Music Theory

v. 1.0

This is the book Music Theory (v. 1.0).

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About the Author

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Mark Andrew Cook serves as Director for Music Theory and Composition at Shepherd University. He is also a member of the Jazz Studies Faculty. Prior to his appointment at Shepherd, he served as a member of the Music Theory Faculty and was the Jazz Ensemble Director at The Catholic University of America. Additionally, he served as an Adjunct Music Theory Instructor at Towson University. He also taught Music Theory, Jazz Studies, History and Applied subjects at Montgomery College. He served as the Director of Jazz Ensembles and Wind Ensemble, and as Music Director and Conductor for The Montgomery College Symphony Orchestra. In addition to teaching at Shepherd University, Dr. Cook is Guest Lecturer in Music Theory and Composition at The Barbara Ingram School for the Arts.

He received his B.M.ed. from the Peabody Institute of the Johns Hopkins University, and both his Master's degree and Ph.D. in Music Theory from The Catholic University of America, his dissertation being an analysis (proportional organization and set analysis) of Paul Hindemith's symphony *Die Harmonie der Welt*.

He is an active composer and performer in both the Classical and Jazz styles and has many performing and recording credits.

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In addition, a select group of instructors assisted the development of this material by actually using it in their classrooms. Their input, along with their students' feedback, has provided us critical confirmation that the material is effective in the classroom:

Dedication

In Memoriam

Dr. Robert Wayne Ricks

He always compelled me to “take a closer look and let the Music tell its own story.”

Foreword

This text is primarily designed to serve as a textbook for a college-level music theory fundamentals course. However, it also has the flexibility to serve equally well for a typical core curriculum college-level Music Theory I or Harmony I course.

Our goal is to deliver sufficient information to enable the student to be able to evaluate and analyze select music from the literature as quickly as is practical. Secondly, we seek to provide sufficient instruction to enable a student to begin writing music as quickly as is practical.

In order to develop a complete argument, it is important that the student understand that this text "assumes a blank slate." No prior knowledge on the part of the student is assumed.

In order to give Instructors greater flexibility we have intentionally provided content that may exceed the course objectives in some institutions. We anticipate that instructors may want to adjust the material in the text to match their current course content, or adjust their courses to make use of all of the content in this text.

Preface

The manner in which music theory has been traditionally taught is now in a state of flux. Originally, the study of music theory was designed to acquaint the music student or knowledgeable amateur with the composer's working materials in "Classical" music roughly spanning the 17th- through the 19th Centuries.

The role of music theory has expanded far beyond this mandate: theory training now incorporates greater or lesser explanations of music after 1900, music before 1600, idiomatic Jazz practices, elements of World Music, and Popular Song idioms.

Such an expansion of means and methods in learning and teaching the fundamental language of music presents a formidable and almost daunting challenge: what to teach, how to teach it, and in what sequence?

Additionally, music theory has become a favored required Arts elective in College and University curricula, and most music programs have a developmental music theory class to address the needs of under-prepared music majors. Often, music theory is required companion material for private instruction as well.

This textbook seeks to address these multiple needs: to serve as a basic to moderate text for the typical fundamentals of music course and to serve as an introductory text for those interested in acquiring a rudimentary knowledge of the language of music.

The text also provides supplemental information, such as chord symbolization, aspects of Jazz harmony, vernacular song form and its attributes, and so on. Usually when this material is added to existing texts, it is incomplete and delivered in a manner that reflects only limited real-world experience.

This author is fortunate to have had extensive experience as a teacher of music theory at the college and university level, as a teacher of AP music theory in an Arts Magnet high school, as a teacher of the Jazz idiom, as a practicing Classical and Jazz musician, and as a composer in many styles.

Therefore the scope of this text is to:

- Provide clear and concise explanations regarding the basic language of music;
- Address appropriate subject matter for use by the instructor of college-level introductory/developmental theory courses, as well as typical Music Theory I courses;
- Add other relevant information, usually acquired informally by the student outside the classroom;
- Support each learning objective or skill set with reinforcement in the form of exercises;
- Prepare the student for a continuing study of music theory at intermediate to advanced levels.

The format of the text and its scope will easily adapt itself to any of these circumstances for the instructor or for the student. The modular approach and the complete flexibility in terms of the online access and individualized customization enhance the facility with which the text may be employed.

For example, a typical Fundamentals class may not require an examination of the SATB style and part-writing procedures. In contrast, these would be critical skills for a Music Theory I course. The Instructor can freely choose what material suits a given need without resorting to an additional text. The multiple methods of access, electronically and in print, offer both instructor and student an elastic approach to the subject matter.

Introduction

A Definition of Music

In it's broadest possible sense, music is defined as "organized sound." This open-ended and safe definition is coherent regardless of era, style, culture, or the mechanics of musical organization. Each successive historical era produces musically artistic expressions of its own time, its own musical aura. The study of Music Theory is the means by which we investigate this.

A Definition of Music Theory

Music Theory is the study of music and its organizational characteristics. We define and examine aspects of music:

- How do we perceive music aurally?
- How do we experience music aesthetically and?
- How do we symbolize music visually?

We learn to associate sound with symbol (or notation), so to increase our ability to perceive music at levels of increasing depth and comprehension, both experientially and analytically.

The Purpose of Music Theory

The study of the language of music yields three unshakeable tenets:

- We learn to analyze music in order to gain an understanding of the how great composers create. We use it as a "window" into their minds, if you will;
- We learn to analyze music in order to deepen our own understanding, either as musicians or consumers of this form of artistic expression.
- We employ the knowledge gained in the study of music to stimulate and enhance our own creativity.

Among the community of musicians, the greater our comprehension, the more sublime our interpretation. This creates a more meaningful experience for our audience. This is the ultimate focus of the study of music.

As consumers, the more we understand about music, the more refined is our ability to intelligently evaluate what we enjoy. It is the intelligent consumer of Art who is the greatest supporter of Art.

The Means by which We Investigate Music

Examining music involves evaluation. At any level of experience, this begins with personal taste and preference. As we learn more, our method of evaluation evolves, becoming both more fluent and more critical. Clearly, over time and study, this shapes our perceptions and our tastes, regardless of what general direction these may take.

Any study begins with an examination of fundamental precepts or principles. Music is no different. The nature of perception, the basic constructs, craftsmanship in musical construction: all must be mastered in the study of music.

Two broad approaches are employed in the study of music:

- Analysis: we learn to employ commonly accepted techniques and specialized language to describe musical organization. These

techniques are a shared analytical language throughout the community of musicians. This is conceptual knowledge and evaluation.
- Composition: either by actively creating our own works, or (more likely for the beginner), imitating or emulating the works of earlier composers. This is active knowledge and procedure.

Both of these approaches will evolve as the student acquires more knowledge, skill, and greater understanding.

How We Perceive Music

At the most primary level, we experience music by five principal distinctive characteristics.

- Pitch: we perceive the sensation of sound (or tone) as relatively high or low.
- Duration: we perceive how much time sound (or silence) occupies.
- Timbre: we perceive various qualities or "colors" of sound.
- Intensity: we perceive differences in volume or sound pressure levels.
- Events in time: we perceive pitch collections (events) in the context of musical space (time).

These broad generalized definitions and concepts serve us well as a departure point. We can now progress from the general to the specific in our study.

Epigraph

"The man that hath no music in himself,

Nor is not mov'd with concord of sweet sounds,

Is fit for treasons, stratagems, and spoils."

- The Merchant of Venice (V, i)

Chapter 1

The Elements of Rhythm: Sound, Symbol, and Time

Introduction

The first musical stimulus anyone reacts to is rhythm. Initially, we perceive how music is organized in time, and how musical elements are organized rhythmically in relation to each other. Early Western music, centering upon the chant traditions for liturgical use, was *arhythmic* to a great extent: the flow of the Latin text was the principal determinant as to how the melody progressed through time.

As Western music moved from *monody* to *polyphony* ("single voice" to "multiple voices"), sets of symbols developed gradually that allowed musical time to be established against a recurring background pulse. This also allowed multiple elements in music to be established in tandem with one another. These symbols evolved into the *durational values* ("note values") that form the foundation for music notation.

1.1 Durational Values: Symbols Representing Time in Music

LEARNING OBJECTIVES

1. Describing durational values orthographically: how they are drawn.
2. Defining durational values in proportional relationship to one another.
3. Defining durational values in musical time and space.

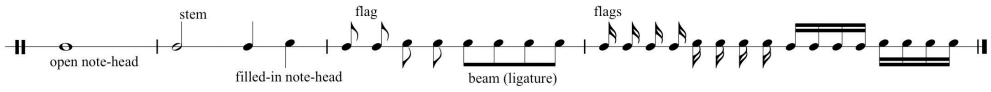
Durational values[1] are symbols that represent time and action in musical space: they delineate and mark off varying values of sound (and silence) in a composition. Additionally, they are proportional to one another as to how they may be divided from larger into smaller values.

There have been many differing notational systems throughout the history of music. In the context of other study, you may encounter these various and sundry systems from early Western notational traditions. Our current system of notation evolved from these early systems, incorporating aspects of many.

Components of Notes

Let us first examine how durational values are drawn:

Figure 1.1 *Components*



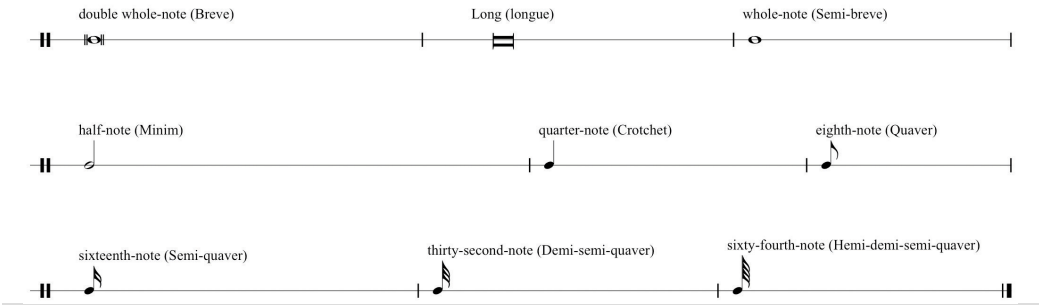
Note values may be “open notes” (not filled in or blackened), or “filled-in notes.” In the context of how musical time is organized (discussed below), these will have greater or lesser lengths or time spans.Chapter 2 "The Elements of Pitch:Sound, Symbol, and Tone" will discuss general rules and practices as to how note values are drawn in the context of pitch placement. In the following example they are not yet assigned any particular value: only proportional values in relation to each other.

1. Durational Values are those symbols (“note values”) that are used to represent the relative length of a particular sound in music.

Durational Values and Proportional Chain

Below are examples of basic durational values and their common names. Proper names for these values are in parentheses. These names are commonly used in the United Kingdom and Commonwealth countries, as well as by some academics.

Figure 1.2 *Durational Values and Nomenclature*

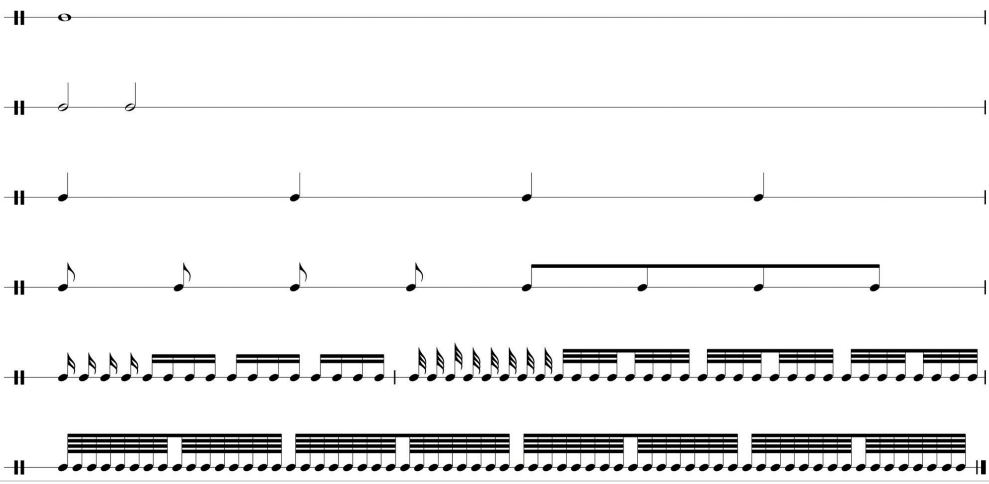


There are rare examples of "One-hundred and twenty-eighth-notes." A notable example is found in the First Movement Introduction to Beethoven's "Pathetique" Sonata No. 8, Opus 13.

> **"Pathetique" Sonata**
>
> These occur at the end of the Introduction. See this link:
>
> http://imslp.org/wiki/Piano_Sonata_No.8,_Op.13_(Beethoven,_Ludwig_van)

Durational values are held in proportion to one another. Observe that each value is proportionally related to adjacent values. If we assign the arbitrary value "1n" to a whole-note, then the half-note equals 1/2n. Therefore two half-notes are required to equal a whole note, two quarter-notes equal a half-note and so on.

Figure 1.3 Durational Value Chain

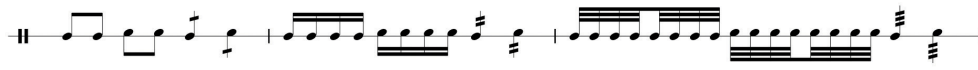


Tremolo

At times notes may have a diagonal slash (or slashes) through the stem, or below a note value that has no stem. These slashes are interpreted one of two ways:

1. These indicate a *tremolo*, the performer rapidly repeating the note, or;
2. As a notational convenience, slashes represent flags, denoting embedded smaller durational values:

Figure 1.4 Smaller Value "Slashes" (Tremolo)



These can be interpreted as "eighth-notes in the space of a half-note" (4), or sixteenth-notes in the space of a quarter," (4) and so on. This is merely a notational convenience employed as needed.

Dotted Values

Durational values may have small periods ("dots") appended to them. Originally, this evolved as a notational "convenience," a proportional division indication, or as a segment boundary. **Dotted values**[2] have three different interpretations:

2. Durational Values may be non-dotted or dotted. Dotted Values have three interpretations: (1) The dot represents the addition of half the original value; (2) The dotted value may divide into two lower dotted values; (3) Or the dotted value may divide into three non-dotted values. This potential division into three is critical for comprehending Compound Meter.

1. A dotted value may represent the addition of half of the original duration, or "half again as much as the original value" ("1+1/2*n*").

Figure 1.5 *Dotted Values: First Interpretation*

2. A dotted value may be divisible into three non-dotted values:

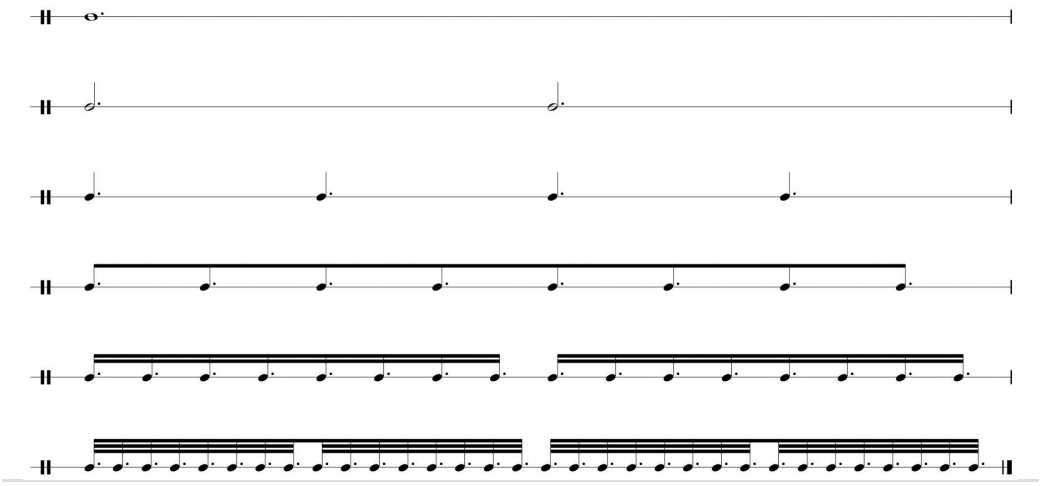
Figure 1.6 *Dotted Values: Second Interpretation*

3. A dotted value may be divisible into two smaller dotted values:

Figure 1.7 *Dotted Values: Third Interpretation*

These varying uses of dotted values shall come into focus in subsequent discussions concerning meter and notational practice in Section 1.2 "Pulse, Tempo, and Meter" and Section 1.3 "Music Notation Practices" below. As with non-dotted values, dotted values are in proportion to one another as well. Figure 1.8 "Dotted Values" shows the proportional chain of dotted values.

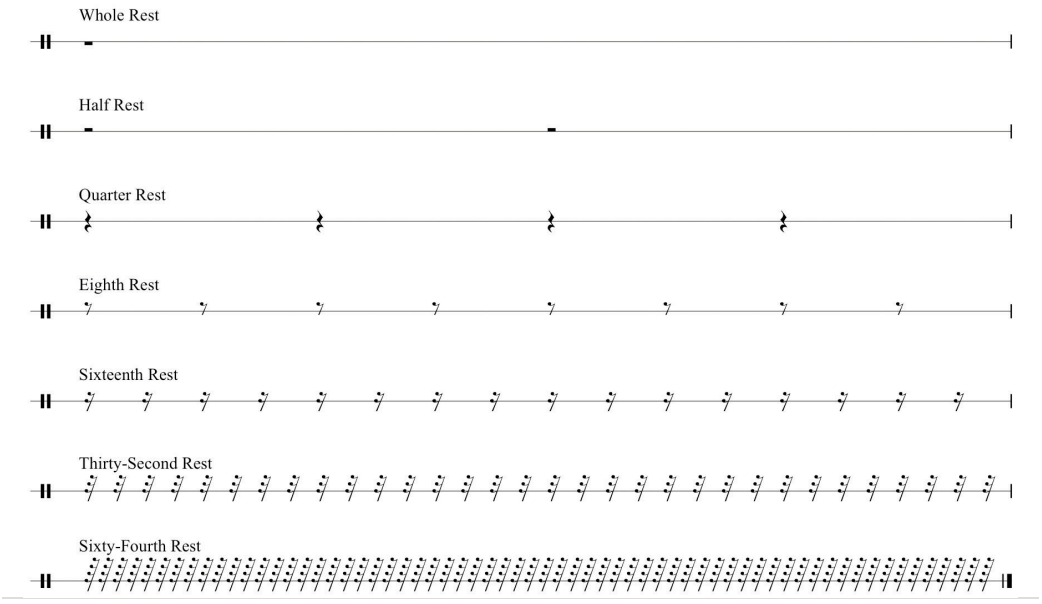
Figure 1.8 *Dotted Values*



Rests

Just as durational values represent the length of sound in music, symbols of equivalent value represent the length of silence. These are called **rests**[3]. Figure 1.9 "Rests" shows rests and their labels. As with durational values, rests are proportional to one another also.

Figure 1.9 *Rests*



3. Rests are the symbols used to represent the relative length of silence in music. They are equivalent in value to durations.

KEY TAKEAWAYS

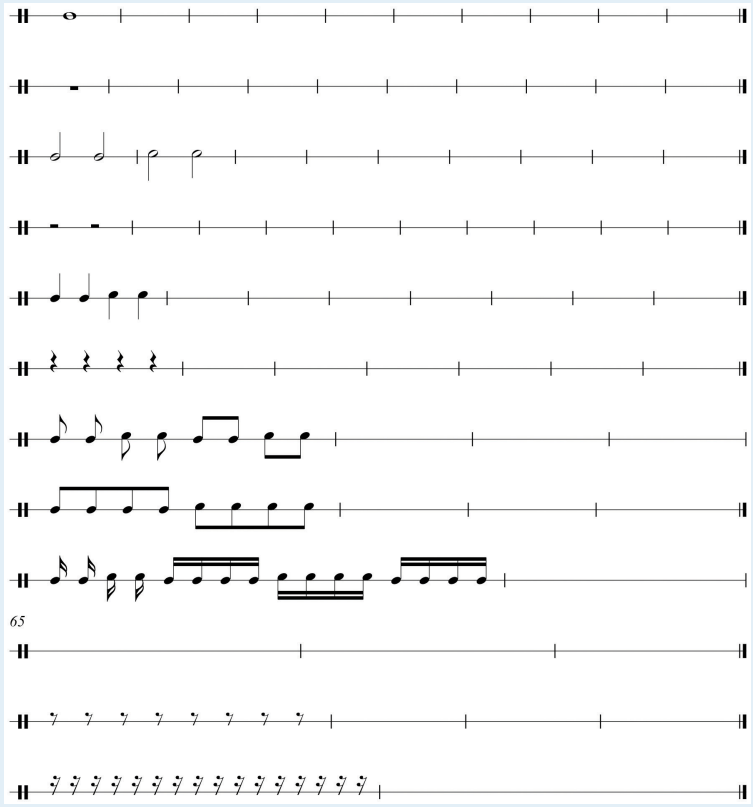
The student should understand:

- Musical time is represented by symbols called durational values. They may be dotted or non-dotted.
- Durational values: specific components and specific ways how they are drawn.
- Durational values are proportional to one another.
- Durational values have equivalent rest values.

EXERCISES

1. Practice drawing durational values and rests following the model below. Make sure to draw noteheads correctly (no "stick figures" please!).

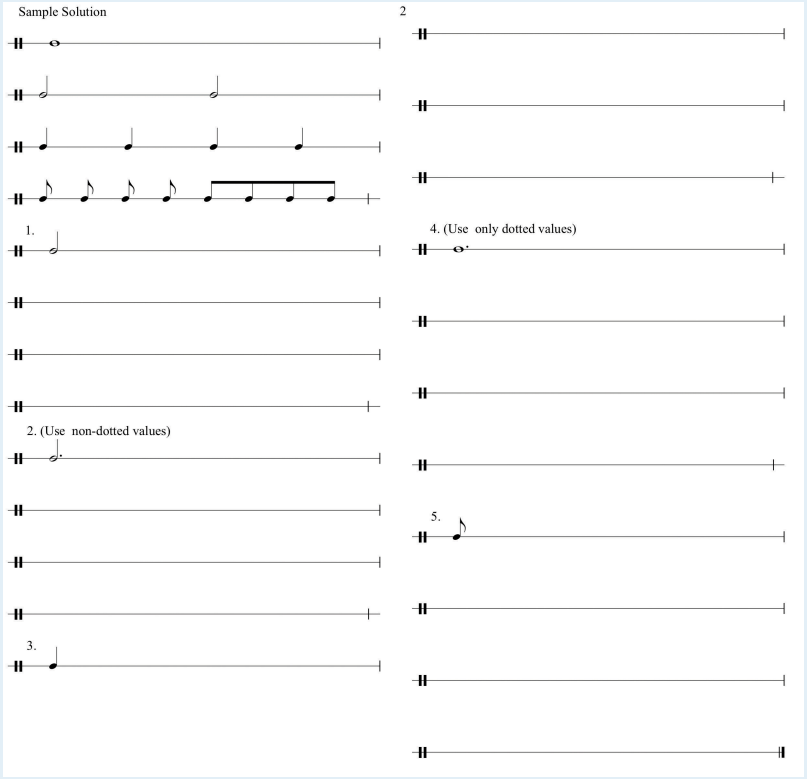
Figure 1.10
Durations and Rests



2. For each value given, draw three lower divisions: for example, given a whole-note, draw two half-notes, four quarter-notes, eight eighth-notes. Use flags and beams (ligatures). Make sure to align and space properly. See sample solution.

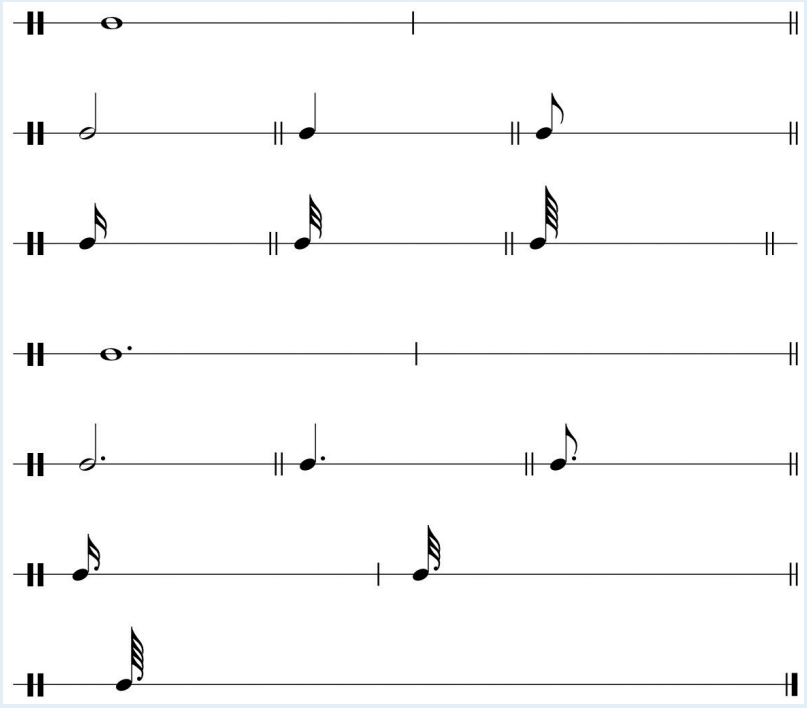
Figure 1.11

Duration Divisions



3. For each value given below, draw the appropriate equivalent rest.

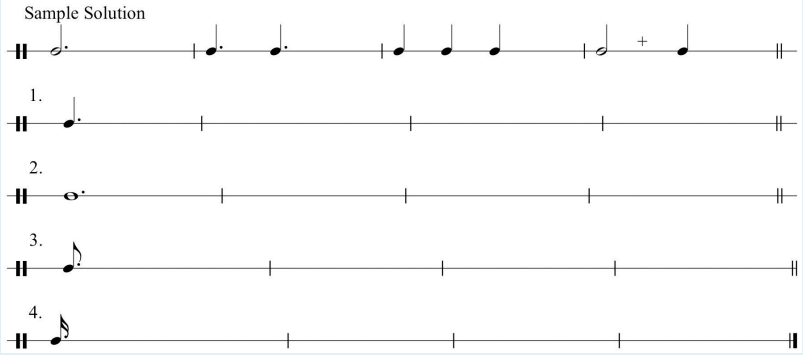
Figure 1.12
Equivalent Rests



4. For each dotted value:

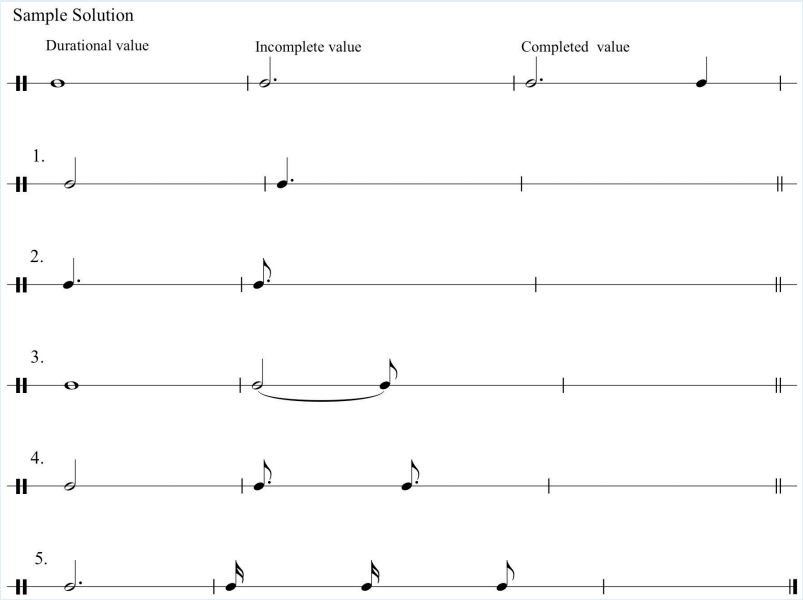
    a. Draw the appropriate dotted lower divisions, for example, a dotted half-note dividing into two dotted quarter-notes.
    b. Draw the appropriate non-dotted lower divisions, for example, a dotted half-note dividing into three quarter-notes.
    c. Draw the appropriate durational values that represent the addition of half the basic value. For example, a dotted half-note is a half-note plus a quarter-note (“half again as much”).

Figure 1.13
Dotted Values



5. For each incomplete example below, add the appropriate durational value that will complete the background value.

Figure 1.14
Incomplete Values



1.2 Pulse, Tempo, and Meter

LEARNING OBJECTIVES

1. Definitions of the elements of rhythmic organization.
2. Perception of Tempo and commonly used terms.
3. Mapping out meter (time signatures): the perception of Simple and Compound Time.
4. How these elements interact in music.

We perceive the organization of time in music in terms of three fundamental elements, *Pulse*, *Tempo*, and *Meter*. Use prompts to assist you in understanding these elements:

- *Pulse*—"beat": the background "heartbeat" of a piece of music.
- *Tempo*—"rate": the relatively fast or slow speed at which we perceive the *pulse* in a piece of music.
- *Meter*—"ratio": how durational values are assigned to represent the *pulse* are organized in discrete segments in a piece of music.

Pulse and Tempo

Pulse[4], or *beat*, is the regularly recurring underlying pulsation that we perceive that compels music to progress through time. Pulse makes us react *kinesthetically* to music: in other words, it compels motion. We tap our feet, we dance, we march, or we may just "feel" the pulse internally.

In a piece of music, some durational value is assigned to be the pulse. All other durations are proportionally related to that fundamental background pulse.

Tempo[5] (Latin: *tempus*-"time") is the rate (or relative speed) at which the pulse flows through time. This is determined by numerous methods:

1. A metronome marking: for example, MM=120 means the pulse progresses at 120 beats per minute (two beats per second). Often, in practice, the background durational value will be drawn and assigned a

4. Pulse (or beat) is the regularly recurring background pulsation in music.

5. Tempo is the rate at which we perceive the pulse in time. This is indicated by metronome markings, pulse value markings and terms.

metronomic value. (You will sometimes encounter the marking *bpm*, "beats per minute.")

Figure 1.15 *Metronome Marking and Pulse Marking*

2. Around the 17th Century (roughly!), Italian terms came to be used to indicate tempo. These terms were descriptive and therefore rather loosely interpreted as to exact tempo. These terms indicate a narrow "range" of metronomic speeds. For example, the term *Andante* means "going" or "a walking tempo." This usually equates to roughly 76 beats per minute, but may be interpreted at a slightly faster or slightly slower pace.
3. In an attempt to refine these terms, to make them more precise, diminutives were added: *Andantino* indicates a slightly faster pace than *Andante*. Other modifiers came into common practice as well. For example, *Andante con moto* ("going, with motion") is self-explanatory.

   Beginning in the 19th Century, composers often used equivalent tempo and performance descriptions in their native languages, or mixed Italianate terms and vernacular terms within the same piece.
4. It is important to understand that the use of these terms exceeded mere indications of relative speed. Often, they also carry the connotation of style or performance practice. For example, *Allegro con brio* ("lively, with fire or brilliance") implies a stylistic *manner* of performance, not merely a rate at which the pulse progresses through time. Chapter 19 "Appendix A: Common Musical Terms" lists common terms and their commonly accepted meanings along with some equivalents in other languages.

Meter and Time Signatures

Meter[6], expressed in music as a *time signature*, determines:

1. Which durational value is assigned to represent the fundamental background pulse;
2. How these pulses are grouped together in discrete segments;
3. How these pulses naturally subdivide into lesser durational values, and;
4. The relative strength of pulses (perceived accents) within segments or groupings of pulses.Concerning accentuation of pulse, you will

6. Meter is the "ratio" of how many of what type of pulse values are grouped together. Simple Meter divides the pulse into two equal portions; Compound Meter divides the pulse into three equal portions.

encounter the terms *Arsis* and *Thesis*, terms adapted from Hellenistic poetic meter. These have come to mean "upbeat" and "downbeat" respectively. These are nearly slang definitions or, at best, jargon. *Arsis* is best described as "preparatory," hence perceived as a relatively weak pulse. Thesis is best described as "accentuated," hence relatively strong. It is interesting to note that, at various times in the history of music, the meaning of these two terms has been reversed from time to time.

Time signatures[7] consist of two numbers, one over another, placed at the beginning of a composition. They may occur anywhere in a composition where a meter change is required. They are NEVER written as fractions!

Simple and Compound Meter

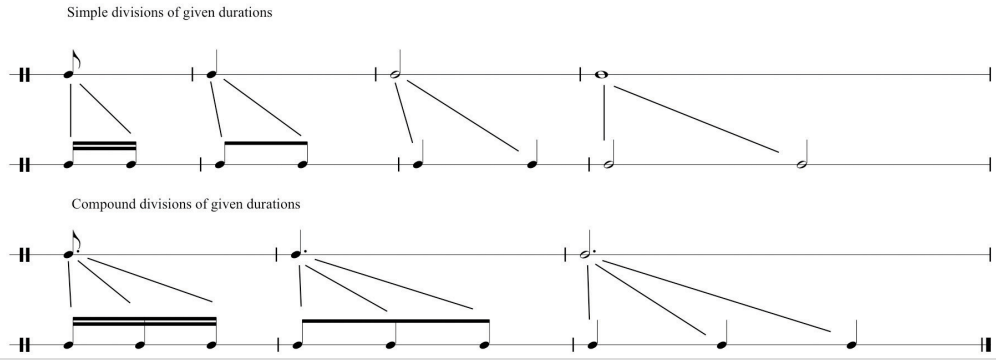
To understand meter fully, we must first determine the fundamental nature of the prevailing background pulse or beat. In given meters, we perceive beats as having the potential (or capacity) of being divided in two ways:

1. The prevailing background pulse may be subdivided into *two* proportionally equal portions. Meters having this attribute are labeled *Simple Meter* (or *Simple time*).
2. The prevailing background pulse may be subdivided into *three* proportionally equal portions. Meters having this attribute are labeled *Compound Meter* (*Compound time*).

We name meters according to two criteria:

1. Is it *Simple* or *Compound* time?
2. How many prevailing background pulses are grouped together?

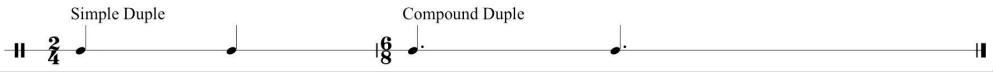
Figure 1.16 *Simple and Compound Divisions of Given Pulses*



7. Meter is expressed as time signatures, indicating how many pulses (beats) are grouped together into cogent units.

So, a time signature wherein (a) the pulse subdivides into two portions, and (b) two pulses are grouped together is called *Simple Duple*. Three pulses grouped together, *Simple Triple* and so forth. A time signature wherein (a) the pulse subdivides into three portions, and (b) two pulses are grouped together is called *Compound Duple*, three pulses, *Compound Triple*, and so forth.

Figure 1.17 *Time Signatures and Labels*



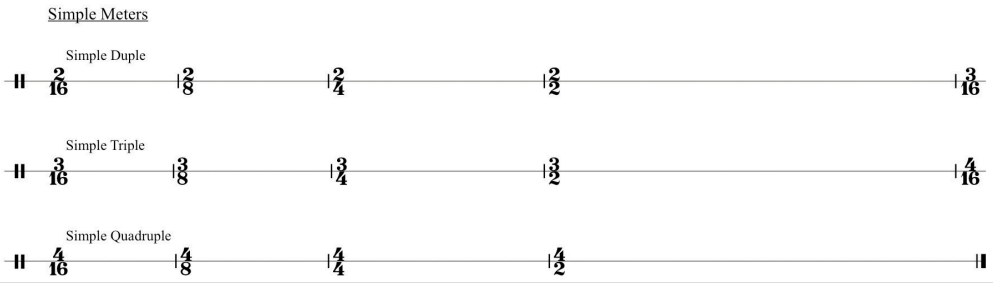
Simple Meter

Let us address simple meter first. Analyze this by answering two questions concerning the stated time signature:

1. **For the top number: "***How many…?***" In other words, how many prevailing background pulse values (or their relative equivalent values and/or rests) are grouped together?**
2. **For the bottom number: "***…of what kind?***" In other words, what durational value has been assigned to represent the prevailing background pulse?**

So the time signature $\frac{2}{4}$ has two quarter-notes grouped together, therefore, we label this as Simple Duple.

Figure 1.18 *Typical Simple Meters*



In Renaissance music, specialized symbols were employed that were the forerunner of time signatures. These symbols determined how relative durational values were held in proportion to one another. We continue to employ two holdovers from this system.

Figure 1.19 *"Common Time" and "Cut Time"*

"Common Time" and "Cut Time," are slang terms. Other names for "Cut Time" are "March Time" and the proper name, *Alla Breve*.

The Time Signature Table

The characteristics of individual time signatures are perceived in multiple layers that can be reduced to three basic levels:

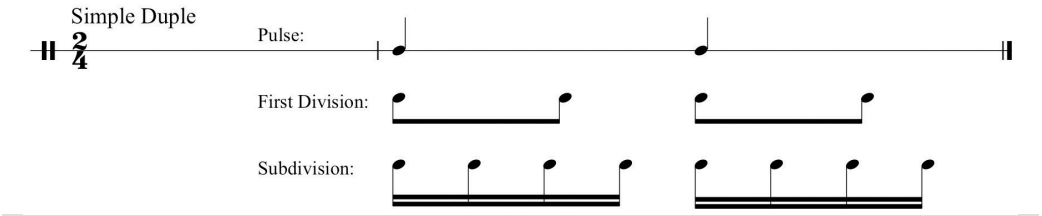
1. The prevailing background **Pulse** or beat.
2. **First Division**: the level wherein we determine if the pulse divides into two equal portions (simple meter) or three equal portions (compound meter).
3. **Subdivisions**: how First Division values subdivide into proportionally smaller values.

Therefore, we can graph time signatures using the following table.

Table 1.1 Time Signature Table

Pulse	(The fundamental background pulse.)
First Division	(The level determining pulse division into two portions or three portions.)
Subdivisions	(Subsequent divisions into smaller values.)

Figure 1.20 *Time Signature Table Example*



Use this table to map out time signatures and their component organizational layers.

Compound Meter

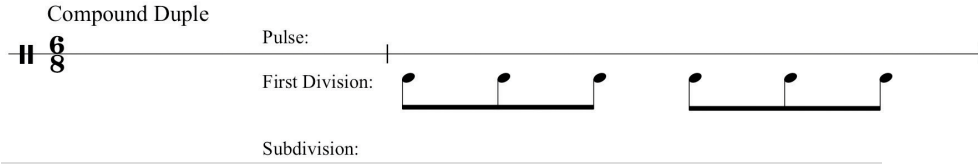
Understanding compound meters is somewhat more complex. Several preparatory statements will assist in comprehension:

1. **Compound Meters have certain characteristics that will enable prompt recognition:**
    a. The upper number is 3 or a multiple of 3.
    b. The prevailing background pulse must be a dotted value: remember, in compound meter, the pulse must have the capacity to divide into three equal portions.
    c. Subdivisions of the background pulse are usually grouped in sets of three by the use of beams (ligatures).
2. **In theory, any Compound Meter may be perceived as Simple Meter,***depending upon the tempo:*
    a. If a tempo is slow enough, any compound time signature may be perceived as a simple meter.
    b. In practice, this is limited by style and context in compositions.
3. **In Compound Meter, the written time signature represents the level of First Division,***not Pulse:*
    a. In order to find the pulse value in compound time signatures, use the Time Signature Table. List First Division values (the written time signature) in groupings of three.
    b. Sum these to the dotted value representing Pulse. List these accordingly in the Table.

As with Simple time signatures, let us employ the same Time Signature Table to graph Compound time signatures. Reviewing **Statement 3** above, we will follow a slightly different procedure than that used for graphing Simple Meter:

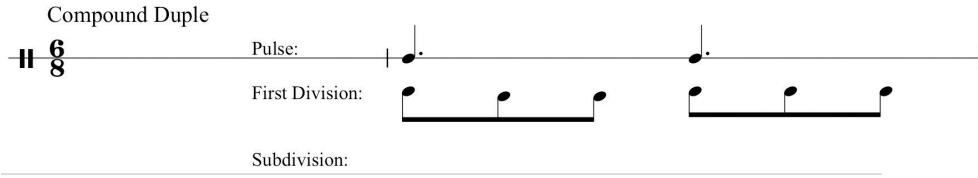
1. For the Compound Duple time signature $\frac{6}{8}$ list six eighth-notes in two groupings of three in the First Division row:

Figure 1.21 *Compound Meter, First Division Groupings*



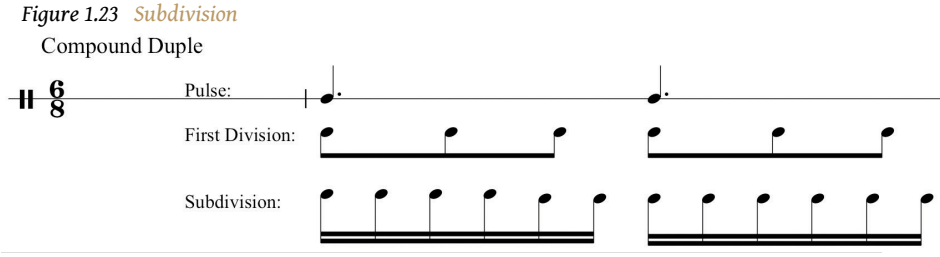
2. Next, sum these groupings of three into dotted values ("two eighth-notes equal a quarter-note, the additional quarter-note represented by a dot"); list the two resulting dotted quarter-notes in the Pulse row:

Figure 1.22 *Sum to Find Compound Pulse Value*



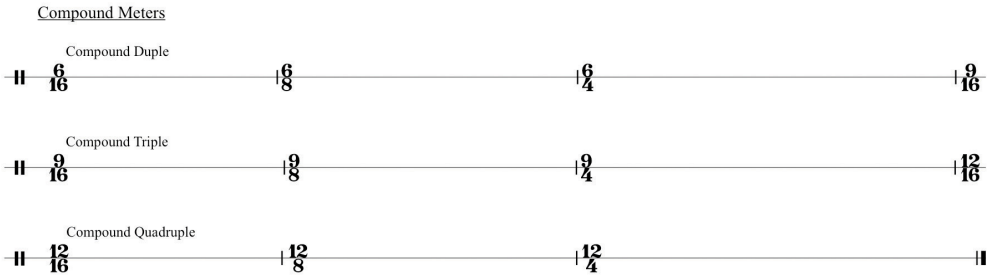
3. Lastly, draw subdivisions of the First Division values in the Subdivision row:

Figure 1.23 *Subdivision*



Below are typical compound meters and their respective labels.

Figure 1.24 *Typical Compound Meters*



Note that Simple meters divide all values into two subdivisions in each level of the Table. Compound meters divide the First Division level into three (see **Statement 1** above). Subsequent subdivisions divide into two.

Simple Triple Interpreted as Compound Meter

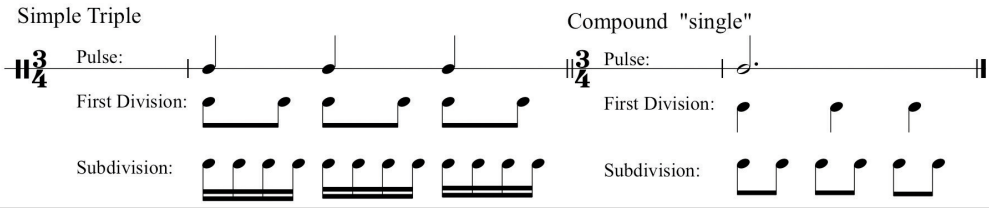
Some Simple Triple time signatures may be perceived as either simple or compound, again depending upon tempo. In practice, this is a limited list: The time signatures:

$$\frac{3}{16} \quad \frac{3}{8} \quad \frac{3}{4}$$

may be perceived as Simple Triple if the tempo is relatively slow. In other words, you perceive the "lower number" of the time signature as the fundamental background pulse value. As the tempo for any of these becomes relatively faster, we cease to perceive the lower number as Pulse. Instead we perceive the lower number as the First Division of a Compound meter.

The Time Signature Table will show this:

Figure 1.25 *Simple Triple, Compound "Single"*



In the next section, these fundamental elements of sound, symbol, and time will be placed in full musical context by uniting them with common notational practices.

KEY TAKEAWAYS

The student should be able to define and understand:

- Pulse (“beat”), Tempo (“rate”), and Meter (“ratio”).
- Simple Meter: recognizing and analyzing Simple Time Signatures.
- Compound Meter: recognizing and analyzing Compound Time Signatures.
- Time Signatures that may be perceived as either Simple or Compound and why they are so perceived.
- Using the Time Signature Table as a tool for graphing Time Signatures.

EXERCISES

1. Using the Time Signature Table, map out all examples of:

   a. Simple Duple and Compound Duple.

Pulse	
First Division	
Subdivisions	

   b. Simple Triple and Compound Triple.

Pulse	
First Division	
Subdivisions	

   c. Simple Quadruple and Compound Quadruple.

Pulse	
First Division	
Subdivisions	

   Note: At the Subdivision level, draw one layer of subdivisions only.

2. Using the Time Signature Table map out the following time signatures as both Simple and Compound Meters:

   a. $\frac{3}{16}$

Pulse	
First Division	

Subdivisions	

b. $\frac{3}{8}$

Pulse	
First Division	
Subdivisions	

c. $\frac{6}{8}$

Pulse	
First Division	
Subdivisions	

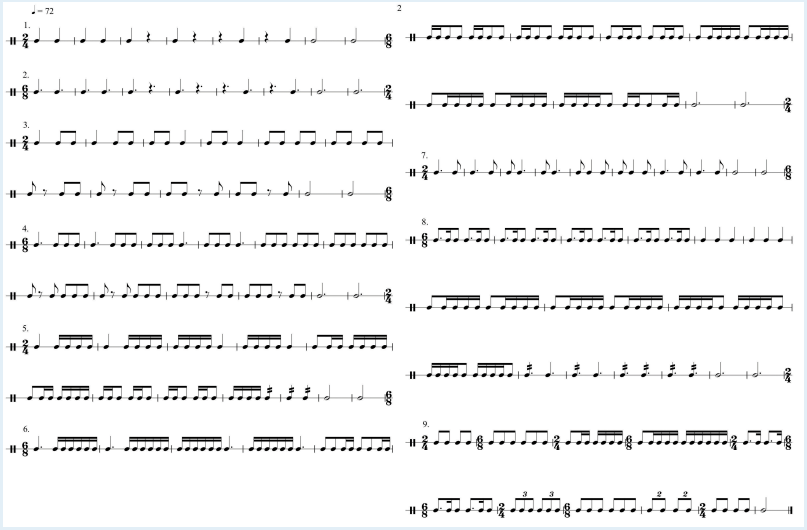
d. $\frac{9}{8}$

Pulse	
First Division	
Subdivisions	

3. In class (or some group), practice tapping a slow beat with your left foot. Against that beat tap two equal ("even") divisions with your right hand (simple division). Next, keeping that same slow beat in your left foot, practice tapping three equal ("even") divisions with your right hand (compound division). Lastly, switch hands and feet. Good luck.

4. The following exercises alternate between simple duple and compound duple. Tap these rhythms while keeping the same constant background pulse. Practice each segment separately at first: then practice in sequence, switching from simple to compound time as you go.

Figure 1.26
Rhythm Drill



1.3 Music Notation Practices

LEARNING OBJECTIVES

1. Defining and understanding measures and bar lines.
2. Defining and recognizing sectional directions: “Roadmaps” in music.
3. Learning basic conducting patterns.

In Section 1.2 "Pulse, Tempo, and Meter", when describing meter and time signatures, we spoke of “grouping pulse values together” to form discrete units. In music these groupings are delimited, or “bounded” by vertical strokes called bar lines. Bar lines serve as boundaries, defining a “measure” of music.For these examples we will employ a five-line staff. Use of the staff will be explained fully in Chapter 2 "The Elements of Pitch:Sound, Symbol, and Tone".

The crossover period between Renaissance and Baroque music at end of the 16th Century and the beginning of the 17th Century witnessed many changes as to how music was written. The rise of the “Second Practice,” (*Seconda prattica*) or “New Style” (*Stile moderno*) of composition (early opera) and the concomitant rise of instrumental music necessitated changes in notational practice.

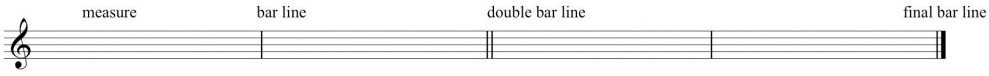
Since rhythmic durations in Renaissance music were organized in proportion to one another (differing forms of *mensural* notation), measures and their separating bar lines were not in use, nor were time signatures, as we know them. These elements came into gradual use. Scholars offer many explanations for this: practicality and ease of reading and interpretation, a shift away from multi-voiced music and toward solo or homophonic settings in dramatic music, the desire for segmenting music into discrete segments, and so forth.

Measure and Bar lines

This became common notational practice. A **measure**[8] of music constituted beat groupings (or their durational equivalents) within the context of the stated time signature, bounded by a bar-line. Composers may use a double bar line to denote sectional divisions in a piece. A final bar line ends the composition.

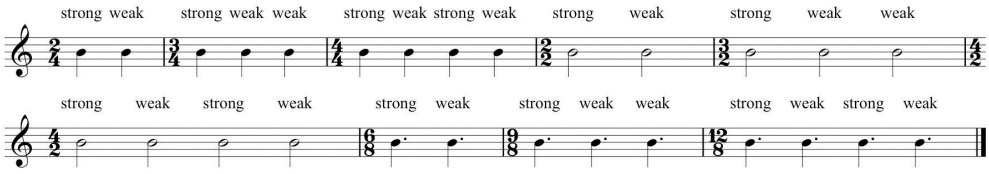
8. A measure of music is a span of music, bounded by a bar line. It is a discrete grouping of pulse values dictated by the time signature.

Figure 1.27 *Measure, Bar lines, Double bar line, Final bar line*



Within measures, specified beats received greater of lesser accentuation, referred to simply as "*strong*" or "*weak*" beats. This perception is based upon how the relative strength of beats is perceived in a given time signature.

Figure 1.28 *Sample Time Signatures and Beat Accents*



Conducting Patterns

As performers, as teachers, and as potential ensemble leaders, all musicians must have a basic understanding of typical conducting patterns. In conducting, the terms *arsis* and *thesis* will be encountered. In this context, synonyms for these terms are "*upbeat*" (preparatory beat) and "*downbeat*" (commencement beat). The common conducting patterns are shown in Figure 1.29 "Two-Pattern" through Figure 1.33 "Six-Pattern".

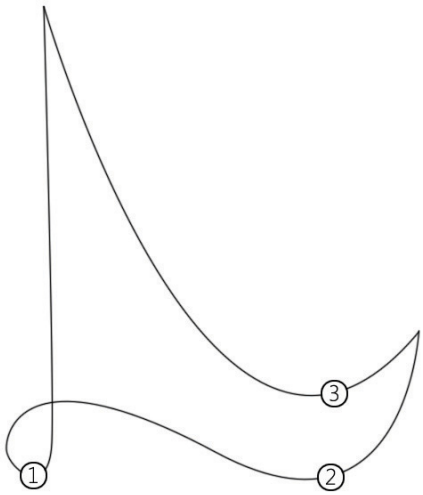
The Basic Two-Pattern: for example any simple duple or compound duple time signature. When practicing this, think "away (from the body)-up, away-up...

Figure 1.29 Two-Pattern

All conducting figures by Michael Paolantonio

The Basic Three-Pattern: any simple triple or compound triple time signature. Think “down-away-up…”

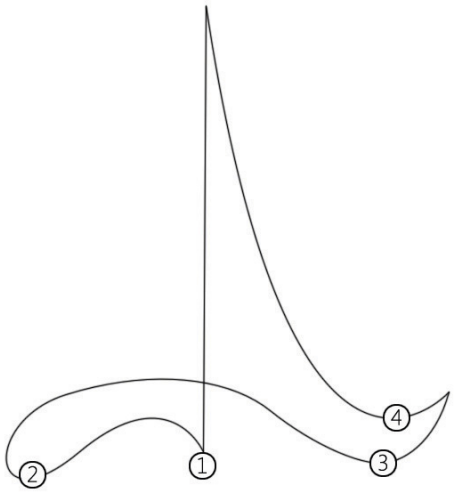
Figure 1.30 Three-Pattern



All conducting figures by Michael Paolantonio

The Basic Four-Pattern: any simple or compound quadruple time signature. Think "down-across-away-up..."

Figure 1.31 Four-Pattern



All conducting figures by Michael Paolantonio

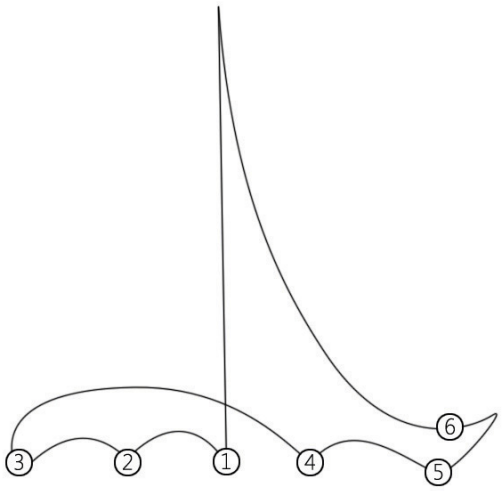
The One-Pattern: depending upon tempo, triple meters may be conducted “in one.” Refer to Section 1.2 "Pulse, Tempo, and Meter".

Figure 1.32 One-Pattern

All conducting figures by Michael Paolantonio

The Basic Six-Pattern:

Figure 1.33 *Six-Pattern*

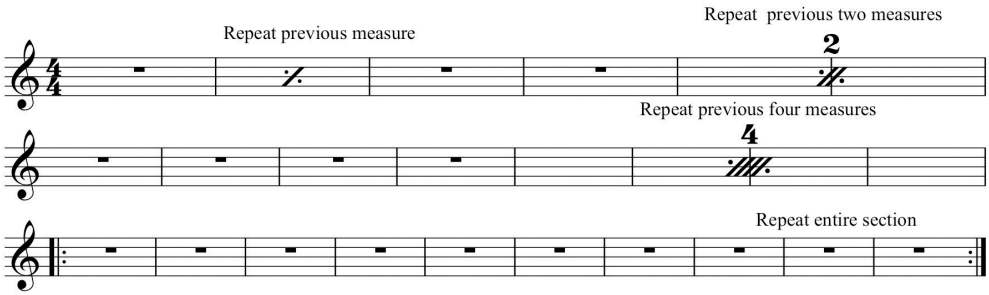


All conducting figures by Michael Paolantonio

Repeats and Endings

Numerous expedient shortcuts evolved to facilitate writing music efficiently, as well as eliminating the redundancy of writing a given passage over again. Specific symbols, called **repeat signs**[9] or *repeats*, came into use whereby a composer could indicate the repetition of a measure, a group of measures, or an entire passage.

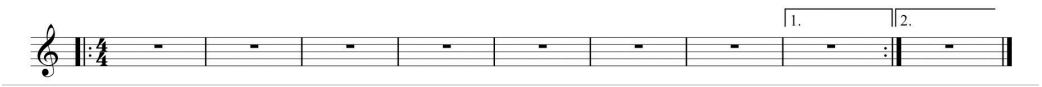
Figure 1.34 *Repeats, Measure Repeats, Section Repeats*



9. Special symbols indicating that segments of the music previously performed are to be repeated.

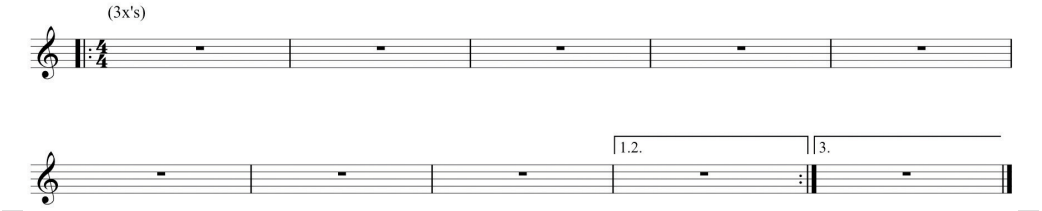
A repeated section might end differently than its first iteration: the repeated section might end differently or it might make a transition to a new section. Composers employ “First and Second Endings” to serve this function.

Figure 1.35 *First and Second Endings*



A passage repeated multiple times is so indicated by listing the number of repetitions in the first ending. In Jazz notation and vernacular music, this may be accompanied by an instruction at the beginning of the passage that indicates the number of iterations, for example, *3x's*, meaning “repeat this passage three times.”

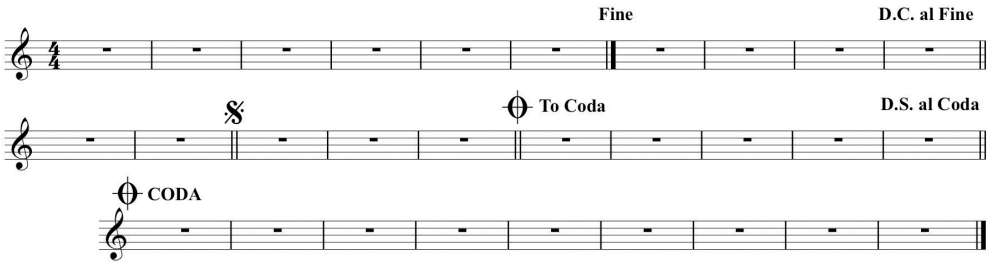
Figure 1.36 *Multiple Endings*



At times in a composition, it is desirable or necessary to repeat an entire earlier passage, or return to the beginning of the piece. Rather than re-write the particular passage, specific notational expedients evolved to accommodate this. These shortcuts employed Italian phrases, accompanied by specific symbols. These phases and symbols are directions to the performer as to what segment is repeated and how to conclude the piece.

1. *Da Capo* (“from the head...”): return to the beginning of the piece. Abbreviated as *D.C.*
2. *Dal Segno* (“from the sign...”): return to the “sign.” Abbreviated as *D.S.* The *segno* is a special symbol, shown in Figure 1.37 "D.C. al Fine, D.S. al Coda".
3. *... al Fine* (“to the finish”): Most often used in conjunction with *Da Capo*, the word *Fine* appears above the music at the point which tells the performer to end the piece.
4. *... Al Coda* (“ to the tail”): Most often used in conjunction with *Dal Segno*, this symbol (see Figure 1.37 "D.C. al Fine, D.S. al Coda") instructs the performer to “jump” to a final, separate, concluding section of the piece.

Figure 1.37 D.C. al Fine, D.S. al Coda



KEY TAKEAWAYS

The student should be able to define and understand:

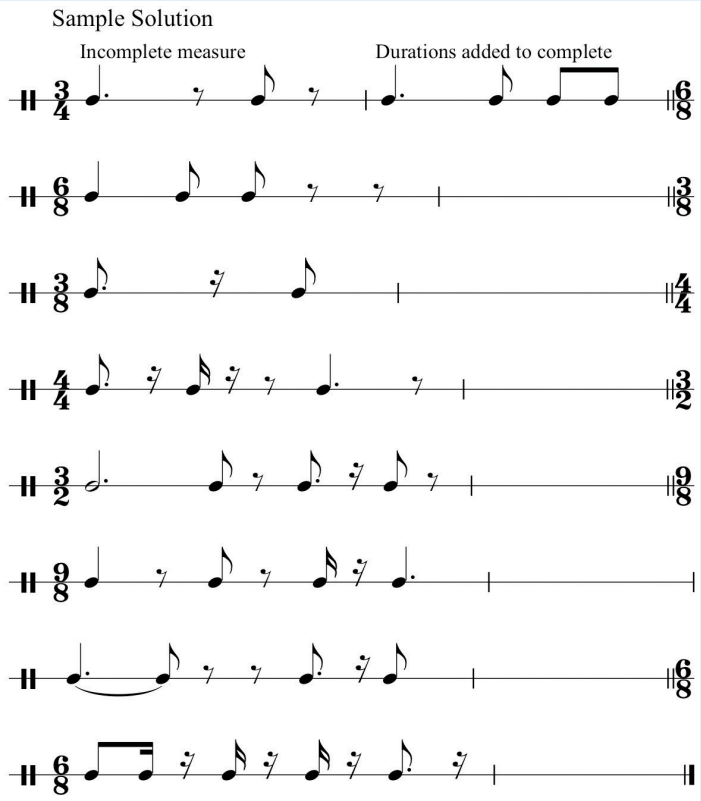
- Measures and Bar lines.
- Basic Conducting Patterns
- Repeats
- D.C. al Fine, D.S. al Coda

EXERCISES

1. Using a metronome to provide a background pulse, practice conducting patterns in 2, 3, 4, 6. Vary the tempo.

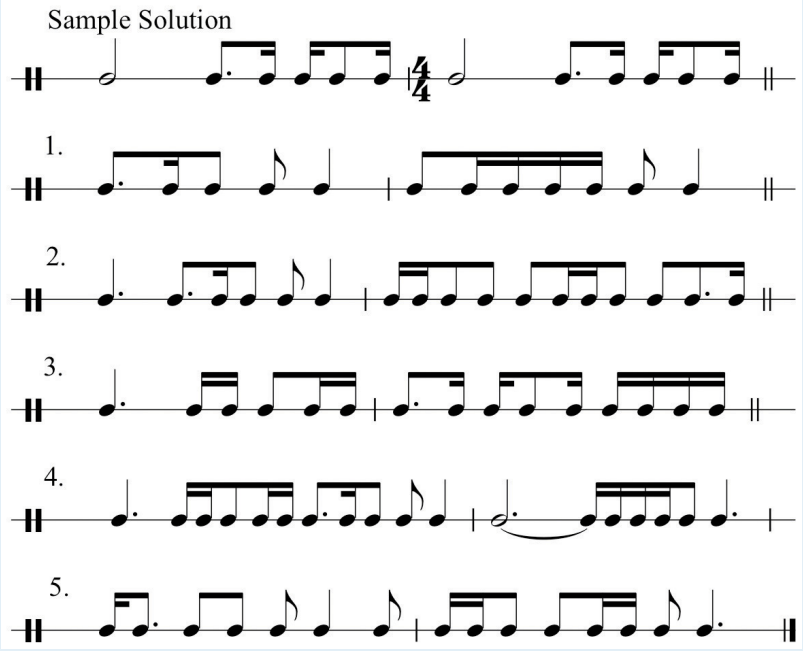
2. Incomplete rhythms are given in each of the following measures. Add the appropriate durational value to complete the measure. See example.

Figure 1.38
Incomplete Measures



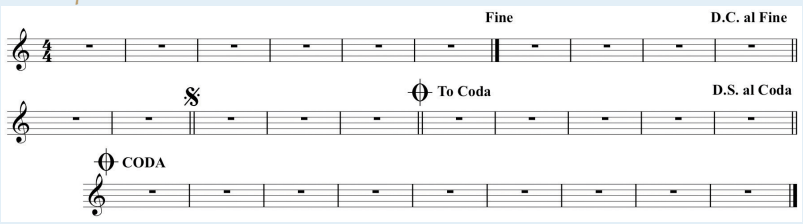
3. For each of the following examples write in the missing time signature and label the meter type.

Figure 1.39
Identify Meter



4. In each example below using “roadmaps”, draw arrows to indicate what segment is repeated and how the segment concludes. See example.

Figure 1.40
“Roadmaps”



1.4 Additional Information

LEARNING OBJECTIVES

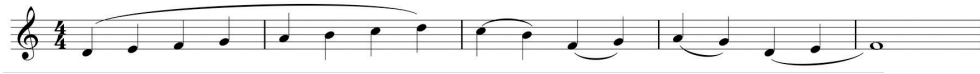
1. Slurs, phrase markings and ties.
2. Dynamics and common articulations.
3. Artificial division ("tuplets").
4. Syncopation
5. Introduction to Asymmetrical Meter

Slurs, Phrase Markings and Ties

Curves lines have several uses in music notation. Curves lines may be drawn above or below segments of a composition (*slurs* or *phrase markings*). A curved line may also connect two note values across a bar-line (*ties*).

1. A **slur**[10] is a performance indication in music, used to instruct the performer to connect those notes encompassed by the slur. A wind player will not articulate ("tongue") these notes, a string player will play them all in one bow stroke, a pianist will strive to connect the notes fluidly.

Figure 1.41 Slurs



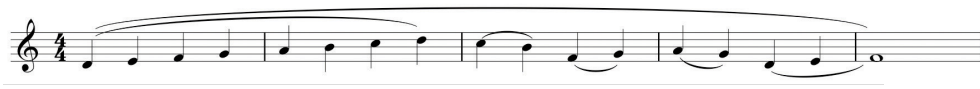
Slurs should be drawn connecting or encompassing note-heads. A common mistake by students is to draw slurs connecting stems. The exception to this general practice occurs when a slur is drawn over note stems that change direction. (See measure 1 of Figure 1.41 "Slurs".)

2. A **phrase marking**[11] is also a performance indication. A composer will encase a passage of music within a phrase marking to indicate a complete idea, a complete musical statement. This does not have any effect upon articulation: many times slurs may be found within the bounds of a phrase marking. Phrase markings are placed above the staff.

10. Slurs are curved lines above or below notes showing connection.

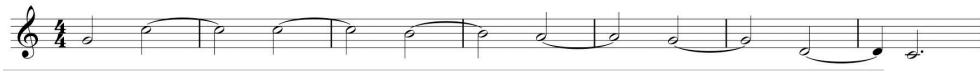
11. Phrase markings are curved lines over segments of music showing complete ideas or statements.

Figure 1.42 *Phrase Markings*



3. At times a durational value exceeds the bounds of a measure in a given time signature: the note value occupies more "beats" than the measure will allow. To accommodate this, we use a **tie**[12], a short curved line connecting one durational value to another in the succeeding measure.

Figure 1.43 *Ties*



Dynamic Markings and Articulations

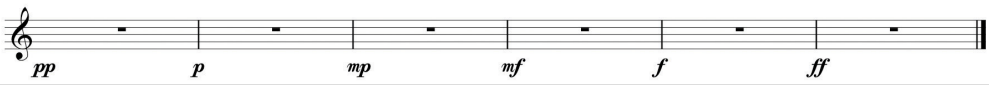
Dynamic markings indicate relative degrees of volume in a composition or a passage of music. Articulations are common symbols (and their associated terms) directing how notes are performed. These are listed in Chapter 19 "Appendix A: Common Musical Terms" with other common musical terms.

The basic dynamic markings are:

1. *pianissimo*: very "soft" (quiet)
2. *piano*: "soft"
3. *mezzo-piano*: medium "soft"
4. *mezzo-forte*: medium "strong" or loud
5. *forte*: strong or loud
6. *fortissimo*: very strong or loud

Some composers expand this range, adding dynamic markings using three or four "p's" or three or four "f's."

Figure 1.44 *Basic Dynamic Markings*

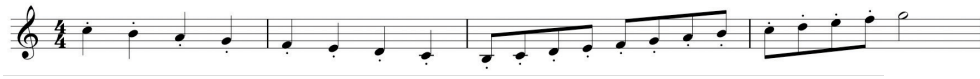


12. A tie is a short slur used to connect notes across a bar line.

Composers employ special markings that serve as performance "indicators," denoting how notes are to be performed. Those commonly used are listed below.

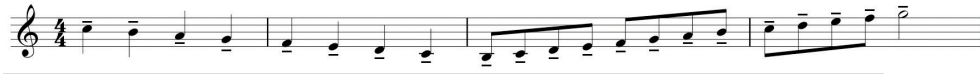
1. *Staccato*: originally interpreted as "half the written value," it has come to mean "detached" (not necessarily "short").

Figure 1.45 Staccato Examples



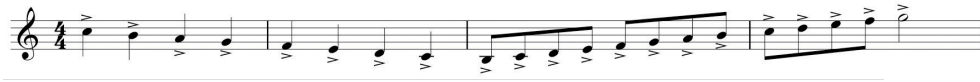
2. *Legato*: properly *Tenuto* ("held"), meaning held to full value and implying connection to the following note value.

Figure 1.46 Legato Examples



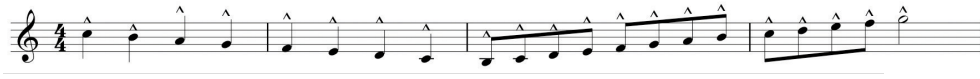
3. *Marcato*: ("marked"), accented.

Figure 1.47 Marcato Examples



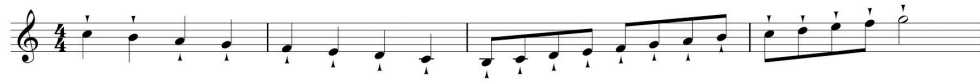
4. *Marcatisimo*: heavily accented.

Figure 1.48 Marcatissimo Examples



5. *Martelé*: in writing for strings, this marking is used to denote a very heavy accent, heavy bow pressure being achieved by the use of "downbow."

Figure 1.49 Martelé Examples

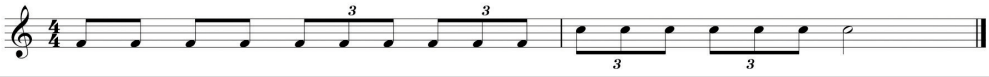


Artificial Divisions

Review the fundamental attributes defining simple and compound meter. Simple meter divides the fundamental pulse into two portions, compound meter into three. At times it is desirable (or necessary) to insert a compound division into simple time, or a simple division into compound time. This process is called **artificial division**[13], commonly called *tuplets*.

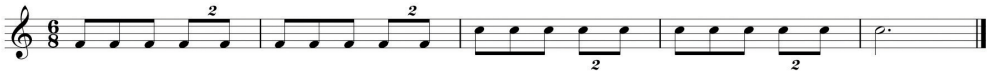
In a simple meter, inserting a compound division (artificially dividing the beat into three equal portions) is called a *triplet* and is written thus:

Figure 1.50 *Triplets in Simple Meter*



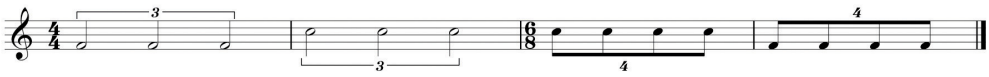
Conversely, inserting a simple division into a compound meter (artificially dividing the beat unto two equal portions) is called a duplet, and is written thus:

Figure 1.51 *Duplets in Compound Meter*



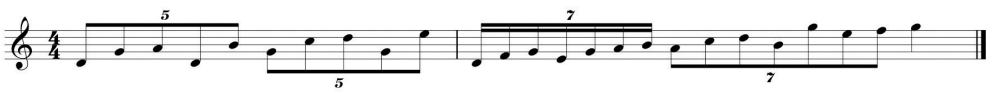
A triplet may occur across multiple beats in Simple Meter, called a *super-triplet*. In Compound Meter, a larger tuplet across multiple beats may occur.

Figure 1.52 *Super-triplet, Tuplet*



Composers have employed many other *tuplet* figures, inserting larger artificial divisions within beats or groups of beats.

Figure 1.53 *Examples of Larger Tuplets*



13. Inserting a compound division into simple time (triplets) or simple divisions into compound time (duplet).

Artificial division is used as a process for making rigid time and beat division much more fluid and irregular. This technique is especially prevalent in music from the 19th Century onwards.

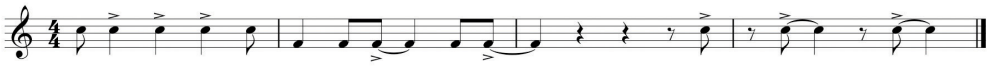
Syncopation

Syncopation is another common rhythmic device. The simplest definition of syncopation is:

1. An arrangement of durational values that places accents or "stress" where it is unexpected.
2. This translates to "accents on the off-beats" (or weak beats)."
3. Originating as a rhythmic device in early music, it has become an especially prevalent attribute of music after 1900.
4. Syncopation does occur in certain contexts throughout the evolution of Western music.

Here are some typical rhythmic patterns demonstrating this device:

Figure 1.54 *Examples of Syncopation Patterns*



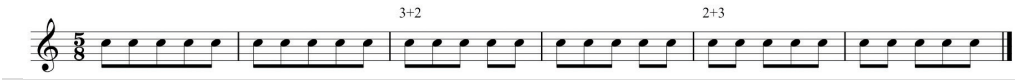
Asymmetrical Meter

Asymmetrical meter has become a very common device in the composer's arsenal. Often called "Odd-meters" (a slang term) because the top number of such time signatures is an "odd number," these are time signatures that mix simple and compound beats within a measure or pulse grouping. Common examples are:

$$\frac{5}{16} \quad \frac{5}{8} \quad \frac{5}{4} \quad \frac{7}{16} \quad \frac{7}{8} \quad \frac{7}{4} \quad \frac{11}{16} \quad \frac{11}{8} \quad \frac{11}{4} \quad \frac{13}{16} \quad \frac{13}{8} \quad \frac{13}{4}$$

Triple meters and their multiples are not included in this category generally. Often these meters are treated in the same manner that we treat compound meters, that is, the written time signature represents First Division. So, for example, $\frac{5}{8}$ might be grouped as two eighth notes plus three eighth notes or the reverse.

Figure 1.55 *Division Groupings*



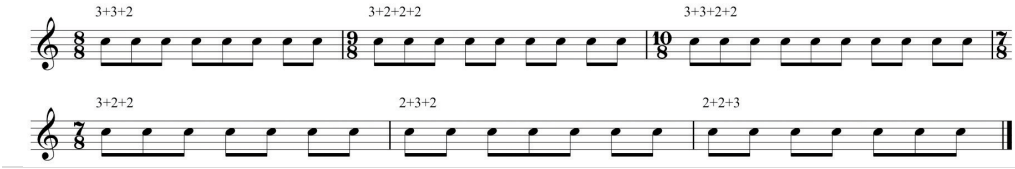
A seven-meter might be grouped 2+2+3, 3+2+2, or 2+3+2, and so forth for other asymmetrical meters. It is possible to construct asymmetrical divisions from typical meters by irregular groupings. For example,

$$\frac{8}{8} \text{ might be grouped as } 3 + 3 + 2$$

$$\frac{5}{8} \text{ might be grouped as } 3 + 2 + 2 + 2$$

$$\frac{10}{5} \text{ might be grouped as } 3 + 3 + 2 + 2 \text{ and so forth}$$

Figure 1.56 *Other Meters and Sample Groupings*



Until the 20th Century, there were relatively few examples of asymmetrical meter in the literature. A notable exception is the second movement of Tchaikovsky's Sixth Symphony (*Páthetique*) (in 5).

Symphony No. 6, II

See this link:

http://imslp.org/wiki/Symphony_No.6,_Op.74_(Tchaikovsky,_Pyotr_Ilyich)

Asymmetrical meter is a hallmark of 20th- and 21st-century music, in both classical and vernacular genre. Composers freely employed asymmetrical meters for entire

segments and pieces or employed them incidentally as context demanded. Examples that come readily to mind include:

- "Money," Pink Floyd (*Dark Side of the Moon*) in 7 (4+3);
- "Solesbury Hill," Peter Gabriel, mostly in 7 (4+3);
- "Back in New York City," Genesis (*The Lamb Lies Down on Broadway*), again mostly in 7 (2+2+3);
- The wonderful compositions and arrangements by the legendary Jazz artist Hank Levy;
- Béla Bartók, *Concerto for Orchestra*, IV, *Intermezzo*, simple duple alternating with 5;
- Igor Stravinsky, the closing passage of *L'Oiseau de feu* (*The Firebird*), *Le Sacre du Printemps*
- (*The Rite of Spring*);

There are many other examples.

It became customary for 20th-century composers to mix asymmetrical meters as needed, their use dictated by phrasing, text rhythm, and so forth. Concluding our discussion of rhythm, we are fully prepared to enter the realm of pitch in the next chapter.

KEY TAKEAWAYS

The student should understand:

- Uses of the slur (phrase marking, tie).
- Basic dynamics and basic articulations.
- Syncopation.
- Asymmetrical meters.

EXERCISES

1. List the six basic dynamics markings and give their relative volumes.

2. Using the Time Signature Table, graph the following asymmetrical meters. List each written time signature in the First Division row, sum to find component Pulses, then provide one level of Subdivision.

a. $\frac{5}{16}$

Pulse	
First Division	
Subdivisions	

b. $\frac{5}{8}$

Pulse	
First Division	
Subdivisions	

c. $\frac{7}{8}$

Pulse	
First Division	
Subdivisions	

d. $\frac{11}{8}$

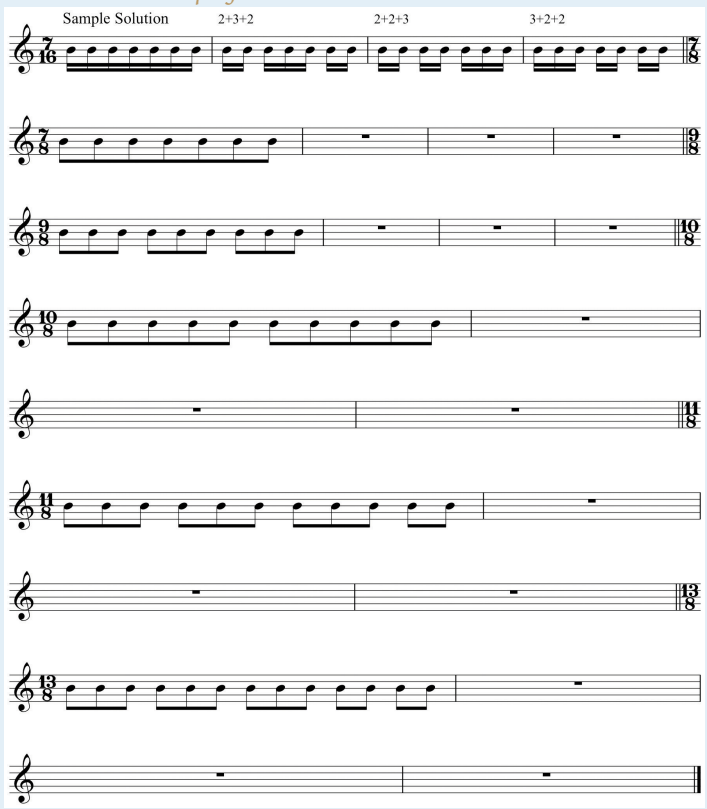
Pulse	
First Division	
Subdivisions	

3. List three possible division groupings for each of the following time signatures:

$$\frac{7}{8} \quad \frac{9}{8} \quad \frac{10}{8} \quad \frac{10}{8} \quad \frac{11}{8} \quad \frac{13}{8}$$

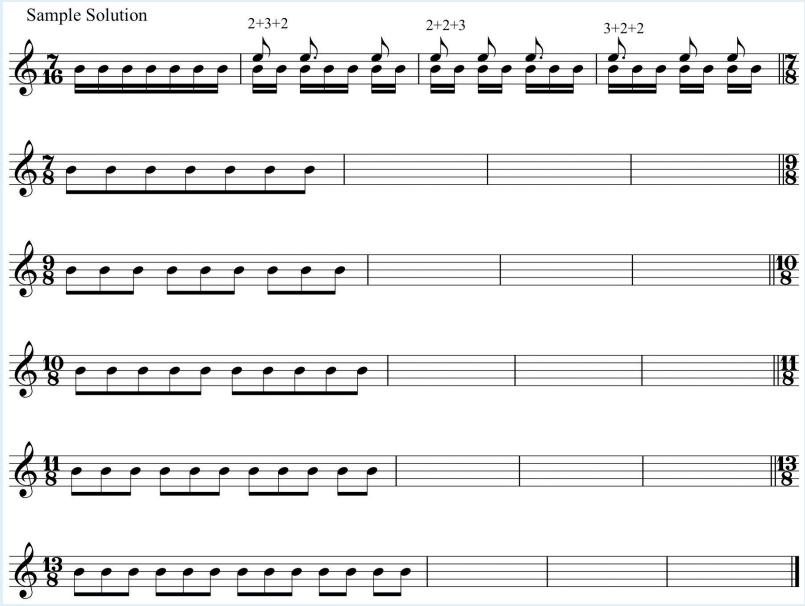
See example.

Figure 1.57
Asymmetrical Division Groupings



4. Sum the divisions you've created in order to determine pulse values. See example.

Figure 1.58
Asymmetrical Pulse Values



1.5 Summary

This chapter serves as a detailed survey to those elements of music that represent time and how it is symbolized. Unlike the Plastic Arts (painting, sculpture), music is not a temporally fixed entity: it exists in its own time, calculated by the progression of rhythm and meter across a compositionally predetermined time span.

An intimate and close understanding of rhythm and its attributes is the first essential skill any musician must acquire. From performance through analysis, aspects of rhythmic organization permeate the entire range of all skill-sets that serves as the basis for becoming a competent, literate, functional musician.

The next chapter will discuss the other half of this equation: pitch and its attributes. These skill-sets, in tandem with rhythm, will prepare the student for exploring first the grammar, then the syntax of the musical language.

Chapter 2

The Elements of Pitch:Sound, Symbol, and Tone

Introduction

In Chapter 1 "The Elements of Rhythm: Sound, Symbol, and Time" we discovered how music is organized temporally and how that temporal organization is symbolized in written notation. Aspects of rhythm and rhythmic notation, meter, and basic formal organization were discussed.

In this chapter we shall explore how tone is represented in music. In early music sound or tone was not precisely notated. Rather, a system of mnemonic symbols called *neumes* gave only an approximate indication of where tones sounded in relationship to one another in terms of relative highness or lowness. Many notation traditions and practices evolved in early Western music: there was no uniform practice as to how sound in music was notated.

From this early use as a memory device, notational practice evolved over time toward a standardized system of notation and, more importantly, toward an exact system of tone placement.

Musicologists credit Guido d'Arezzo (c. 990–1050) for this all-important development. Among his many pedagogical contributions, Guido adapted and synthesized elements of numerous notational practices in order to formulate a standardized notational system. The significance of his contributions and pedagogical tools forms the basis of how music notation evolved into recognized standard notation.

2.1 Pitch and Pitch-Class

LEARNING OBJECTIVES

1. Defining and understanding pitch versus pitch class.
2. Understanding the staff (staves) and the Grand Staff.
3. Understanding the use of clefs.
4. Understanding the use of ledger lines.

Pitch[1] is defined as the relative highness or lowness of sound. This is a general definition: in music we speak of pitch as a specific tone that is specifically placed and notated. **Pitch-class**[2], a relatively recent term, describes a generalized or generic relationship of pitches that sound essentially identical but are separated by a sense of highness or lowness. Pitch-class also refers to tones that share the same "pitch-space," that is, they sound identical, but are "spelled" differently.

The Staff

Since early notation was not specific as to exact placement of pitch, a system of parallel horizontal lines came into use in order to show exact placement.Interestingly, earlier systems of notation employing parallel lines had been in use. Many used *only* the lines themselves to locate pitch, not the spaces between. This **staff**[3] originated as a system of eleven parallel lines that encompassed the theoretical span of available pitches, which was the range of the male voice from Bass to male Soprano.In St. Paul's Epistle to the Corinthians he delivers an injunction to "Let your women keep silence in the Church..." This became the rationale for the exclusion of women from participation in the early church. In practice, this complete system was limited to four or five parallel lines encompassing the range of a given chant melody or voice part.

1. Pitch is relative highess or lowness of sound. Individual pitches are specifically located and notated on the staff.
2. Pitch-classes are all those pitches which share the same letter name, or share the same "pitch-space" but have different spellings.
3. The Staff (or staves) is a system of parallel lines used to locate and notate specific pitches.

Figure 2.1 *The Guidonian Staff*

Pitches were assigned specific names. The lowest pitch, called *gamma*, extended to the highest pitch, *ut*: the contraction of these two terms, *gamut*, has entered the language to mean "a complete range or scope."

The eleven-line system is visually cumbersome. In early music specific lines were colored with different dyes, each line locating a specific pitch. All other pitches were held in relation to these. In time, the eleven-line staff was separated into two five-line staves. The remaining line between the two staves was not drawn, but was understood as being "shared" by each staff.

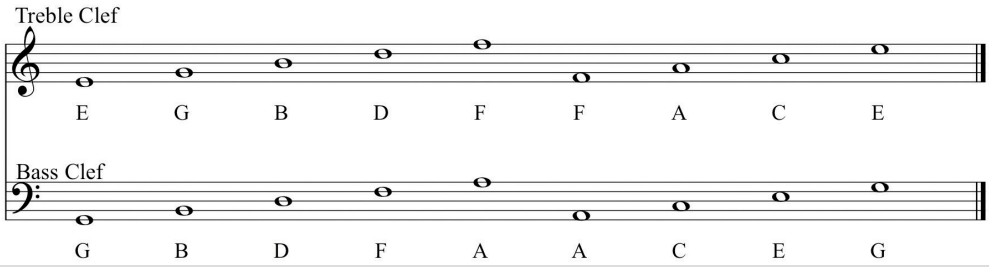
Specific symbols came into use, replacing the colored lines. Clefs (French-"*key*") served the same purpose as colored lines, locating exact pitches around which all other pitches were calculated. These clefs represented general voice ranges and their names reflect this.

We label pitch-classes by the use of letter-names. Other labels are discussed in Section 2.2 "Chromatic Alteration: Accidentals". The Treble Clef (or "G-clef"), nominally indicating a high voice, locates the pitch "G" on the second line up on the staff.

The Bass Clef (or "F-clef") locates the pitch "F" on the fourth line up on the staff. From these two fixed points, all other pitches were calculated and placed on the five-line staff. Figure 2.2 "Treble Clef and Staff; Bass Clef and Staff" shows the Treble and Bass Clefs and pitch placement on lines and spaces.

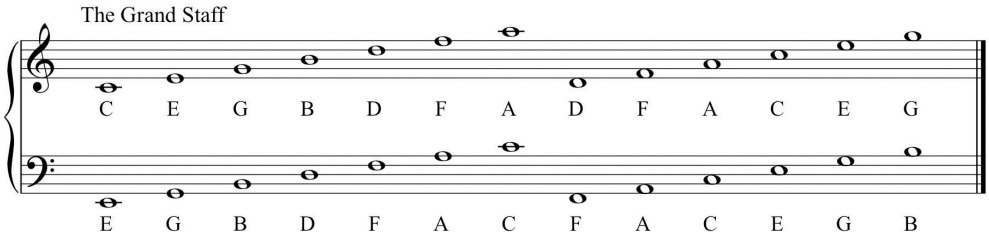
Treble and Bass Clefs, The Grand Staff

Figure 2.2 *Treble Clef and Staff; Bass Clef and Staff*



These two staves are combined into a **system**[4] called **The Grand Staff**[5].In notation we call complete lines of music a *system*. This reflects its origins from the Guidonian staff: two five-line staves, slightly separated, the remaining invisible middle line shared by both. The Grand Staff now yields the potential for locating and notating all pitches, from lowest to highest.

Figure 2.3 *The Grand Staff*



Observe that the pitch "C" ("Middle C") is one line below Treble Clef and one line above Bass Clef.
This is the remaining vestige of the "eleventh line" from the Guidonian Staff.

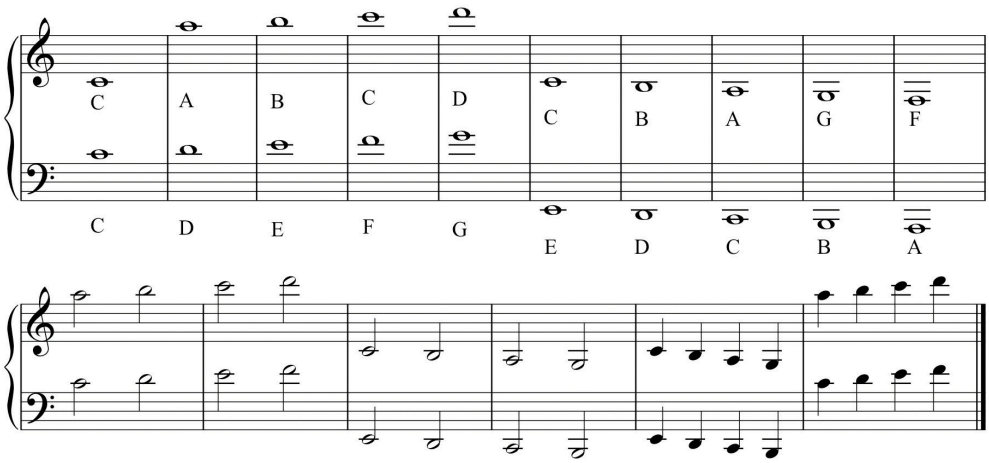
In Figure 2.3 "The Grand Staff" pitches are listed just outside the boundaries of each clef on the Grand Staff. Since the two staves (Treble and Bass) are separated from one another in the Grand Staff, it is necessary to use symbols to extend each beyond its five-line boundaries.

Ledger Lines

Short horizontal dashes are used to extend the range of either staff, above or below. These dashes, called **ledger lines**[6], serve as truncated staff lines. They may occur above or below a notehead, or they may bisect a notehead.

4. A staff or collection of staves grouped together. It may also refer to one complete line of music.
5. A system of two five-line staves used to locate and notate pitch. This evolved from the early eleven-line staff.
6. Ledger lines are small horizontal dashes above, below, or through a notehead used to extend the range of the staff.

Figure 2.4 Ledger Lines



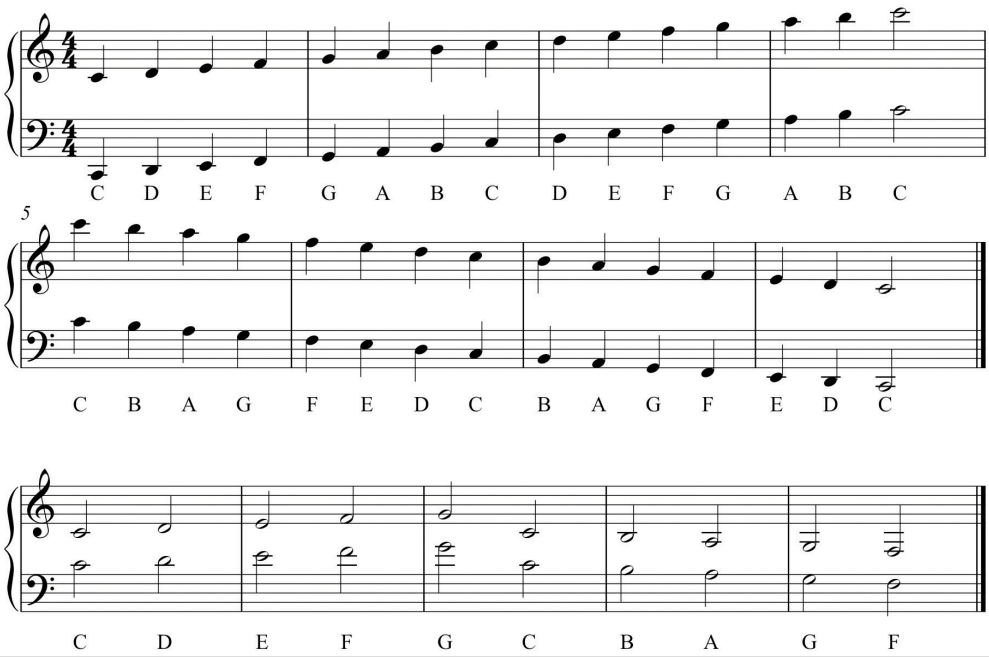
The student should exercise particular care when drawing ledger lines. A common mistake of nascent music students is placing the ledger line on the wrong side of the notehead. When drawing notes observe several other properties:

1. Stems extend up or down from the notehead to the next pitch-class of the same name.This practice for notating stem length has its early origins as a pitch designation, not as a durational value.
2. Stems are drawn down from noteheads on the middle line of the staff and above. Below the middle line, stems are drawn up.
3. In extended passages across the middle line of the staff, stems may be the same direction. There is no rule for this: it is a matter of visual uniformity.
4. For stems up: the stem is always on the right side of the notehead. For stems down: the stem is always on the left side of the notehead.Stem placement has not always been uniform. When studying scores of earlier music, one will readily observe that stem placement in relation to the notehead seemed to be a matter of choice, style, or convenience

Pitch Placement on the Staff

Using these notational devices and practices, exact pitch placement can be shown. Note that the pitch that is one ledger line above Bass Clef is identical to the pitch that is one ledger line below Treble Clef (both are “Middle C”). This shared, connective pitch is reminiscent of the middle line from the Guidonian staff and serves to connect the two staves.

Figure 2.5 *Pitch Placement on the Grand Staff*



Observe the Grand Staff. Note that pitches of the same letter name occur throughout the system. Individual tones are specifically recognized as such. Pitches having the same letter name but separated by range are recognized as pitch-classes. Therefore the note one ledger line below the Treble Staff is designated as the pitch "C" (or "Middle C"), but all notes so labeled constitute the pitch-class "C."

Also, observe that ledger lines extending notes below Treble Clef may be written in Bass Clef. Similarly, ledger lines extending notes above Bass Clef may be written in Treble Clef. At times, it is more appropriate to write pitches using ledger lines, rather than switching to another staff and clef. Exercise caution when writing or labeling pitches that cross over "between" the staves.

KEY TAKEAWAYS

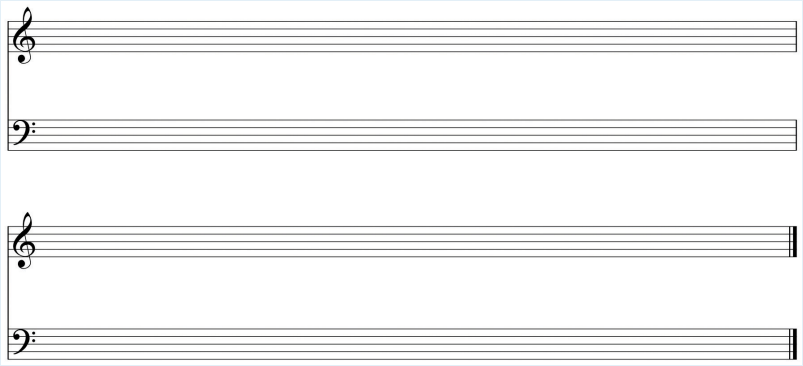
- Pitch is relative highness or lowness of sound. The term is also used to describe specific tones. Pitch-class is a generic designation referring to tones sounding the same but separated by relative highness or lowness.
- The staff is a five-line system used to locate pitches. The Grand Staff is a system of two five-line staves spanning the complete useable range of pitches (with the use of ledger lines).
- Clefs are specialized symbols denoting specific pitches on a staff. All other pitches are located in relation to these.
- Ledger lines are horizontal dashes that are used to extend the range of a given staff, above or below its five-line boundaries.

EXERCISES

1. Define pitch and pitch-class.

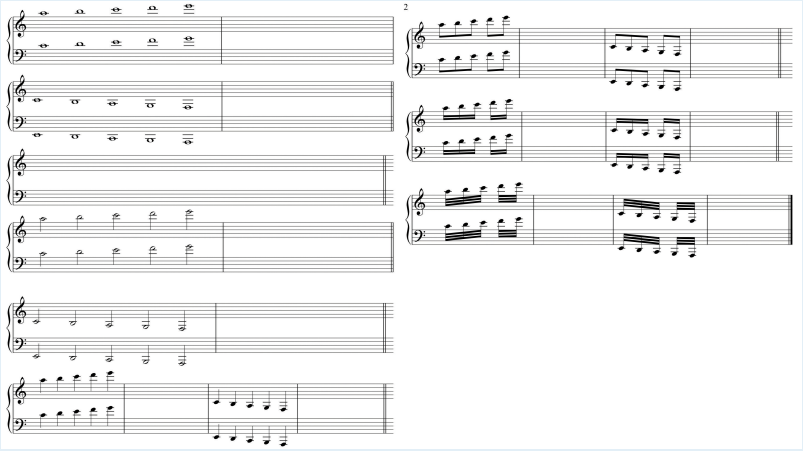
2. On the example provided, practice drawing Treble and Bass Clefs.

Figure 2.6
Clef Samples



3. On the example provided, practice drawing notes above and below the staves using ledger lines.

Figure 2.7
Ledger Lines Samples



2.2 Chromatic Alteration: Accidentals

LEARNING OBJECTIVES

1. Defining diatonic pitches and chromatic alteration.
2. Defining *musica ficta*, accidentals, precautionary accidentals.
3. Understanding enharmonic equivalence.

The term *diatonic* denotes pitches that occur naturally in a theoretical system of music with respect to its components. A simplistic (and incorrect) view describes diatonic pitches as "the white notes" on the piano. The word *chromatic* comes from the Greek word for "color," *kromos*. In early music, this term was employed to describe those pitches lying outside of the theoretical collection of pitches, pitches that were altered for various reasons. The term **chromaticism**[7] will recur from time to time to describe altered pitches and their effects in music.

Early music made use of a fixed number of pitches organized into a system of overlapping six-tone sequences (*hexachords*). As compositional styles evolved and new resources added, composers routinely altered pitches for a variety of reasons. Sometimes a pitch was considered to sound too "hard" and was therefore "softened" (lowered). Sometimes pitches were altered (raised) to provide a more pronounced resolution to a following pitch. These altered pitches were called *musica ficta* ("contrived" or "feigned" music; "false" music). Originally the conditional use of these alterations was understood, therefore not notated. In time, the symbols representing an altered pitch were added above the note, almost as an editorial marking. Eventually these symbols were incorporated into the music, preceding the note they modified.

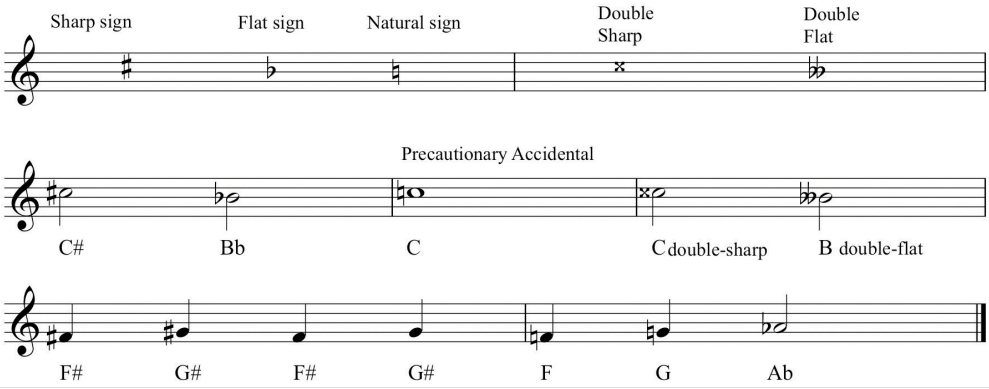
Accidentals

These symbols became what we call **accidentals**[8]. The need for these alterations came about because of our inherently flawed system of notating pitch: we have twelve pitches in our system yet only seven letter names. Accidentals accommodate these alterations. The "sharp" sign (the octothorpe or "pound" sign) raises a pitch, the "flat" sign (lower-case "b") lowers a pitch. The natural sign cancels any other accidental. Double flats and double sharps may occur occasionally, their use determined by context.

7. Chromaticism refers to those altered pitches that lie "outside" the range of a particular collection.

8. Accidentals are those specialized symbols used to show chromatic alterations.

Figure 2.8 *Accidentals*

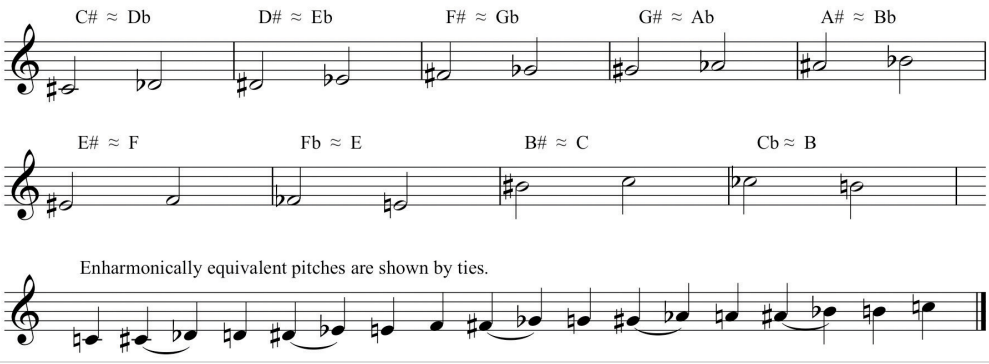


Accidentals are always placed before the note that they modify, never behind. As a notational convenience, an accidental will stay in effect throughout the measure where it occurs. Any repetitions of that modified note within the measure remain modified. The note reverts to its diatonic form in subsequent measures.In much music of the modern era, accidentals only modify those notes that they immediately precede. If this is the case, it is so indicated in performance notes. Often however, as a reminder, composers will place a precautionary accidental before the note that was previously chromatically altered.

Enharmonic Equivalence

All pitches, but chromatic pitches especially, may be "spelled" in different ways. These differing spellings are context-dependent (or a matter of convenience) as will be discussed below. Notes that share the same pitch space but employ different spellings are said to be *enharmonically equivalent*. **Enharmonic equivalence**[9] is an attribute that will come to have greater significance as our argument progresses.

Figure 2.9 *Enharmonic Equivalents*



9. Enharmonic equivalence describes pitches that share the same pitch-space (sound identical) but are "spelled" differently.

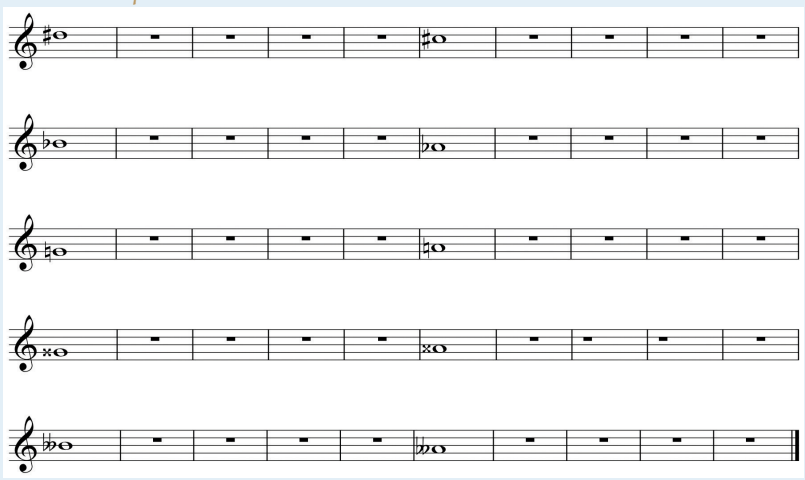
KEY TAKEAWAYS

- Diatonic versus chromatic pitches.
- *Musica ficta*, accidentals, precautionary accidentals.
- Enharmonic equivalence.

EXERCISES

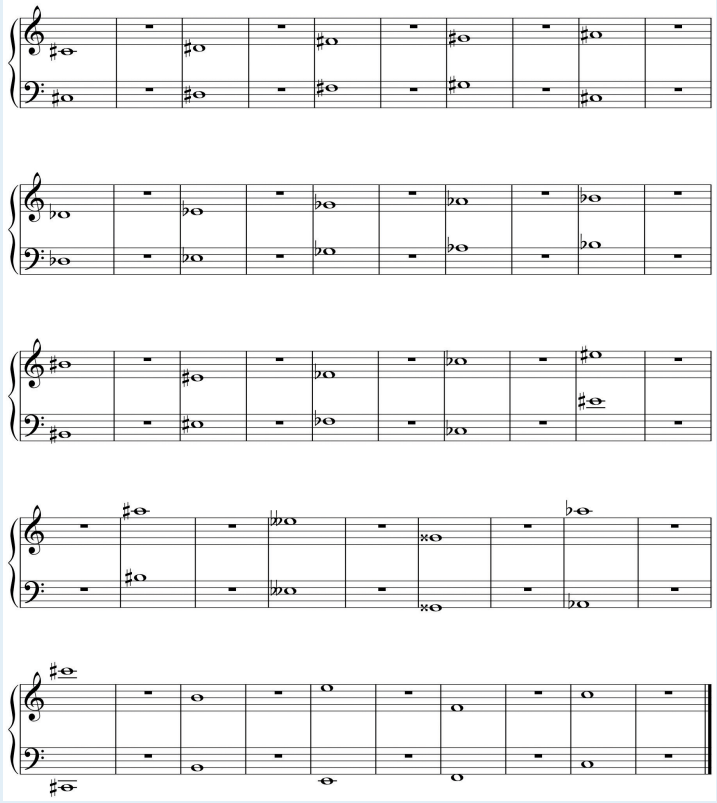
1. On the example provided, practice drawing notes with accidentals.

Figure 2.10
Accidental Samples



2. On the example provided, draw the enharmonic equivalent for each note listed.

Figure 2.11
Enharmonic Equivalents



2.3 The Keyboard as a Visual Tool

LEARNING OBJECTIVES

1. Familiarization with the layout of the keyboard.
2. Recognition of note placement on the keyboard.
3. Understanding the use of the keyboard as a visual tool.

The keyboard serves as a visual reference for locating and identifying pitches. Observe Figure 2.12 "Small Keyboard Diagram" below. Notice the layout of the keyboard: there are two black keys grouped together, then three black keys grouped together. These visual reference points will help the familiarization process. Also observe the labels for the keys on the keyboard.

Figure 2.12 *Small Keyboard Diagram*

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All musicians, regardless of discipline or instrument, should familiarize themselves with the keyboard. We are all visual learners to a greater or lesser extent. The visual layout of the keyboard will foster an understanding of pitch placement, register designation, scale construction, interval distance, chord construction-virtually every acquired skill in the study of music. The keyboard is a powerful and valuable tool.

In Figure 2.12 "Small Keyboard Diagram" observe that some white note pairs have an intervening black note and two pairs do not. Let us focus upon those two. Adjacent pitches are called *semi-tones* (or "half steps"). The pitches E-F and B-C (the two white key pairs) are called *diatonic half steps*. Half steps that are measured from a white key to a black, or vice-versa, are called *chromatic half steps*.

The distance of a *semi-tone* or half step is the same for any two adjacent pitches across the keyboard. Figure 2.13 "Keyboard and Half Steps" shows this relationship in pitches.

Figure 2.13 *Keyboard and Half Steps*

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Notes that are separated by an intervening note are called *tones*, or whole steps. Whole steps are formed by spanning the distance of two half steps. Figure 2.14 "Keyboard and Whole Steps" shows representative whole steps.

Figure 2.14 *Keyboard and Whole Steps*

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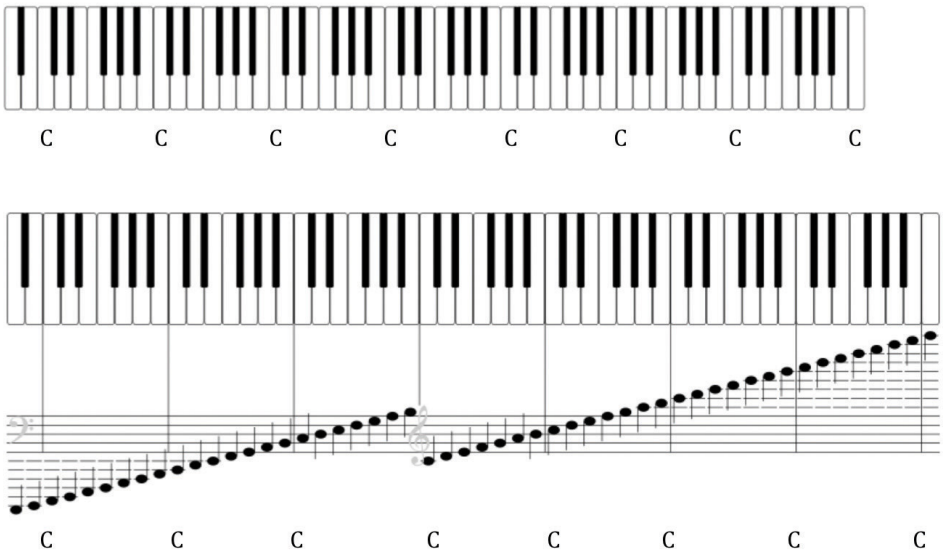
Figure 2.15 "Piano Keyboard" shows the entire piano keyboard. Each occurrence of the pitch-class “C” is labeled, as is the span from one C to the next. This visual reference will be helpful in understanding the following section.

Figure 2.15 *Piano Keyboard*



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KEY TAKEAWAYS

- Layout of the piano keyboard and note placement.
- Using the keyboard to visually recognize whole steps and half steps.

EXERCISES

1. Define whole steps and half steps in the context of the piano keyboard. Define *diatonic* and *chromatic* half steps.

2. On the keyboard diagram provided, label all pitches. Give enharmonic spellings for all black keys.

Figure 2.16
Keyboard

3. As an Aural Skills drill, perform the following:

   a. At the piano, play adjacent pitches (half steps) at random. Match and sing.
   b. Play whole steps at random. Match and sing.
   c. Repeat both tasks *descending*.
   d. Play single notes at random. Sing a half step above and a whole step above.
   e. Repeat this task *descending*.

2.4 Register Designation, The Octave, 8va, and 8vb

LEARNING OBJECTIVES

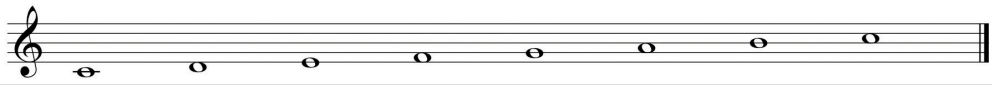
1. Understanding the use of register designations and labeling specific pitches.
2. Understanding the term octave and its use.
3. Understanding *8va* and *8vb* as notation conventions.

By using the Grand Staff, we can locate specific pitches from low to high. However it is necessary to assign more precise values to pitches according to their specific range in this spectrum. For this task we employ **register designations**[10].

The Octave

To do this, we first separate the entire span of pitches into discrete segments labeled *octaves* (Italian: *ottava* "eight"). In this context, an octave is a segment of pitches spanning the distance from one pitch to its pitch-class counterpart above or below. Further, it is customary to speak of pitches as residing in some particular "octave."

Figure 2.17 *Octave*



Using the **octave**[11] as a range-specific designator, pitches can be precisely located and identified by letter name as well as by register. Originally, a register designation system evolved that employed upper- and lower-case letter names. Multiple lower case letters (C, CC, CCC) denoted lower octaves while upper-case letter names followed by one or more apostrophes denoted higher octaves. While this system may still be encountered occasionally, it is gradually being abandoned in favor of a more malleable system.

Register Designation

In the 1970's, the Acoustical Society of America instituted a register designation system based upon the layout of the piano keyboard. This system uses letter names

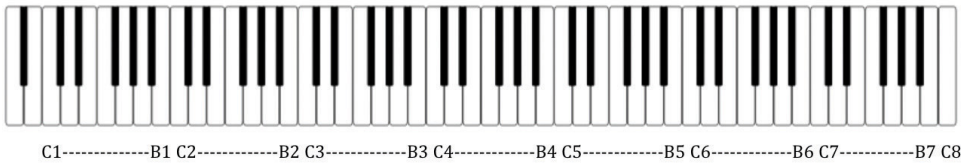
10. The labeling system used to locate pitch based upon the piano keyboard.

11. In this context, an eight-tone *species*, or sequence of pitches.

to denote pitch. Each letter name is followed by a number denoting the octave within which that pitch resides. Each octave begins with the note “C” and extends to the “B” seven steps above.

There are three pitches below the lowest C (C1) on the average piano keyboard. These notes are labeled in two ways: A0, Bb0, B0, or simply A, Bb, B. So, the entire piano keyboard spans the range from A0 to C8. Figure 2.18 "Keyboard with Octave Designations" shows this entire keyboard with each octave designation labeled.

Figure 2.18 *Keyboard with Octave Designations*



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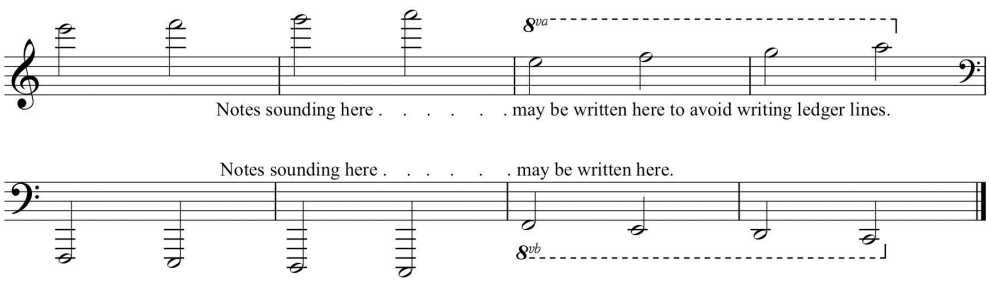
The use of register designations is coupled with, and reinforced by, the visual tool of the piano keyboard. This becomes an indispensable skill for every musician.

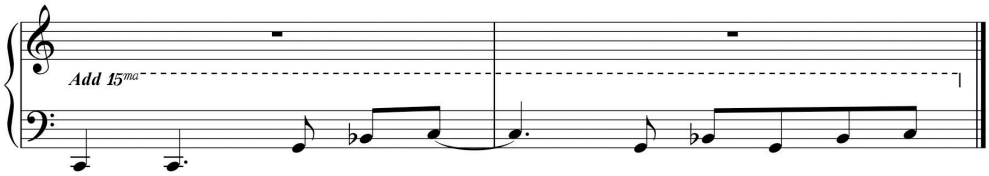
Often the range of a particular segment of music will be written in extremes of register, high or low. This is notated using multiple ledger lines. Often, as a notational convenience and to make for ease of reading, composers may employ symbols denoting that a passage is played an octave higher than written (*8va-ottava*), or an octave lower than written (*8vb-ottava bassa*). In order to avoid using ledger lines, the passage is written in a lower octave, then labeled above the staff if *8va*, below the staff if *8vb*. A bracket extends from the *ottava* symbol to the end of the passage that is raised or lowered.

Figure 2.19 *8va, 8vb*



At times composers will use the symbols *15ma* and *15mb* to denote that the passage is to be played two octaves higher or lower. While uncommon, this is occasionally used, especially as a notational convenience. A composer may indicate that a passage is to be performed two octaves higher or lower by including this as an instruction.

Figure 2.20 *15ma*



KEY TAKEAWAYS

- Understanding and employing register designations for locating pitch.
- Use of the piano keyboard to support recognizing registral designations.
- *8va* and *8vb*, *15ma* and *15mb*

EXERCISES

1. Define octave. Define register designation.

2. On the keyboard diagram provided, label octave designations.

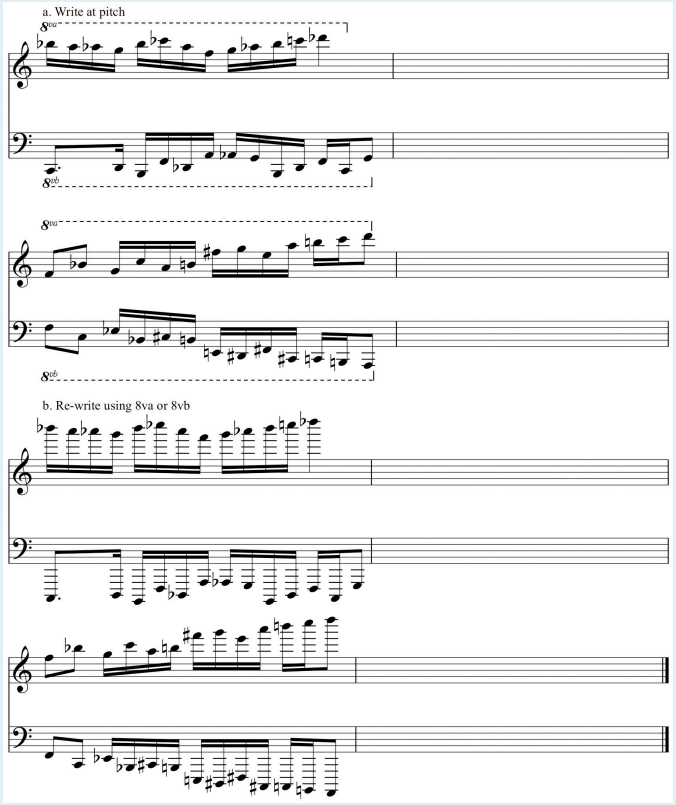
Figure 2.21
Octave Designations

© Thinkstock

3. On the example provided:

   a. Re-write 8va and 8vb segments at pitch.
   b. Re-write segments employing *8va* and *8vb*.

Figure 2.22
8va, 8vb



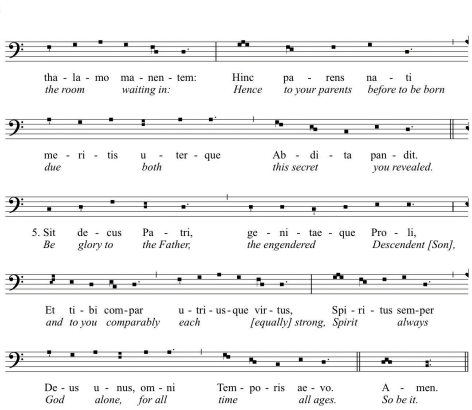
2.5 Pitch Notation: Nomenclature and Solfége

LEARNING OBJECTIVES

1. Understanding how pitches may be labeled.
2. Understanding *solfége* syllables as pitch labels and aural reference.
3. Understand scale degree number notation.

In our system we label pitches using letter names. In other countries pitches are labeled using **solfége**[12] syllables. This tradition originated as a pedagogical device invented by Guido. The syllables, originally *Ut*, *Re*, *Mi*, *Fa*, *Sol*, *La*, come from the initial syllable of each line of *Ut queant laxis*, an Ambrosian hymn to St. John the Baptist. Each line of music starts on a successively higher pitch. Guido employed this as a pedagogical tool for training singers.

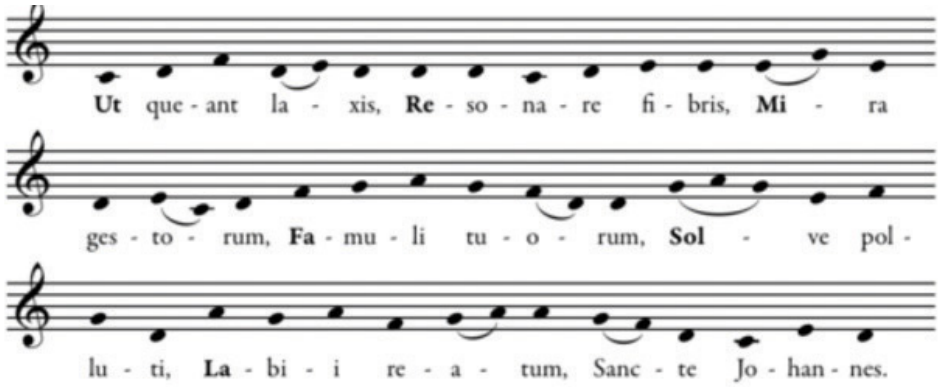
Figure 2.23 *Ut queant laxis*



12. Syllables adapted to denote pitches. Originally used as a pedagogical mnemonic.

Since *Ut* is the only syllable in the collection ending on a hard consonance, it was eventually replaced by the syllable *Do* (from *Domine* -Latin-"Lord") to facilitate singing. In the 15th-century a seventh tone and syllable was added, *Si*, an acronym for *Sancte Ioannes*, the last two words from *Ut queant laxis*,. This became the syllable *Ti* in 19th-century English sol-fa.The inclusion of the syllable *Ti* is attributed to Sarah Glover. *Ti* was substituted for *Si* so that each solfége syllable would begin on a differing consonant. Thus we have *solfége* labels for pitches.

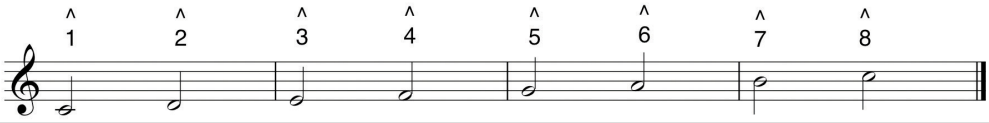
Figure 2.24 *Ut queant laxis: Pitches and Syllables*



Originally these syllables were fixed: each syllable referred to one specific pitch. "C" was always *Do*, regardless of context or chromatic alteration, "D" was always *Re* and so on. This fixed system is prevalent in those European countries, as well as among musicians trained in that tradition. A modified, moveable system of *solfége* has become prevalent in American music theory pedagogy. This will come into focus in Chapter 3 "The Foundations Scale-Steps and Scales".

One other notational convention has become commonplace in recent years. A caret is placed above a number, the caret denoting the words "scale degree." This is adapted from the analytical symbolization of the reductive analysis techniques of the German-Austrian theorist Heinrich Schenker.

Figure 2.25 *Scale Degree Numbers*



KEY TAKEAWAYS

- *Solfége* as pitch labels.
- Scale degree numbers.

EXERCISES

1. Define *solfége* and list the syllables in order. Include original syllables as well as replacements and additions.

2. As an Aural Skills drill:

    a. Sing the *solfége* syllables ascending and descending.
    b. Concentrate upon and sing *Mi-Fa* and *Ti-Do* (diatonic half steps).
    c. Concentrate upon and sing *Do-Re*, *Re-Mi*; *Sol-La*, *La-Ti* (whole steps).

    (Sing in a comfortable register for now. Do not pronounce the "L" when singing *Sol*).

3. Explain the use of the caret placed above a number.

2.6 Moveable C-Clef; Other Clefs

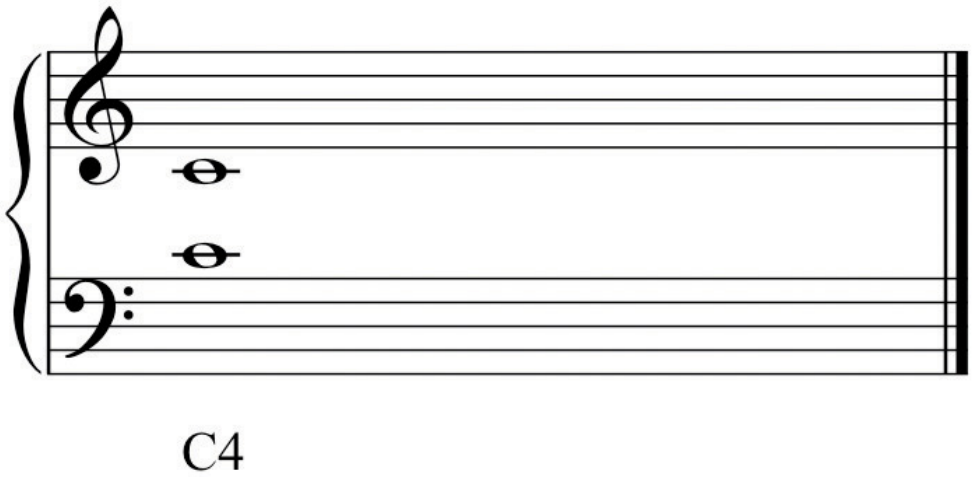
LEARNING OBJECTIVES

1. Understanding Moveable C-Clef.
2. Understanding Alto Clef and Tenor Clef.
3. Other Clefs.

In discussing the evolution and formation of the staff, we saw that the eleven-line Guidonian staff separated into two five-line staves. The remaining line was not discarded as such, but rather served as a connective or "shared" line between the two staves.

This invisible middle line locates the pitch C4 ("Middle C"). On the grand staff this appears as a note one ledger line below the staff in Treble Clef, or a note one ledger line above the staff in Bass Clef.

Figure 2.26 *C4 ("Middle C") on the Grand Staff*

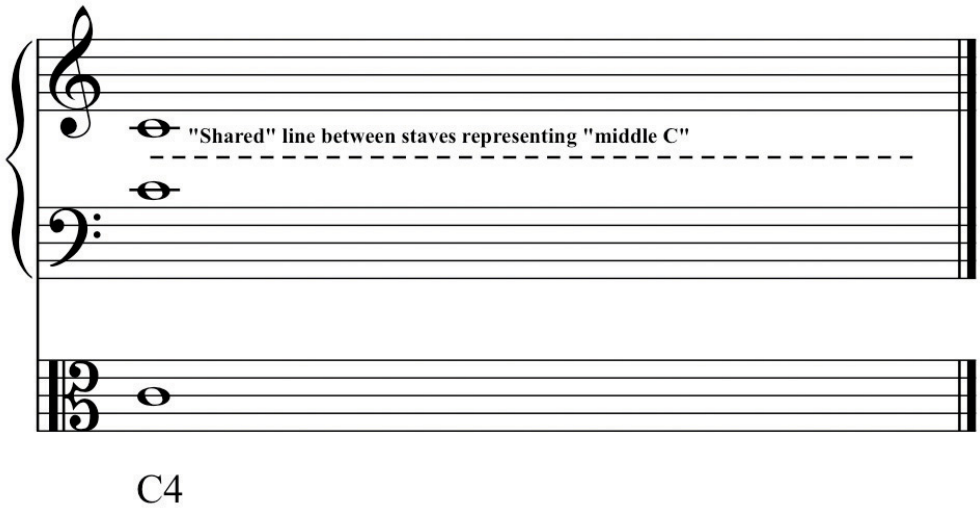


Moveable C-Clef

From the Guidonian staff a separate clef evolved denoting this particular pitch. This clef is called 'C-Clef," or properly, "**Moveable C-clef**[13]."

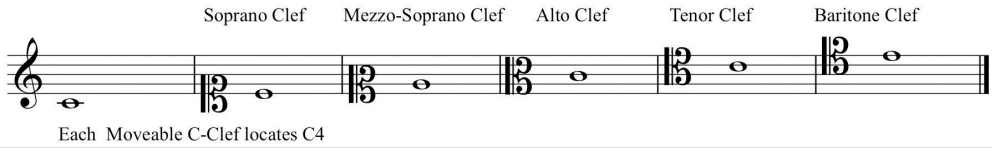
13. A clef derived from the eleven-line staff. This clef locates C4 regardless of what line of the staff it is placed upon.

Figure 2.27 *C4 C-Clef*



This clef may occur on any line in the staff. Regardless of which line it occurs on, it always locates C4, "Middle C." Originally, the use of this clef was concerned with particular voice ranges. The moveable C-Clef kept the majority of pitches of a given voice within the boundaries of the staff conforming to the typical range of that voice. Hence the common names for this clef as it occurs on each line reflect the associated voice part.

Figure 2.28 *C-Clefs by Voice*



Alto and Tenor Clefs

The C-Clef on the lowest line of the staff is called Soprano Clef, the second line Mezzo-Soprano Clef, the third line **Alto Clef**[14], the fourth line **Tenor Clef**[15] and the top line Baritone Clef. Until the 19th Century (approximately) choral music was written in open score, each voice part on a separate staff with the appropriate clef. Gradually this became an arcane procedure.

Two of the Moveable C-Clefs have been retained in common use in instrumental writing, primarily because of the ranges of certain instruments. Alto Clef is predominantly used in writing for the Viola. If Treble or Bass Clefs were used, the

14. The C-clef placed on the second line of the staff. Used primarily for Viola.
15. The C-clef placed on the fourth line of the staff. Used for 'Cello, Bassoon, and Trombone.

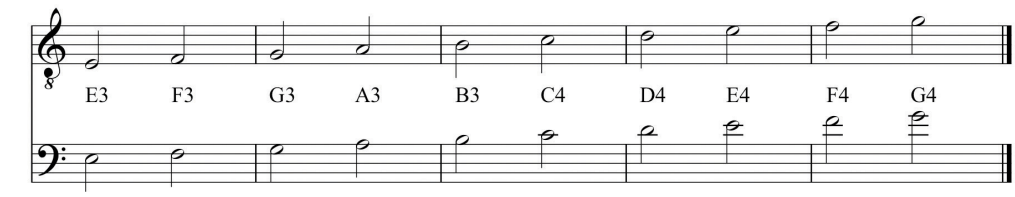
Viola part would need to be written with a surfeit of ledger lines-it's general range occupies the space "between" and "overlapping" Treble and Bass Clefs. The 'Cello often employs Tenor Clef (in addition to Bass Clef). In orchestral and more advanced wind ensemble literature (but curiously, not in Jazz), Tenor Clef may be used for the upper register of the Trombone. Again, the purpose is to keep the majority of the pitches within the boundaries of the staff.

Other Clefs

The remaining C-Clefs are not normally encountered except in autograph scores and facsimile editions of earlier music. There are several other clefs, one of which has become very common, the others rarely seen. In Choral writing, Tenor Clef is commonly replaced by a Treble Clef with an "8" (*ottava*) sign appended to the bottom of the clef.

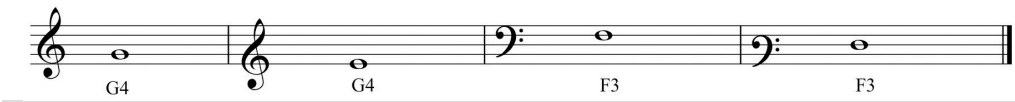
As open score became less common, and as fewer musicians were trained to read Tenor Clef efficiently, this "compromise" clef came into general use. It reads exactly as Treble Clef but "sounds" down an octave, conforming to the range of the Tenor voice.

Figure 2.29 *Octave Tenor Clef*



Two clefs are no longer in use, French Violin Clef (locating G4) on the lowest line of the staff, and a Bass Clef (F-Clef) located on the middle line of the staff. This is called French Baritone Clef.

Figure 2.30 *French Violin and French Baritone Clefs*



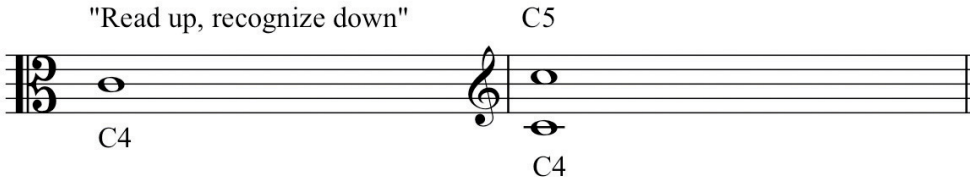
The Neutral Clef is used for non-pitched percussion instruments.

Figure 2.31 *The Neutral Clef*

Since Alto and Tenor Clefs have been retained in common usage, it is necessary to learn to read these with some facility. When first encountered, this can be a daunting task. Some say that familiarization and memorization is the only method for learning these clefs. There are expedient shortcuts however, that may help to facilitate the process:

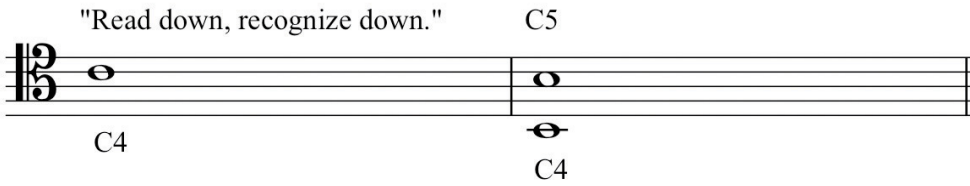
1. For Alto Clef:
    a. Think of the note name in Treble Clef and “read” this one line or space *higher*.
    b. This is only the pitch-class name. The actual pitch is an octave lower. See example.

Figure 2.32 *Alto Clef Shortcut*



2. For Tenor Clef:
    a. Think of the note name in Treble Clef and “read” this one line or space *lower*.
    b. Again this is only the pitch-class name. The actual pitch is an octave lower. See example.

Figure 2.33 *Tenor Clef Shortcut*



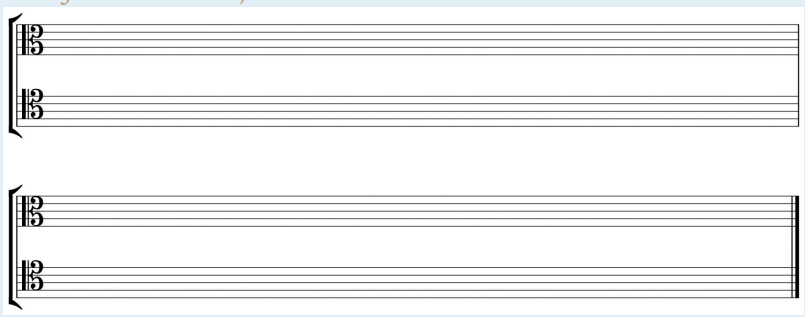
KEY TAKEAWAYS

- Understanding Moveable C-Clefs.
- Understanding Alto and Tenor Clefs.
- Understanding Octave Tenor Clef.

EXERCISES

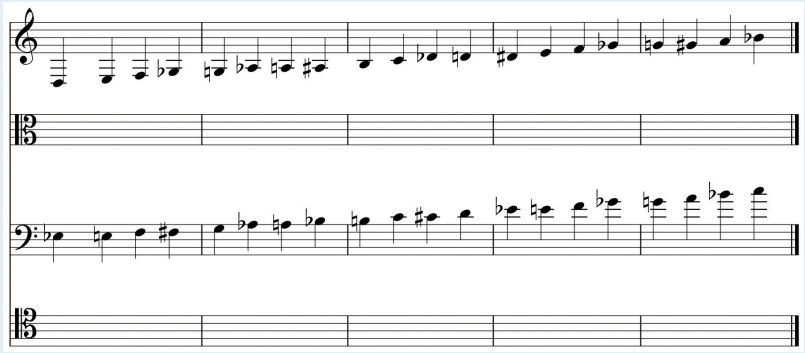
1. On the example provided, practice drawing Alto and Tenor Clefs.

Figure 2.34
Drawing Alto and Tenor Clefs



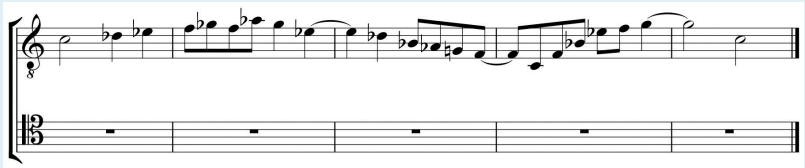
2. For each example in Treble or Bass Clef, re-write in Alto or Tenor Clef as directed. Label pitches by letter name and by register designation.

Figure 2.35
Re-write to Alto and Tenor Clefs



3. Examples of Octave Tenor Clef are given. Re-write these in Tenor Clef.

Figure 2.36
Octave Tenor Clef to Tenor Clef



2.7 Summary

This chapter acquaints the student with those notational devices and practices that identify and locate pitch precisely. The concept of generic pitch-class is also introduced as well as labeling conventions and *solfége* syllables.

This information and the subsequent attainment of fluent use by repetitive drill shall prepare the student to examine pitch and pitch structures in following chapters.

Chapter 3

The Foundations Scale-Steps and Scales

Introduction

In this chapter, we shall examine the small incremental distances called *Tones* and *Semi-tones*. More commonly labeled **whole steps**[1] and **half steps**[2], these foundation scale-steps serve as the building materials from which we construct sequential orderings of pitches called **scales**[3].

The construction of various scales shall also be examined, especially the Major Scale and the Minor Scale. Additionally, other important scale patterns will be shown.

1. Adjacent scale steps that have an intervening half step.
2. Adjacent tones, the smallest distance between tones in the current system of tuning.
3. A sequential collection of five or more pitches.

3.1 Scales and Scale-Steps

LEARNING OBJECTIVES

1. Define scales and foundation scale-steps.
2. Define scale types.
3. The Chromatic Scale.

In examining the notation of pitch, we observe that notes climbed or "scaled" the lines and spaces of staves from low to high. Ordered sequential collections of these pitches are called scales (Italian: *scala*-"ladder").

Scales

Scales are comprised of five or more pitches arranged in sequential patterns of whole steps and half steps spanning an *octave species*. We label scales as to the number of differing elements they contain:

1. *Pentatonic*: a five-tone scale.A true pentatonic scale divides the octave into five-equal steps. This is true in the music of many cultures. Because of the adopted tuning system employed by Western Music (called equal temperament), we must employ elements larger than whole- and half- steps when constructing pentatonic scales. Play only the black keys on the piano and you will readily see and hear this familiar sound.
2. *Hexatonic*: a six-tone scale.
3. *Heptatonic*: a seven-tone scale.
4. *Octatonic*: an eight-tone scale, and so forth.

Four-note sequences are called *tetrachords* (Greek: "four tones"). In this context, they are regarded as constituent components of larger scale patterns.

Since scales are orderings of whole steps and half steps, these serve as the foundation "building-blocks" for scale construction. As we learn to construct and identify scales, we do so by recognizing their content in terms of *tones* (whole steps) and *semi-tones* (half steps).Although *tone* and *semi-tone* are proper names, whole step and half step are commonly used terms. In some instances you may encounter the terms *whole tone* and *half tone* also. For now, avoid calling whole steps and half steps

by any other name, for example, “major-seconds” or “minor–seconds.” Proper interval identification for whole steps and half steps shall be addressed in Chapter 5 "Intervals".

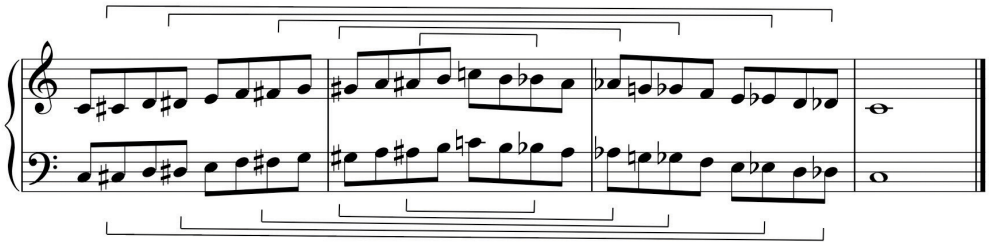
Throughout the history of music, various systems of referential tuning have evolved, been adopted, been modified, and been discarded in favor of other systems. It is not within the purview of this discussion to examine these various and sundry systems of tuning.An exceptionally clear and concise discussion of the history and theory of tuning systems may be found in Chapters 1 and 2 of *Chromaticism: Theory and Practice*, Howard Boatwright, Walnut Grove Press, 1994.

For our purposes, we shall limit the discussion to the standardized tuning system known as **equal temperament**[4]. Music in the transitional period between the Renaissance and Baroque employed different tuning systems that limited compositional resources. A “compromise” tuning system was proposed and gradually adopted, whereby pitches were slightly altered enabling the division of the octave into twelve equal portions or *semi-tones* (half steps). This “evenly-tuned,” or “equal-tempered” system allowed composers to employ the full resources of the chromatic collection.This will come into focus in Chapter 4 "Key Sense, Key Signatures, and The Cycle of Fifths" and Chapter 5 "Intervals".

Therefore, the source collection for Western music is the **Chromatic Scale**[5].The Chromatic Scale, so called because it contains all the pitch “colors,” is also known as the *Duodecuple scale* (Latin: *duo-deca*, “two and ten”). It is also labeled the *Non-Selective Scale*, so-called because, all pitches being of equal quality, no one pitch asserts itself over the others.

The Chromatic Scale

Figure 3.1 *The Chromatic Scale*



4. The current system of tuning whereby pitches have been adjusted to allow division of the octave into twelve equal portions.
5. The source set or collection for pitch materials as defined within equal temperament.

Audio 1

The Chromatic Scale

(click to see video)

The Chromatic Scale is comprised entirely of half steps. When constructing this, it is customary to use sharps when ascending and to use enharmonically equivalent flats when descending.

Music of the mid-17th Century through end of the 19th Century saw the formulation of a more or less unified system of composition and its supportive theory. A *lingua franca* of music was established, essentially a common language shared by all musicians. Music of the period (roughly!) from Corelli through Brahms is called the **Common Practice Period**[6], or the Common Practice style.

One of the fundamental attributes of this Common Practice style was the use of two scale types. These two types, *Major* and *Minor* were "distilled" from the multiple scale types employed in early music. Major and Minor scales became the predominant resource for Common Practice music. These scale types shall become essential tools for many of the acquired tasks and skill-sets in the study of music. Understanding and recognizing these constructs is a fundamental and necessary attribute of the music student.

KEY TAKEAWAYS

The student should understand:

- The definition of scales and scale types.
- The Foundation ("building-block") scale steps, *tones* and *semi-tones* (whole steps and half steps).
- The Chromatic Scale.
- The definition of the Common Practice Period.

EXERCISES

1. Obtain a three-ring binder and fill with staff paper. If you wish, purchase a music manuscript notebook, at least 8.5 x 11. This will become your **Scale Thesaurus**.
2. Draw the ascending and descending Chromatic scale. Use half notes. Use the appropriate accidentals and enharmonic equivalents ascending and descending.

6. Music from roughly the 17th- through the 19th Centuries. Also may be referred to as Tonal Music.

3.2 Heptatonic Scales: The Major Scale, The Three Forms of the Minor Scale

LEARNING OBJECTIVES

1. The Major scale and its attributes.
2. The Minor scale and its attributes.
3. Relative and Parallel Major/Minor.
4. Scale degree nomenclature.
5. The evolution of Minor scales: the three forms of the Minor scale

Any initial discussion of scales inevitably centers around these two seven-tone scales employed in the composition of Common Practice music.

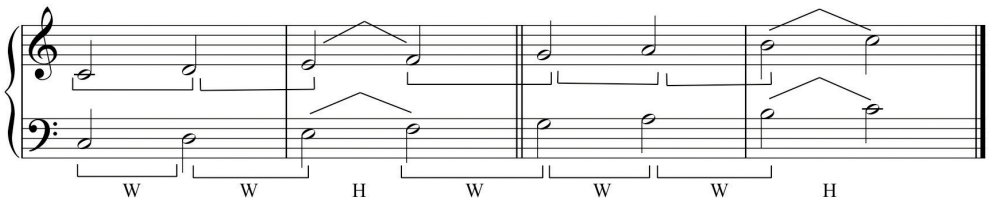
The Major Scale

The most common scale pattern used is the **Major Scale**[7]. It is an arrangement of whole and half steps as follows:

^		^		^		^		^		^		^		^
1		2		3		4		5		6		7		8
	W		W		H		W		W		W		H	

Note that half steps occur between scale degrees 3–4 and 7–8. This is shown in pitches and the keyboard in Figure 3.2 "Major Scale, Keyboard and Pitches".

Figure 3.2 *Major Scale, Keyboard and Pitches*



7. A heptatonic ("seven-tone") scale consisting of the following arrangement: W-W-H-W-W-W-H.

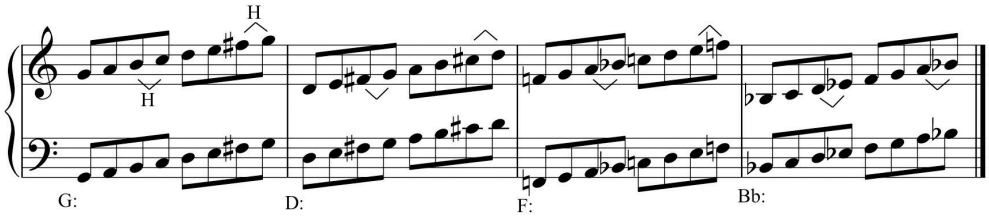
Audio 2

The Major Scale

(click to see video)

This arrangement of whole steps and half steps is maintained for any major scale on any given starting pitch. Accidentals are used to modify pitches in order to retain this same arrangement of whole and half steps. Compare the samples below to the keyboard diagram. Observe the placement of whole and half steps on the keyboard that maintain the proper ordering.

Figure 3.3 *Other Examples of Major Scales*



Audio 3

Other Major Scales

(click to see video)

Observe that in each new octave species, some chromatic alteration is required in order to retain the same arrangement of scale steps.

An alternate view of major scale construction is an examination of its constituent tetrachords (from the Greek: “four tones”). Observe that the arrangement of whole and half steps in the first tetrachord are identical to that of the second tetrachord. Both tetrachords are W-W-H separated by a whole step.

So, two mnemonics are suitable for remembering Major scale construction:

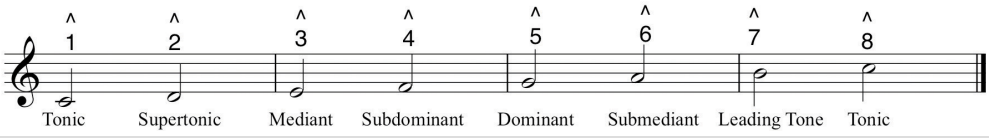
1. W-W-H-W-W-W-H
2. Identical tetrachords (W-W-H) separated by a whole step.

The keyboard diagram is another essential tool for familiarization and recognition of major scales. The visual reinforcement of whole step and half step placement will hasten the learning process.

The individual scale steps have specific labels. These terms have come into general use, having their origins in early 18th-century theoryFrench composer and theorist Jean Phillipe Rameau employs versions of these terms in his seminal work *Traité de l'harmonie* (1728). Our current usage of these terms is adapted from this work. Figure 3.4 "Scale-step Labels" shows the major scale and its accompanying scale step labels.

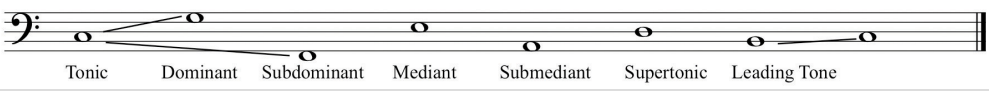
Scale-Step Labels

Figure 3.4 *Scale-step Labels*



1. The first degree of any scale is called the *Tonic* pitch. This is the pitch that asserts itself over all the others in the collection, the pitch that our ear naturally seeks as being the strongest.These terms will be affiliated with chords in keys as well.
2. The next strongest pitch is the fifth scale degree, the *Dominant*. It is considered to be the "polar opposite" of *Tonic*: whereas *Tonic* represents stability and sense of conclusion, *Dominant* represents instability and a sense of tension.
3. The third scale degree lies halfway between these and so is labeled the *Mediant*.
4. *Dominant* is five scale-steps up from *Tonic*. Five steps below *Tonic* is the fourth scale degree, labeled *Subdominant*.
5. Since the *Mediant* lies three steps up from *Tonic*, three steps down is labeled *Submediant* (the sixth scale degree).
6. The second scale degree is labeled *Supertonic*.
7. Lastly, the most powerful melodic motion we respond to is the ascending half step, from scale degree seven to the octave. Our ear is compelled to resolve this *Leading Tone*.

Figure 3.5 *Scale-steps in Order of Importance*

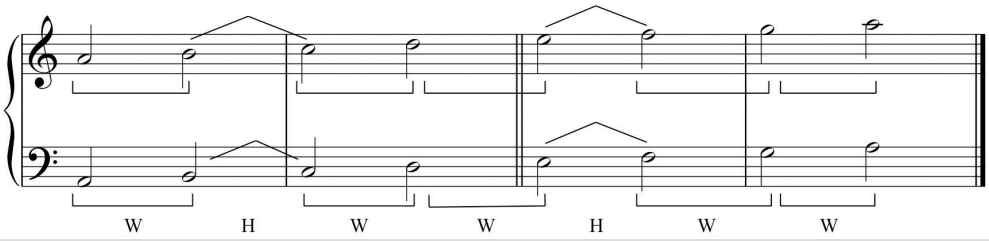


The Minor Scale

The other heptatonic scale used in Common Practice music is called the **Minor Scale**[8]. It is arranged as follows:

^		^		^		^		^		^		^		^
1		2		3		4		5		6		7		8
	W		H		W		W		H		W		W	

Figure 3.6 *The Minor Scale*



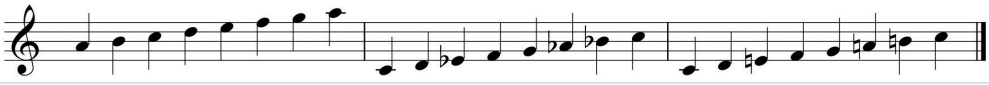
Audio 4

The Minor Scale

(click to see video)

For this example, the pitches are identical to the Major scale example above, re-arranged from scale degree six. Figure 3.7 "Minor Scales on a; on c; Major Scale on C" shows the same Minor scale pattern, but constructed from the same starting pitch. Both are then compared to the Major scale.

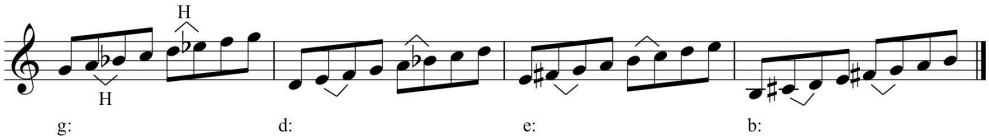
Figure 3.7 *Minor Scales on a; on c; Major Scale on C*



As with major scales, minor scales use accidentals to retain the same “shape” when starting on differing pitches.

8. A heptatonic scale having three distinct forms, Natural, Harmonic, and Melodic Minor.

Figure 3.8 *Other Examples of Minor Scales*



Audio 5

Other Minor Scales

(click to see video)

The previous examples demonstrate particular relationships between Major and Minor scales:

1. Major and Minor scales that have the same pitch content but different starting pitches are said to be *relative* to one another, for example C major and a minor.
2. Major and Minor scales that have differing pitch content but the same starting pitch are said to be *parallel* to one another, for example C major and c minor.

In order to discover the **Relative Major/Minor**[9] relationship, follow this procedure:

1. To find the *Relative Minor* scale of any Major scale:
    a. Go to the sixth degree (*Submediant*) of the Major scale.
    b. Re-order the scale content from that pitch.
    c. Think "**Major to Minor: up to 6.**"
2. To find the *Relative Major* scale from any Minor scale:
    a. Go to the third degree (*Mediant*) of the Minor scale.
    b. Re-order the scale content from that pitch.
    c. Think "**Minor to Major: up to 3.**"

We do not recommend the "three up or three down" method that is sometimes employed. This leads to confusion on the part of the student. Inevitably, the student will go down the wrong specific pitch distance, or will confuse which relationship is which direction.

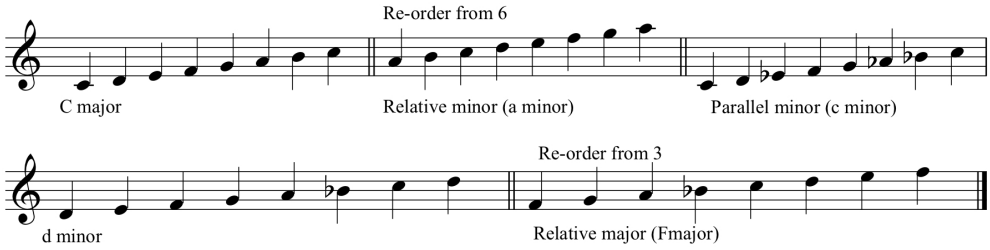
9. The relationship between Major and Minor scales wherein they share the same pitch content but have a different order.

In order to discover the **Parallel Major/Minor**[10] relationship, simply construct major or minor from the same starting pitch.

Relative and Parallel Major/Minor

Relative and *Parallel Major/Minor* will extend to our discussion of keys in Chapter 4 "Key Sense, Key Signatures, and The Cycle of Fifths".When labeling scales it is customary to use upper case letter names for major and lower case letter names for minor. When hand-drawn, a dash is placed above the letter c only. This should not be used for other lower case letters. These relations commute from each form to the other: one speaks of Major and its *relative* Minor, or Minor and its *relative* Major. The same is true for the *parallel* relationship.

Figure 3.9 *Relative and Parallel Scales: Major to Minor and Minor to Major*



Audio 6

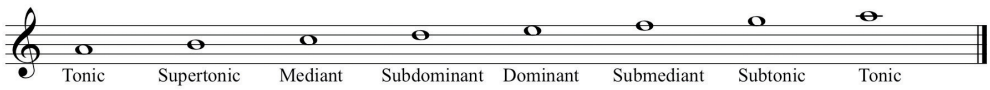
Relative and Parallel Scales

(click to see video)

Just as the Major scale has labels for its constituent scale-steps, these labels are also used for Minor scales. There is one notable exception: since the distance between scale degree seven and the octave is a whole step, it does not possess the same sensation of required resolution as its major counterpart (the *Leading Tone*). Therefore it is labeled *Subtonic*.

Scale-Step Labels for Minor

Figure 3.10 *Minor Scale-Step Labels*



10. The relationship between Major and Minor scales wherein they share the same starting pitch but different pitch content.

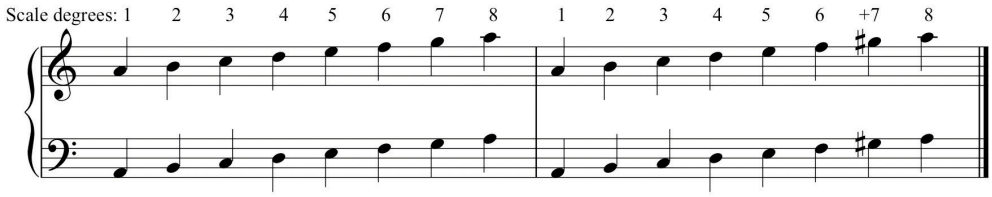
Earlier, the *Leading Tone* was described as the most powerful melodic step that we respond to in terms of demanding resolution. This half step between scale degrees seven and eight is not present in the naturally occurring Minor scale. Beginning with its antecedents in early music, the minor sonority was routinely altered to address this perceived flaw.

Harmonic Minor

Composers chromatically raised the seventh scale degree in minor as a matter of routine in order to provide a more powerful melodic resolution. Additionally, this alteration affected the accompanying harmonies, engendering a more powerful harmonic resolution as well.

This led to an additional, altered form of the minor scale. The original diatonic form of the minor scale is called **Natural (or Pure) Minor**[11]. Because of its implied harmonic consequence, the altered version (raised 7, or +7) is called the Harmonic Form of the Minor scale, or simply **Harmonic Minor**[12].

Figure 3.11 *Natural and Harmonic Minor*



Audio 7

Natural and Harmonic Minor Scales

(click to see video)

The component scale steps for Harmonic minor are:

^		^		^		^		^		^		^		^
1		2		3		4		5		6		7		8
	W		H		W		W		H		(1 + 1/2)		H	

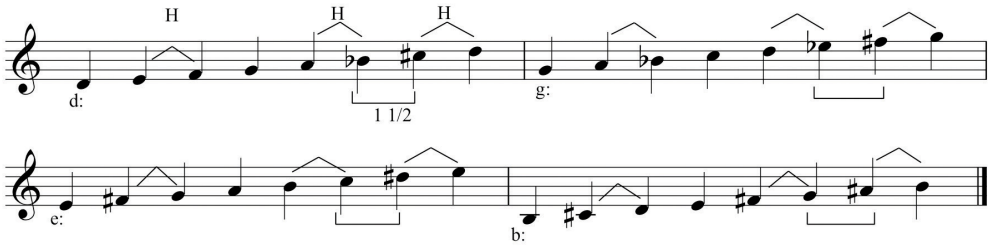
Observe several properties:

11. The naturally occurring diatonic "parent" version of the Minor scale.

12. The most commonly used and expected form of the Minor scale. It is altered from Natural Minor by raising the seventh scale degree to artificially create a *Leading Tone*.

1. The seventh scale degree is raised in this form of minor. Depending upon the starting pitch and the scale, this may use an accidental in the form of either a sharp sign or a natural sign.
2. There are three instances of half steps in this form: 2–3, 5–6, and now +7–8.
3. Because of the alteration the distance between 6 and 7 has been expanded to form a "step and a half." This was considered to be a melodic "flaw." While inherent and necessary to the form, it was considered to be "un-singable" and in need of correction in performance practice.

Figure 3.12 *Other Examples of Harmonic Minor Scales*



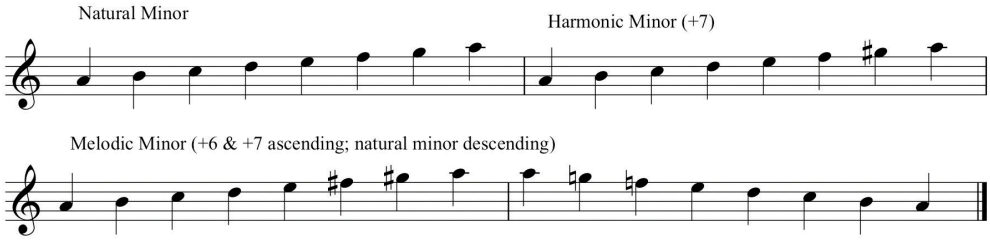
Audio 8

Other Harmonic Minor Scales

(click to see video)
Melodic Minor

This perceived *melodic* flaw in Harmonic minor, the "step and a half" between scale degrees 6 and 7, was subject to routine alteration as well. In order to eliminate this awkward gap, composers routinely raised the sixth scale degree *as well as the seventh*. Since this was done to correct the perceived melodic flaw, a third form of the minor scale came to be recognized, called the Melodic Form of the Minor scale, or simply **Melodic Minor**[13].

Figure 3.13 *Natural, Harmonic, and Melodic Minor Scales*



13. The second altered version of the Minor scale. It is altered by raising both the sixth and seventh scale degrees.

Audio 9

Natural, Harmonic, and Melodic Minor Scales

(click to see video)

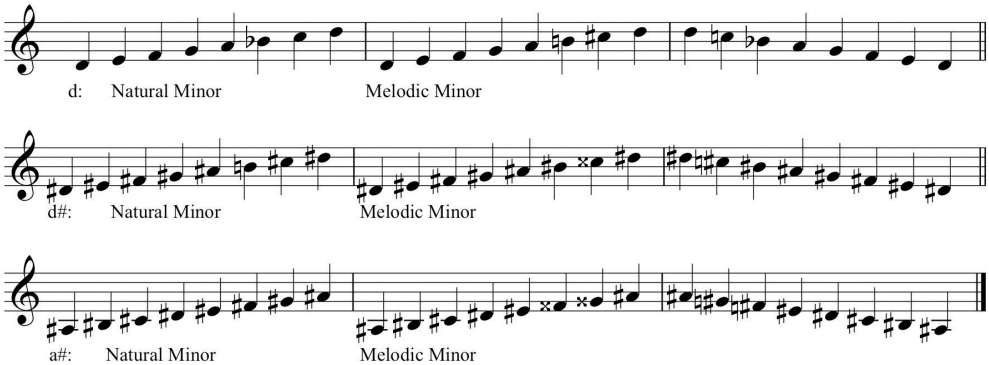
The component scale steps for Melodic minor are:

^		^		^		^		^		^		^		^
1		2		3		4		5		6		7		8
	W		H		W		W		W		W		H	

Observe several properties:

1. Both the sixth and seventh scale degrees have been raised. Depending upon the starting pitch and the scale, this uses accidentals in the form of sharp signs, natural signs, or a combination of the two.
2. The second tetrachord of this scale is identical to the second tetrachord of the Major scale.
3. It is customary to *revert* to the Natural minor form when descending. This *must* be shown using the appropriate accidentals. In some melodic minor scales double sharp signs must be used to alter sixth and seventh scale degrees. When reverting back to Natural minor, a Natural sign *followed* by a sharp sign is used, *not merely a sharp alone*.

Figure 3.14 *Other Examples of Melodic Minor Scales*



Audio 10

Other Melodic Minor Scales

(click to see video)

Before continuing several very important points must be made:

1. Minor is considered to be only one entity. It is not appropriate to speak of "three separate minor scales," as if they are inherently different species.
2. Although one entity, minor has three distinct *forms*, Natural, Harmonic, and Melodic. These forms evolved to accommodate musical and compositional needs over the evolutionary history of Western music.
3. The three forms have distinct properties:
    a. Natural (or Pure) Minor has no *Leading Tone*. This was considered to be an inherent weakness or flaw.
    b. Harmonic Minor seeks to correct this weakness by raising the seventh scale degree, artificially creating a *Leading Tone*. This in turn generates a *melodic* flaw in the gap between scale degrees 6 and 7.
    c. This melodic flaw was corrected by raising the sixth scale degree (in the presence of the raised seventh scale degree). Since this yields a second tetrachord equivalent to its Major scale counterpart, this process is undone in its descending form by reverting to Natural Minor.
4. Lastly, Harmonic minor is the expected, normal form of Minor used by composers in practical composition.

Composers seemed to require the motion from the *Leading Tone* to the *Tonic*. Just as much, they seemed to favor the naturally occurring sixth scale degree, the *Submediant*, "falling" to the *Dominant*. In the study of music theory, *expect* to see, *expect* to hear, and *expect* to use the Harmonic form of Minor. The unique properties of the other forms are used sparingly and are subject to conditions for their use.

In summary, major and minor scales form the fundamental source sets, and therefore the basis of the compositional language in Common Practice music. All the great music of the recognized master composers employed these same constructs as the basic elements of their compositional language.

KEY TAKEAWAYS

The student should understand:

- Taxonomy and nomenclature for scale steps and scale components.
- The Major Scale and its attributes.
- The Minor Scale, its three forms and their attributes.
- Relative Major/Minor, Parallel Major/Minor

EXERCISES

1. In your **Scale Thesaurus**:

    a. Construct Major scales on C, G, F, D, Bb.
    b. Use half notes, ascending only. Use appropriate stem direction.
    c. Label each scale step by scale degree number and mark the half steps.

2. In your **Scale Thesaurus**:

    a. Construct Natural Minor scales on a, e, d, b, g.
    b. Use half notes, ascending only. Use appropriate stem direction.
    c. Label each scale step by scale degree number and mark the half steps.

3. In your **Scale Thesaurus**:

    a. Construct the Harmonic and Melodic Minor forms for each Natural Minor scale in Exercise 2.
    b. Harmonic Minor, ascending only; Melodic Minor, ascending and descending.
    c. Make sure to use the appropriate accidentals and mark the half steps.

3.3 Solfége Revisited

LEARNING OBJECTIVES

1. *Solfége* systems: a comparison.
2. The audio-acoustic "trigger."

In Chapter 2 "The Elements of Pitch:Sound, Symbol, and Tone", *solfége* was explained in its historical and pedagogical context, and as one way of labeling pitch and as a mnemonic device. The principal use of *solfége* as a pedagogical tool is the aural reinforcement of written music.

Many differing *solfége* systems have evolved, each for a specific reason, for a specific context, or to offer an alternate method to a previous system. They can be classified into two broad categories:

1. **Fixed Do**[14]: *Do* is always sung as some form of the pitch name "C." All other pitches are labeled accordingly.
2. **Moveable Do**[15]: *Do* will shift to whatever pitch serves as the *Tonic*. All other pitches shift accordingly.

Several subcategories have evolved from *Moveable-Do* and involve the treatment of the Minor mode. The two most prevalent are called **La-based Minor**[16] and **Do-based Minor**[17].

1. *La-based Minor*: The *Tonic* in Major begins on *Do*. The *Tonic* in Minor begins on *La*.

   General advantages:

   a. Ease of use from a melodic orientation in predominantly diatonic music.
   b. Half step placement is retained between Major and Relative Minor (*Mi-Fa*, *Ti-Do*).
   c. Widely used as a part of Orff-Kódaly training.

   Minor syllables in *La-based Minor*:

14. A solfége system wherein *Do* is always C, *Re* is always D, and so forth.
15. A solfége system wherein *Do* shifts to the starting pitch of the scale. Other syllables are sung in relationship to this.
16. A sub-category of Moveable *Do*. Major is sung beginning on *Do*, Minor begins on *La*.
17. A sub-category of Moveable *Do*. Both Major and Minor begin on *Do*.

	^	^	^	^	^	^	^	^	
	1	2	3	4	5	6	7	8	
Natural Minor:	La	Ti	Do	Re	Mi	Fa	Ti	Do	
Harmonic Minor:	La	Ti	Do	Re	Mi	Fa	Si	La	(Raised 7: *Si*)
Melodic Minor:	La	Ti	Do	Re	Mi	Fa	Si	La	(Raised 6 and 7: *Fi-Si*)

2. *Do-based Minor*: The *Tonic* in both Major and Minor begin on *Do*.

   General advantages:

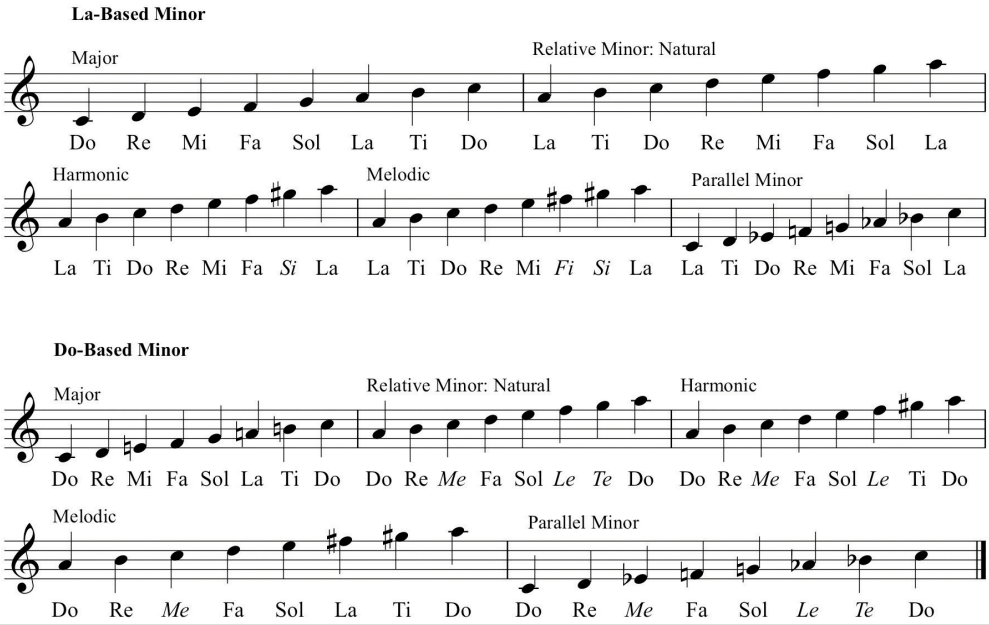
   a. More adaptable when chromaticism in encountered.
   b. Has greater harmonic consequence pedagogically for the average student.
   c. In use to a greater degree in Music Theory curricula.

   Minor syllables in *Do-based Minor* :

	^	^	^	^	^	^	^	^	
	1	2	3	4	5	6	7	8	
Natural Minor:	Do	Re	Mi	Fa	Sol	Le	Te	Do	(*Me*, *Le*, *Te* pronounced “may,” “lay,” “tay”)
Harmonic Minor:	Do	Re	Mi	Fa	Sol	Le	Ti	Do	(Raised 7: *Ti*)
Melodic Minor:	Do	Re	Mi	Fa	Sol	La	Ti	Do	(Raised 6 and 7: *La-Ti*)

Each system has its advocates and its detractors. Each has perceived advantages and disadvantages. Having used all known systems, the author has had the greatest student success employing the *Do-based* model. After an initial familiarization period (because of the use of altered syllables), the vast majority of typical undergraduate music theory students respond to this system.

Figure 3.15 *La-based and Do-based compared*



Regardless of which *solmization* system is used, the purpose remains the same. After a period of familiarization and rote drill, the student will begin to recognize patterns aurally. This is to say that recognition will not merely be aural recognition when heard, but rather, specific patterns will be "engraved" in the student's mind. These patterns will be *solfége*-triggered responses. This *audio-acoustic trigger* response will increase and become more fluent with practice.

KEY TAKEAWAYS

The student should understand:

- *Fixed-Do* as opposed to *Moveable Do*.
- *La-based* as opposed to *Do-based* systems.

EXERCISES

1. In a comfortable register, practice singing a Major scale using syllables, ascending and descending. Gradually increase your tempo.
2. From your *Do*, sing down, "*Do-Ti-La*." Now sing the Natural Minor scale in *La-based Minor*, ascending and descending. Increase your tempo.
3. Next, sing the same Natural Minor scale, but use *Do–based Minor* syllables.
4. As an audio-acoustic exercise, think of the patterns, *Ti-Do*, *Do-Re-Do*, *Do-Mi-Sol*, *Do-Mi-Sol-Mi-Do-Sol-Do*, *Sol-Ti-Re-Ti-Sol-Do*. Sing what you hear. Confirm at the piano.

3.4 Heptatonic Scales: Introduction to Modes

LEARNING OBJECTIVES

1. Defining Modes as heptatonic scales and in historical context.
2. Identifying Modes.
3. Constructing Modes.

Brief Survey

Pre-Tonal (pre-Common Practice) music is generally considered to be music prior to 1587 or16001600 is a convenient benchmark. 1587 is sometimes used as a more specific date. This coincides with the establishment of the *Florentine Camerata*, (or *Camerata di Bardi* after its patron), a colloquium of Northern Italian Humanists, Poets, Musicians, and aesthetes. In attempting to "rediscover" and recreate ancient Greek dramatic forms, they developed a new style of music, the "Second Practice," or "New Style." This was the origin of Opera.. This period is often referred to as the *Modal Era* (as opposed to the *Tonal Era* that is the Common Practice period).

The source materials for Tonal practice consist of the Major/Minor *duality*. Music of this period essentially relied upon Major and Minor scales and their extrapolated constructs as the formative resources for composition.

In the Modal Era, the source materials were a collection of scalar constructs called **Modes**[18]. Originating as tetrachords in early Greek theory, in early Western music they consisted of a collection of interlocking hexachords, each with specific attributes. In time, as compositional resources evolved, supported by accompanying theoretical principles, Modes became a series of heptatonic scales, each with very specific attributes.

Although these were the theoretical basis for early music, modes languished during the Tonal Era. Composers in the 20th-Century, looking for alternative resources to Major and Minor scales, "re-discovered" modes. Modal "flavors" are found in abundance throughout examples of music since 1900.

Modes have become an integral resource in the Jazz style as well. Since the mid-to-late 1950's, modes are considered to be the initial, or primary source scales for Jazz improvisation, especially in the pedagogical practice called chord/scale

18. Heptatonic scales used in early music. Also used in post-Tonal music.

equivalency.Most Jazz scholars identify the seminal recordings of Miles Davis in the late 1950's as heralding the advent of modal use in Jazz. There is evidence that trumpet player Don Cherry may have used modal resources earlier in the decade.

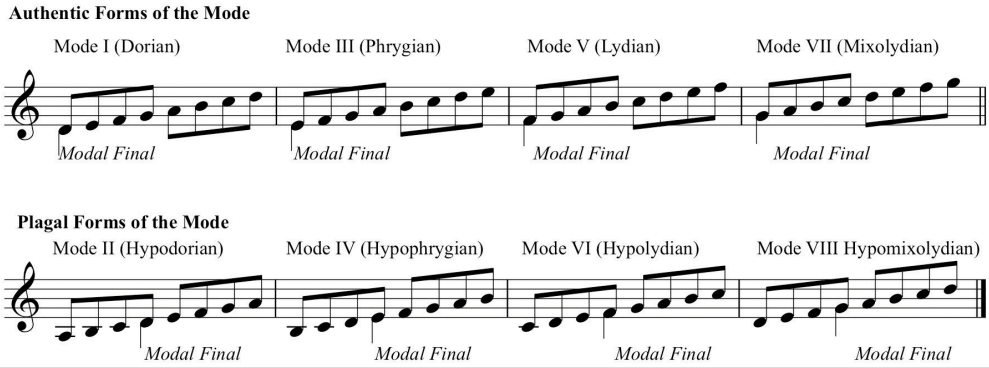
The Ecclesiastical Modes (or "Church" Modes) were seven-tone scales built upon D, E, F, and G. Each was ordered as an octave species from the modal **final**[19] (modal "tonic"). Each also had a re-ordered version wherein the top tetrachord of each was placed below the modal *final* (Latin: *finalis*). The original ordering was called the **Authentic**[20] form of the mode, the transposed version was called the **Plagal**[21] form.

These alternate *Plagal* orderings were not new modes: each pair, *Authentic* and *Plagal*, had the same *final*. A particular form was so labeled based upon the range of the modal melody as well as upon the perceived modal dominant within each form.

Ecclesiastical ("Church") Modes

Originally, modes had specific names. These names reflect regional or place names from the Hellenistic world but were really stylistic indicators. In early church music modes were numbered sequentially. Eventually, the early names were re-used reflecting their early origins. We label modes using these names.

Figure 3.16 Ecclesiatical Modes



Audio 11

The "Church" Modes

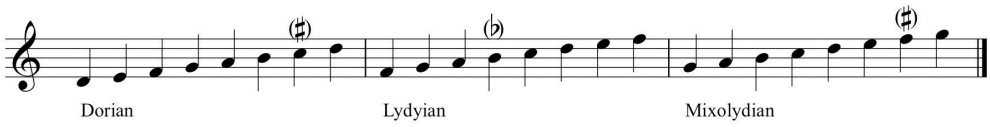
(click to see video)

In and of themselves, the theoretical modes were considered to have certain flaws in regard to their use in practical composition. These perceived flaws were treated

19. The modal equivalent of *Tonic* or keynote.
20. The original ordering of a mode as an octave species from the *final*.
21. A re-ordering of the mode wherein the top tetrachord is placed below the *final*.

by the use of *musia ficta*: composers routinely altered pitches to achieve the desired result. For example, the "softening" of the fourth scale degree in Lydian, or adding a *Leading Tone* to Dorian and Mixolydian.Because of its unique character, Phrygian was resistant to any alteration.

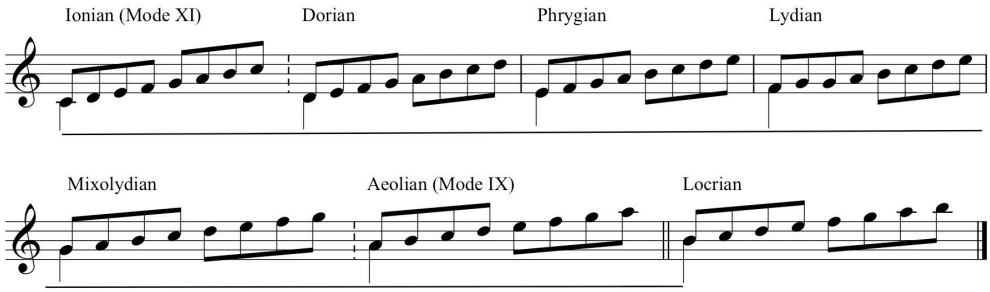
Figure 3.17 *Modes and music ficta*



Greater Modal System

In practical composition, the altered version of the mode became the version used. The resulting mixtures of mode and alteration in time yielded new scales, recognized as such by established practice. This was codified in the Greater Modal System.

Figure 3.18 *The Greater Modal System (Abbreviated)*



Audio 12

The Modes

(click to see video)

Note that Ionian is the Major scale and Aeolian is the Natural Minor scale. The other earlier modes (again by established practice) gradually polarized toward one or the other of these two forms. Due to the perceived flaws of each mode, they eroded under the weight of their own inefficiency and distilled into either the "Major" mode, or the "Minor" mode. The Locrian mode, while recognized as a theoretical mode was not used in practical composition due to its unstable final resolution.Locrian was not included in the system of modes until 1482 where it was

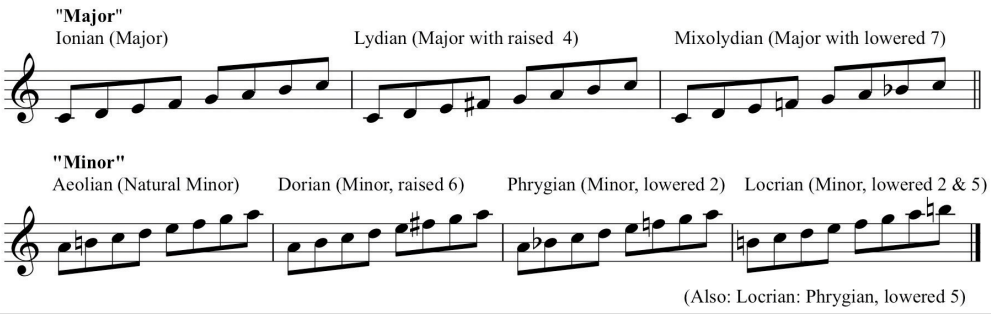
described in the treatise *de Musica* of the Spanish composer and theoretician Bartolomé Ramos de Pareja.

Associative Method

This sense of polarization toward either Major or Minor becomes one useful technique for learning modes and familiarization with their characteristics. The **Associative Method**[22] classifies modes as having the same basic characteristics as either Major or Minor and then recognizes the variances.

Major Sounding Modes	Minor Sounding Modes
Ionian: Major	Aeolian: Natural Minor
Lydian: Major, raised 4	Dorian: Minor, raised 6
Mixolydian: Major, lowered 7	Phrygian: Minor, lowered 2
	Locrian: Minor, lowered 2 & 5 (*or Locrian: Phrygian, lowered 5*)

Figure 3.19 *The Associative Method for Modes*



Audio 13

Associative Modes

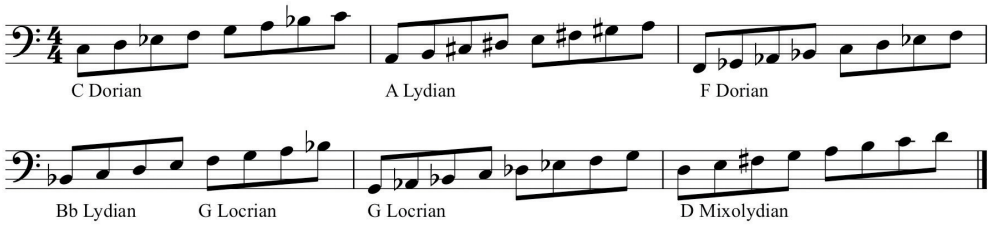
(click to see video)

This method is extremely useful in many instances, especially for recognition purposes and as a tool for learning to hear and sing modes.Some advocate a similar

22. Recognition of modes by association with either the Major or the Minor scale and observing the variances from these.

system wherein the student is compelled to memorize modes as variances from the major scale. We reject this as being unwieldy and narrow. As such, it cannot be recommended. Modes are labeled by the letter name they begin upon followed by the mode name.

Figure 3.20 *Sample Modes and Labels*



Audio 14

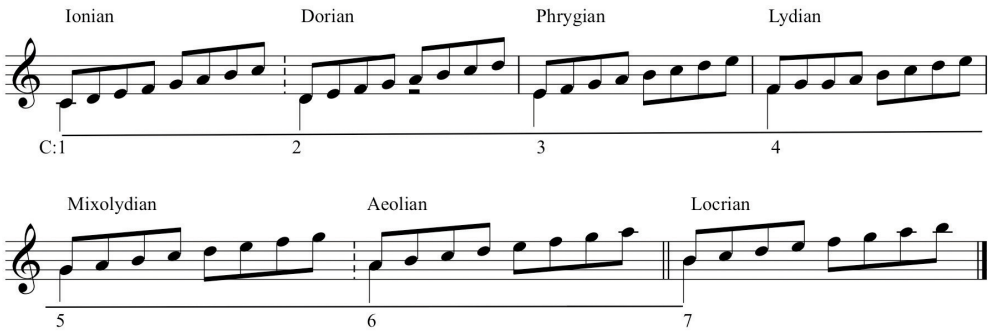
Other Modes

(click to see video)

Revolving Scale Method

A second method is more complete and serves well for the identification of modes, as well as the construction and transposition of modes to other pitches. Observe Figure 3.21 "The Revolving Scale Method for Modes". This diagram of the abbreviated Greater Modal System is projected as a *revolving major scale*. In other words, it appears to be a C major scale constructed upon successively higher scale degrees. In this **Revolving Scale Method**[23], each successive reordering of the scale corresponds to one of the modes.

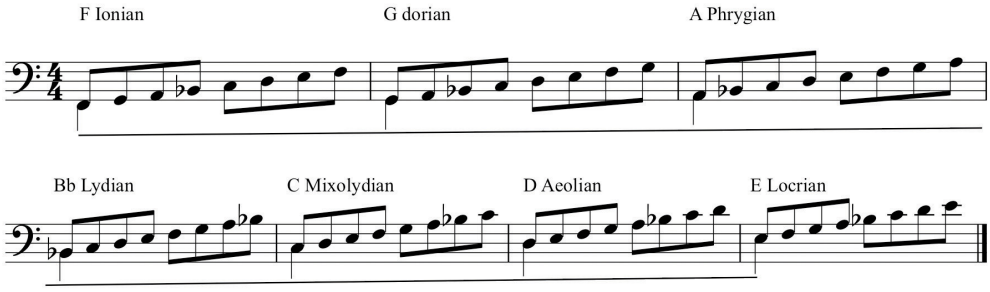
Figure 3.21 *The Revolving Scale Method for Modes*



23. Recognition of modes by their consistent order in the context of the Revolving Major Scale.

This modal ordering remains constant regardless of the major scale used. Therefore, it can be used as an "algorithm," a known value for comparative problem solving, and used as a tool for identifying, constructing, and transposing modes. In Chapter 4 "Key Sense, Key Signatures, and The Cycle of Fifths" modes will be revisited and the Revolving Scale model will be used in conjunction with other tools to perform these tasks.

Figure 3.22 *Revolving Model from F*



KEY TAKEAWAYS

The student should:

- Define modes and understand their historical significance.
- Know mode names.
- Understand the Associative Method and the Revolving Scale Method for modes.

EXERCISES

1. In your **Scale Thesaurus**:

    a. Construct a revolving Major Scale from C.
    b. Label each revolution with its proper mode name.
    c. Perform the same task from G and Bb.

2. In your **Scale Thesaurus**, using the Associative Method, construct the following modes:

    a. D Lydian, F Mixolydian, E Lydian, Eb Mixolydian, Gb Ionian
    b. D Dorian, A Phrygian, E Locrian, Bb Aeolian, G Dorian

3.5 Other Commonly Used Scales

LEARNING OBJECTIVES

1. Introduction to other commonly used scales.
2. Pentatonic, Whole Tone, "Augmented," Octatonic, Lydian-Mixolydian and "Nearly" Whole Tone.

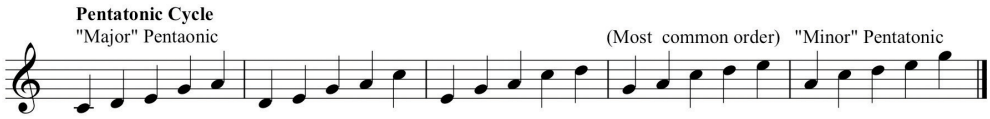
The *fin de siécle* period, the crossover period between the 19th- and 20th Centuries, witnessed monumental changes as to how music was composed. By this point in the evolution of Western music, Tonal music had not exhausted itself, but had developed as fully as it could in terms of compositional resources.

Pentatonic Scale

Composers began to explore alternate scalar resources to Major and Minor. Modes were employed as was the **Pentatonic scale**[24]. The absence of a *Leading Tone* in the Pentatonic scale, as well as its folk music associations, made it an attractive, naturalistic alternative to Major and Minor scales.

In Jazz pedagogy, two distinct forms of the Pentatonic scale are recognized, called *Major Pentatonic* and *Minor Pentatonic*. They are so-called due to their inherently Major or Minor sounding qualities.

Figure 3.23 *Pentatonic Scale Rotation*



Audio 15

Pentatonic Scale

(click to see video)

24. Properly, a scale that divides the octave into five equal portions. In equal temperament, this is most closely approximated aurally by playing the black keys at the piano.

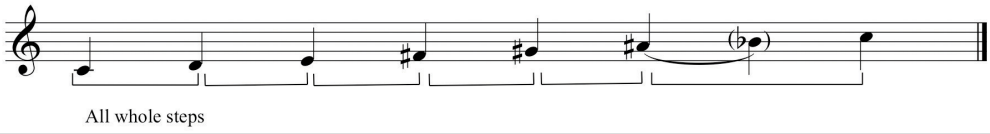
Symmetrical Scale Patterns

Composers in this historically transitional period and throughout the 20th Century seemed fascinated by aspects of symmetry in musical constructs.The symmetrical nature of the Pentatonic scale is not overtly obvious. The symmetry is there, but its explanation must be held in abeyance contingent upon other acquired information. In scale construction, this took the form of division of the octave into symmetrical portions. This is apparent in the types of scale patterns that came into common use in the late 19th Century and continued throughout the 20th Century.

Whole Tone Scale

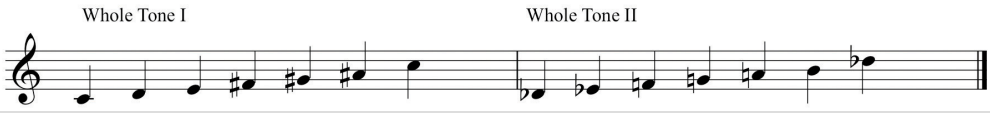
The **Whole Tone Scale**[25], properly considered to be a Hexatonic (six-tone) scale, displays numerous symmetrical traits.There are numerous "axes of symmetry" in whole tone scales. Only those pertinent to this discussion are included here. It is comprised of all whole steps, dividing the octave symmetrically into six portions of two half steps each.

Figure 3.24 *The Whole Tone Scale*



Since this symmetrical division accounts for six of the possible twelve pitch-classes from the chromatic collection, the other six pitch-classes of the chromatic collection form one other whole tone scale.

Figure 3.25 *Whole Tone I (WT I) and Whole Tone II (WT II)*



Audio 16

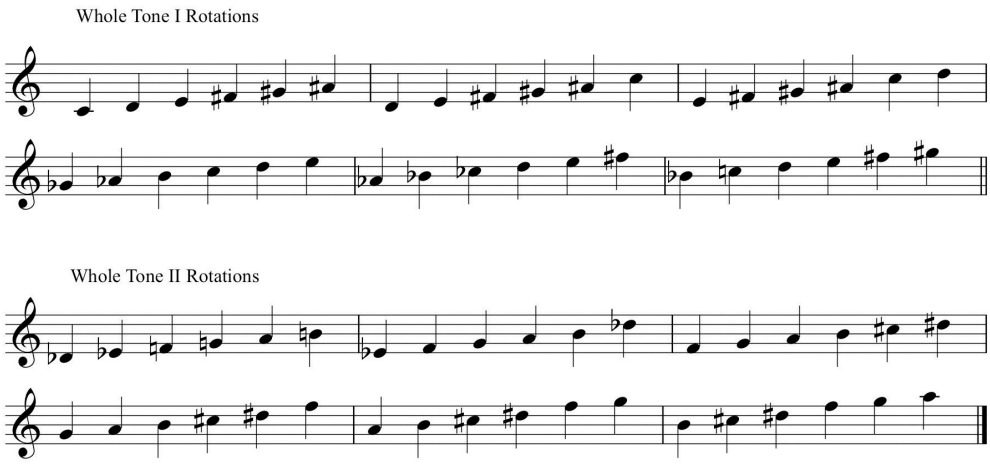
Whole Tone Scales

(click to see video)

25. A hexatonic scale comprised of only whole steps that divides the octave symmetrically into six equal portions of two half steps each.

Each whole tone scale replicates itself when re-ordered in a revolving manner. Pitch-classes remain identical, the "spacing" remains identical, although enharmonic spellings are freely used.

Figure 3.26 *Revolving Whole Tone Scales*



Audio 17

Whole Tone Scale Rotations

(click to see video)

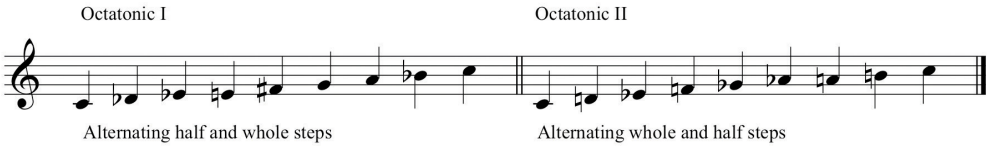
Because of these properties there are only two whole tone scales aurally. All other versions are re-orderings of either *WT I* or *WT II*, but will assume individual identities according to their use is specific contexts.

Octatonic Scale

Another commonly used symmetrical scale is called the **Octatonic Scale**[26].Theoretically, any scale with eight constituent members is an octatonic scale. The versions described here are those most commonly used. In Jazz pedagogy, these versions are called "diminished scales" or "symmetrical diminished scales" because of the structures formed by alternate scale degrees. The two related forms of the Octatonic Scale divide the octave into eight portions consisting of either alternating half steps and whole steps, or alternating whole and half steps.

26. An eight-tone scale. The most common form is the symmetrical division of the octave into eight portions of either alternating half steps and whole steps, or alternating whole steps and half steps

Figure 3.27 *Octatonic I (Oct I) and Octatonic II (Oct II)*



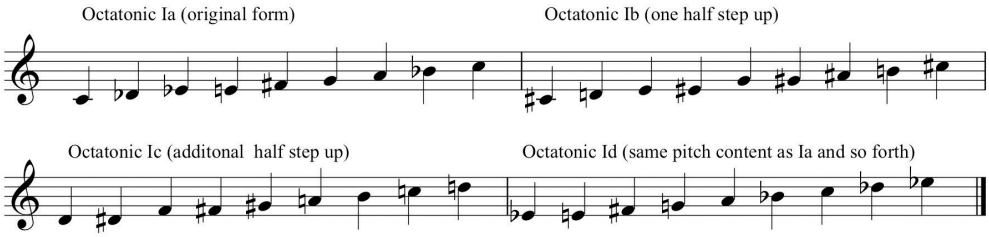
Audio 18

Octatonic Scales

(click to see video)

Oct I and *Oct II* have only three forms each. Figure 3.28 "Octatonic Rotations" shows *Oct I* with additional re-orderings on successively higher scale degrees. Observe that, after the original form and two additional transpositions have been listed, the fourth ordering is equivalent to the first, the fifth is equivalent to the second, and so forth. The same holds true for *Oct II*.

Figure 3.28 *Octatonic Rotations*

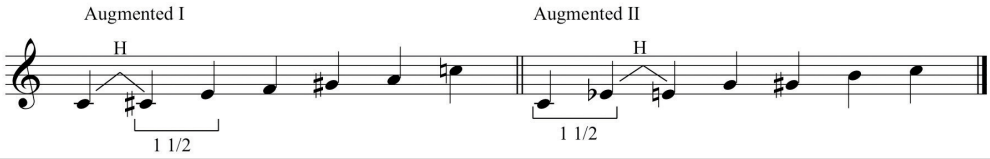


"Augmented" Scale

Another commonly used hexatonic scale pattern is sometimes called the **"Augmented" scale**[27].This hexachord, along with the Whole Tone, Octatonic, and Chromatic scales are labeled "Modes of Limited Transposition" in 20th-century composer Olivier Messiaen's *Techniques de mon langage musical*. This label refers to the chords built upon alternate scale degrees. This is also a symmetrical construct, evenly dividing the octave by the pattern, "half step and a step and a half." It's related counterpart divides the octave by the reverse pattern, "step and a half and halfstep."

27. A hexatonic scale that symmetrically divides the octave by alternating half step and step-and-a-half, or the reverse.

Figure 3.29 *"Augmented" Scale*



Audio 19

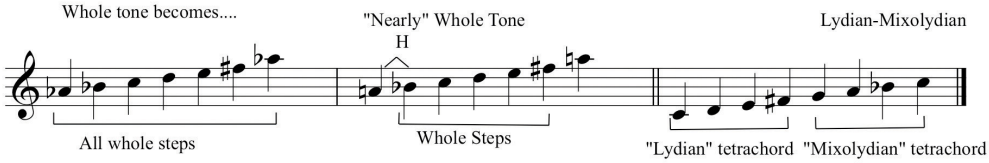
The "Augmented" Scale

(click to see video)

"Nearly" Whole Tone and Lydian-Mixolydian

Two other scales having great currency in 20th Century music are identical in pitch content and identical in their potential origin, but vastly different in context and usage. Figure 3.30 ""Nearly" Whole Tone and Lydian-Mixolydian" compares the Whole Tone scale to the **"Nearly" Whole Tone**[28] Hexachord and the **Lydian-Dominant**[29] scale.Lydian-Dominant is only one label for this scale and is used here as a convenience only. Other names are Lydian-Dominant (common to Jazz pedagogy) or (the proper name) the Overtone Scale. These additional names will not acquire meaning until the student has acquired additional information. Observe that, despite differing orderings, the pitch-class content is identical for the "Nearly" Whole Tone and Lydian-Dominant scales.

Figure 3.30 *"Nearly" Whole Tone and Lydian-Mixolydian*



Audio 20

"Nearly" Whole Tone and Lydian-Mixolydian

(click to see video)

The Nearly Whole Tone hexachord is just that: all whole steps except for an initial half step. The Lydian-Mixolydian scale is so-named because the first tetrachord

28. A six-tone scale that is an altered whole tone scale. One pitch is altered to create a single half step in the collection. In this chapter it has been listed half step first. In other sources, there are other orderings.

29. A heptatonic scale wherein the first tetrachord resembles Lydian mode (raised 4) and the second tetrachord resembles Mixolydian mode (lowered 7).

resembles the first tetrachord of the Lydian mode, and the second tetrachord resembles the second tetrachord of the Mixolydian mode.

Both scales have their potential postulated origin in the naturally occurring acoustical phenomenon called the Overtone (or Harmonic) Series, discussed in Chapter 6 "Chords".The Nearly Whole Tone hexachord is the source set that forms the basis of Russian composer Alexander Scriabin's *Mystic Chord*, an important component of his personalized compositional syntax.

These are but a few of the many scales that have been recognized and used in contemporaneous theory and composition. While the primary focus of the student should be upon Major and Minor scales at this juncture, at least a passing familiarity with other scalar constructs is desirable.

One cannot begin to understand and perform early music without an understanding of modes. Much music since 1900 has been composed using modes or, at least, modal "flavors." One cannot improvise credibly in the Jazz style without understanding and employing modes.

These same remarks may be made concerning the other scales discussed. One cannot begin to understand and perform modern music without an understanding of these various scale patterns. In time, with the proper investment of effort, these scales (and others) will open new worlds in a deepening musical experience.

KEY TAKEAWAYS

The student should understand:

- The Pentatonic Scale.
- Whole Tone Scales, Octatonic Scales, Augmented Scales.
- "Nearly" Whole Tone and Lydian-Mixolydian.

EXERCISES

1. In your **Scale Thesaurus**:

    a. Construct Pentatonic on C.
    b. Using this as a model, construct the same on F, G, Eb, A, and B.

2. In your **Scale Thesaurus**:

    a. Construct WT I and WT II from F.
    b. Oct I and Oct II from G.
    c. Augmented I and II from Eb.

3.6 Summary

This chapter provides an overview and discussion of the scalar resources used by composers. The student should focus upon Major and Minor scales at this point. Modes and other scales will become valuable assets in time. There are numerous additional scale patterns that are recognized in various pedagogical practices. The examples given here are those that are the most common.

In the next chapters, Major and Minor scales will become affiliated with specific tonal “regions” or keys. They will also be added to our arsenal of useful tools.

Chapter 4

Key Sense, Key Signatures, and The Cycle of Fifths

PLEASE NOTE: This book is currently in draft form; material is not final.

4.1 The Sense of Key: Attributes

PLEASE NOTE: This book is currently in draft form; material is not final.

4.2 The Cycle of Fifths as a Mnemonic Device

PLEASE NOTE: This book is currently in draft form; material is not final.

4.3 Relative and Parallel Keys

PLEASE NOTE: This book is currently in draft form; material is not final.

4.4 Closely-Related Keys

PLEASE NOTE: This book is currently in draft form; material is not final.

4.5 Modes Revisited: Transposing Modes, Construction and Identification

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Chapter 5

Intervals

PLEASE NOTE: This book is currently in draft form; material is not final.

5.1 Simple, Compound and Multiple Intervals

PLEASE NOTE: This book is currently in draft form; material is not final.

5.2 Interval Identification Procedure: The Two Evaluative Criteria

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5.3 The Interval Placement Diagram

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5.4 Interval Inversion

PLEASE NOTE: This book is currently in draft form; material is not final.

5.5 Interval Construction Procedure

PLEASE NOTE: This book is currently in draft form; material is not final.

5.6 Interval Identification and Construction Below a Given Pitch

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Chapter 6

Chords

PLEASE NOTE: This book is currently in draft form; material is not final.

6.1 Introduction and Definitions

PLEASE NOTE: This book is currently in draft form; material is not final.

6.2 The Harmonic (“Overtone”) Series

PLEASE NOTE: This book is currently in draft form; material is not final.

6.3 Triads: Four Types, Inversion, and Basic Symbolization

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6.4 Chord Labels and Primary and Secondary Triads

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6.5 The Conditional Status of Second Inversion Triads

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6.6 Introduction to Seventh Chords: Five Basic Types

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6.7 Other Common Trichords and Seventh Chords

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6.8 Larger Chord Structures: Upper Dominant Discords and Non-Dominant Upper Extensions

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6.9 Basic Chord Symbolization

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Chapter 7

Basic Analytical Techniques: The Four Parameters

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7.1 The Purpose of Analysis

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7.2 Tonal Music: Expectation and Iteration

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7.3 Roman Numeral Analysis (RNA)

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7.4 The Figured Bass Tradition and its Use in Analysis

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7.5 Categories of Chord Progressions: Expectations in Tonal Harmony

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Chapter 8

The Cadence

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8.1 Definition and the Sense of Closure in Music

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8.2 Melodic Cadences

PLEASE NOTE: This book is currently in draft form; material is not final.

8.3 Final (Conclusive) and Non-Final (Inconclusive) Cadences

PLEASE NOTE: This book is currently in draft form; material is not final.

8.4 Harmonic Cadence Types

PLEASE NOTE: This book is currently in draft form; material is not final.

8.5 Procedure for Evaluating and Identifying Cadences

PLEASE NOTE: This book is currently in draft form; material is not final.

Chapter 9

Melodic Elaboration I: Non-Harmonic Activity

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9.1 Non-Harmonic (Non-Chord) Tones

PLEASE NOTE: This book is currently in draft form; material is not final.

9.2 Types of NHT

PLEASE NOTE: This book is currently in draft form; material is not final.

9.3 Procedure for Evaluating and Identifying NHT

PLEASE NOTE: This book is currently in draft form; material is not final.

9.4 The Suspension Figure

PLEASE NOTE: This book is currently in draft form; material is not final.

Chapter 10

Harmonic Elaboration I: Seventh Chords

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10.1 Origins of Seventh Chords as Non-Harmonic Activity

PLEASE NOTE: This book is currently in draft form; material is not final.

10.2 Expected (Typical) Use of Seventh Chords

PLEASE NOTE: This book is currently in draft form; material is not final.

10.3 Evaluating Seventh Chords in Contrast with Non-Harmonic Origins

PLEASE NOTE: This book is currently in draft form; material is not final.

10.4 Other Uses of Seventh Chords

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Chapter 11

Chromaticism: Evaluating Tone Outside of the Prevailing Key

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11.1 Essential versus Inessential Chromaticism

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11.2 Modulation and Tonicization: Similarities and Contrasts

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11.3 Modulation: Attributes and Closely Related Keys

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11.4 Types of Modulation: Common Chord, Direct (Phrase), Chromatic, Remote, Chain

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11.5 Tonicization: Applied Chords or Secondary Functions

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11.6 Introduction to Altered Chords: Mode Mixture

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Chapter 12

Formal Organization: Small Part Forms

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12.1 Form as a Meta-Rhythm

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12.2 The Motive: The Irreducible Creative Gesture

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12.3 Expansion: Sub-Phrase, Phrase, Period, Double Period

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12.4 Phrase Extension and Phrase Elision

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12.5 Small Homophonic Part Forms: Binary, Ternary and Rounded Binary

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12.6 Expansion and Magnification: Textbook Models of Larger Forms

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Chapter 13

Concise Forms: Composing in the Vernacular Style

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13.1 Characteristics of Tonal Melody

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13.2 Common Chord Progressions

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13.3 Argot, Jargon, and Slang in Popular Song

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13.4 Typical Formal Patterns

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13.5 The Blues

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Chapter 14

The Four-Voiced Setting: The Chorale and The Chorale Setting

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14.1 Introduction and Purpose of Study

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14.2 SATB Chorale Style

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14.3 Proscriptions and Prescriptions: Adherence to the Style

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14.4 Active Tones, Voice Range, Doubling, Position

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Chapter 15

Voice-Leading Procedures: A Positive Learning Approach

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15.1 Introduction and Purpose of Study

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15.2 Root Position Triads: Root Motion and Prescribed Procedures

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15.3 Root Position Triads: Conditional Procedures

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15.4 Triads in Inversion: Prescribed Procedures

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15.5 Complete Procedural Table

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Chapter 16

“Emulative” Composition

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16.1 Introduction and Purpose of Study

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16.2 Realizing Simple Figured Bass in SATB

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16.3 Realizing Simple Figured Bass in Keyboard Style

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16.4 Procedure for Harmonizing a Given Melody

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Chapter 17

Melodic Elaboration II Adding NHT to a Basic Setting

PLEASE NOTE: This book is currently in draft form; material is not final.

17.1 Enhancing a Setting using Appropriate Embellishment

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17.2 Restrictions

PLEASE NOTE: This book is currently in draft form; material is not final.

17.3 The Suspension Figure: Review and Construction Procedure

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17.4 Cadential Elaboration

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17.5 Other NHT

PLEASE NOTE: This book is currently in draft form; material is not final.

Chapter 18

Harmonic Elaboration II: Adding Seventh Chords to a Basic Setting

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18.1 Review and Common Use of Seventh Chords

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18.2 Tendency Tones

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18.3 Resolution of Seventh Chords: General Procedures for Voice Leading

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18.4 Special Resolution Procedures

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Chapter 19

Appendix A: Common Musical Terms

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Chapter 20

Appendix B: Upper Dominant Discords and Non-Dominant Upper Extensions

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Chapter 21

Appendix C: Generalized “Textbook” Models of Larger Forms

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Chapter 22

Appendix D: Realizing Chord Changes and Some Typical Jazz Chord Voicings

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