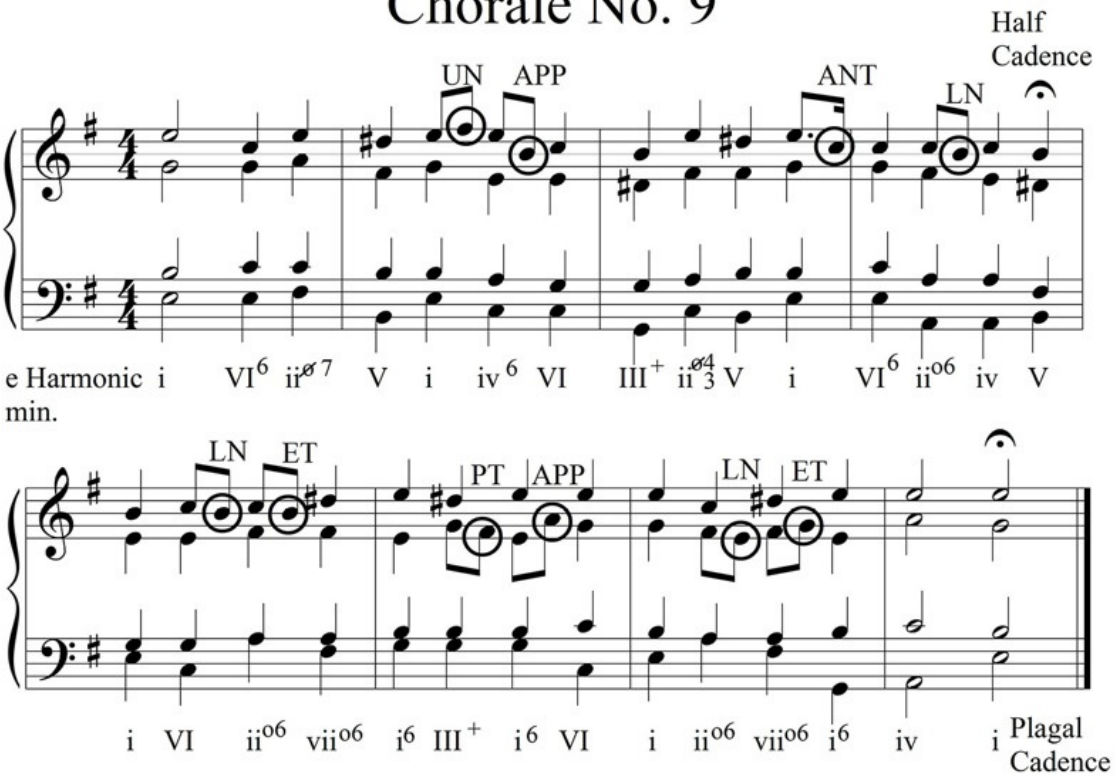
Chorale No. 7



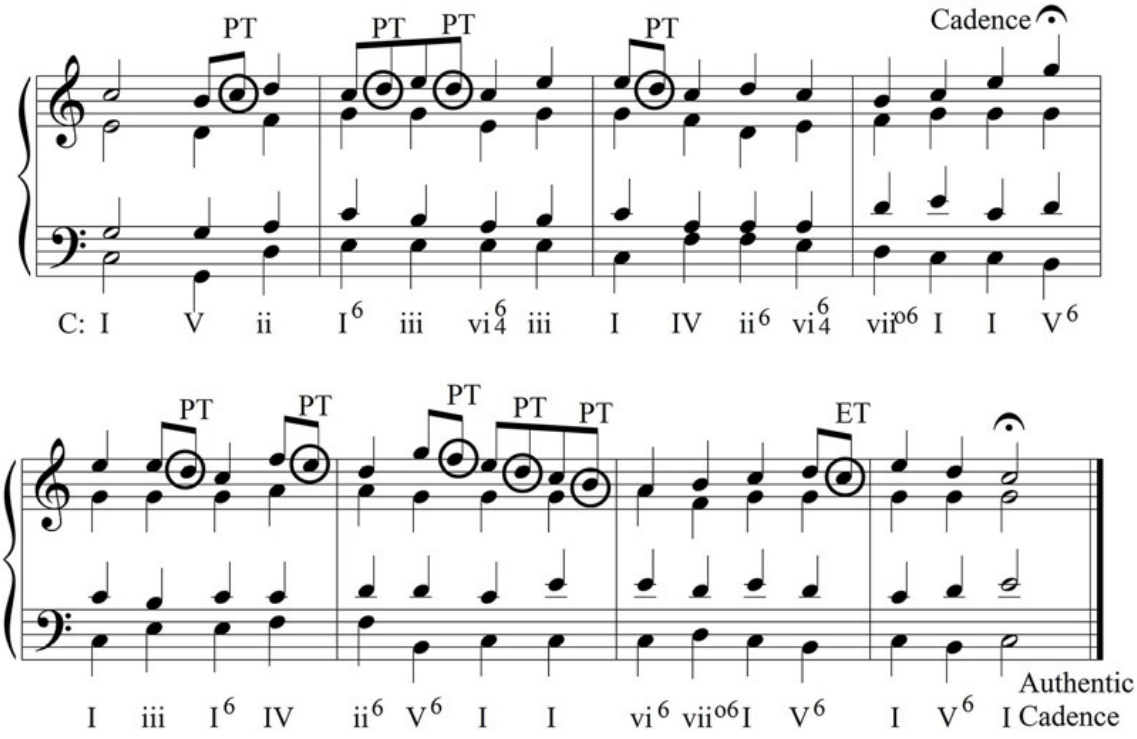
Chorale No. 8



Chorale No. 9



Chorale No. 10



Appendix 2

Suggested Further Reading

Berendt, Joachim E. *The Jazz Book: From Ragtime to Fusion and Beyond*. Brooklyn: Lawrence Hall Books, 1992.

Revised by Günther Huesmann, translated by H. and B. Bredigkeit with Dan Morgenstern and new sections translated by Tim Nevill. If interested in jazz, you really need to know more than the theory behind it; you also need to know the history. This is a good book to learn about jazz history with regard to styles from the 1890s to the 1990s. In addition to styles within a historical setting, the author presents short biographies of some of the top jazz musicians from history. There is an interesting section on the elements of jazz and a look at individual instruments within the context of jazz. The author has also compiled an extensive discography that will be of interest to jazz enthusiasts.

Berg, Shelton G. *Alfred's Essentials of Jazz Theory*. Van Nuys, CA: Alfred Publishing, 2005.

If you are interested in jazz theory and have a strong foundation in traditional music theory, the three-book set *Alfred's Essentials of Jazz Theory* is easy-to-understand instruction on the basics of jazz theory. It comes with CDs and is in a form of a workbook. After the author explains a concept, he follows up exercises intended to reinforce the concept.

Blatter, Alfred. *Instrumentation/Orchestration*. New York: Longman, 1980.

This is my favorite orchestration book. Orchestration is when you rewrite a piece for orchestra or band. For example, if you wanted to orchestrate a piano solo, you turn it in to a piece for an orchestra to play. This text is good in giving instrumental ranges as well as instrumental characteristics. Scoring techniques for various ensembles are discussed in detail.

Blum, David. *Casals and the Art of Interpretation*. Berkeley and Los Angeles: University of California Press, 1977.

This is one of my favorite books. I reread it every other year. In fact, I have two copies just in case I misplace one. Pablo Casals (1876–1973) is considered one of the greatest cellists to have ever lived. David Blum attended many master classes presented by Casals and eventually became friends with him. This book recounts some of Casals's thoughts on musicality. Even though Casals was a cellist, this book is not only for the string player but also for every musician who wants to improve the musicality of their playing. Read it with a highlighter in hand.

Lawn, Richard J., and Hellmer, Jeffery L. *Jazz Theory and Practice*. Los Angeles: Alfred Publishing, 1996.

This book moves a little slower than *The Jazz Theory Book* (by Mark Levine), beginning with a review of scale and chords. It does have a nice section of jazz keyboard voicing and a section tracing the history of the swing eighth note and how it was treated, or not, in different styles from Dixieland to Fusion. It also talks about the evolution of the blues and discusses compositional techniques of the late twentieth century.

Levine, Mark. *The Jazz Theory Book*. Petaluma, CA: Sher Music, 1995.

This is a good book for those who want to study jazz theory or learn about improvisation. The II-V-I progression (very common in jazz) is discussed along with blues changes and the use of different types of scales and modes. He also discusses how the approach to jazz theory has changed over the years.

Levitin, Daniel J. *This Is Your Brain on Music*. New York: Dutton, 2006.

This is not a light read, but still a very interesting book. It has appeared on the *New York Times* bestseller list, which is a pretty good recommendation for a book with a subject on music. You will need to understand some music theory to understand parts of this book. The book deals with how music affects the brain. Dr. Levitin, who was born in December 1957, holds a PhD in psychology.

Ottman, Robert W. *Advanced Harmony*, 3rd edition. Englewood Cliffs, NJ: Prentice-Hall, 1984. (Now available in the 5th edition, 2000.)

This is a good, standard music theory book for those who want to continue to read more advanced music theory techniques. The text begins with modulation, and continues with Neapolitan sixth chords, augmented sixth chords, Impressionism, and serial composition. Ottman is very detailed with suggested assignments.

Radice, Mark A. *Concert Music of the Twentieth Century: Its Personalities, Institutions, and Techniques*. Upper Saddle River, NJ: Prentice Hall, 2003.

This book presents an interesting look at twentieth-century composers and their music, and the diversity of style throughout the twentieth century. A number of the most important composers of the twentieth century are examined along with representative works. The author examines music from Latin America, Japan, China, and nationalistic trends in Europe, Russia, and the USSR. There is also a section on electronic music and minimalism. This book presents a good overview of music in the twentieth century.

Rangel-Ribeiro, Victor. *Baroque Music: A Practical Guide for the Performer*. New York: Schirmer Books, 1981.

If you are a performer who enjoys playing Baroque music, this book is a necessary guidebook on Baroque performance practices. Anything from Baroque ornamentation to individual composers' styles are discussed.

Sacks, Oliver. *Musicophilia: Tales of Music and the Brain*. New York: Alfred A. Knopf, 2007.

No background in music theory is required for this book. Oliver Sacks is a neurologist who gives accounts of people who have medical conditions—seizures, having been struck by lightning, hearing loss, and so on—and the unusual things that have happened to them musically

because of their particular condition. Each story deals with how a condition's effect on the brain affects music. This is a collection of interesting stories that explore the relation between the brain and music.

Siegmeister, Elie. *Harmony and Melody*. Belmont, CA: Wadsworth, 1965.

This detailed textbook with many good examples is available in two volumes. Siegmeister has a chapter on the different shapes of the melodic phrase, which is an area not found in many music theory books. The second volume will be of interest to those who want to learn more about secondary dominants, periods, modulation, and twentieth-century harmony.

Walker, Alan. *A Study in Musical Analysis*. New York: Free Press of Glencoe, 1962.

This book is a little different. It speaks about form, but not as you find in a textbook with diagrams, rather more in an intellectual argument against the traditional way people have looked at or examined music.

Brent Coppenbarger is professor of music at the Cline School of Music at North Greenville University, South Carolina, where he has taught single reeds, music theory, and various other music classes since 1995. He has been a freelance musician in Wisconsin, Virginia, and South Carolina, having played bass clarinet in the Carolina Pops Orchestra, been the principal clarinet in the Greenville Opera Company and Beloit-Janesville Orchestra, and subbed as clarinetist in the Greenville Symphony Orchestra.

Dr. Coppenbarger received his doctor of musical arts degree in clarinet performance, with a minor in music theory/history, from the University of Wisconsin–Madison's School of Music, where he studied clarinet with Dr. Glenn Bowen. His other clarinet teachers have included his father, Dr. Roger Coppenbarger (University of Wisconsin–Whitewater), Robert Marcellus (Northwestern University, Cleveland Symphony), Clark Brody (Chicago Symphony), Russ Dagon (Milwaukee Symphony), Walter Wollwage (Chicago Symphony), and Anita Garriott (Florentine Symphony of Italy). He has a master of music degree in performance from the Chicago Music College of Roosevelt University and a bachelor of music degree in performance from the University of Wisconsin–Whitewater. His articles have appeared in *The Instrumentalist* magazine, *The Clarinet* (journal of the International Clarinet Association), and the *NACWPI Journal*. He has had a number of original compositions and arrangements published by Dorn Publications, and his edition of the Bernhard Crusell Concerto in E-flat, Op. 1, No. 1 for clarinet and piano is published by Musica Rara.

Dr. Coppenbarger received a Greenville Metropolitan Arts Council grant in 1998 and 2002. He is listed in *Who's Who among America's Teachers* in 1998, 2000, and 2005 and was listed in *Marquis Who's Who in America* in 2006.