CHAPTER 4

Chords

TOPICS

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IMPORTANT CONCEPTS

In the previous chapter, pairs of pitches were assigned specific names for identification purposes. The phenomenon of tones sounding simultaneously frequently includes groupings of three, four, or more pitches. As with intervals, identification names are assigned to larger tone groupings with specific symbols.

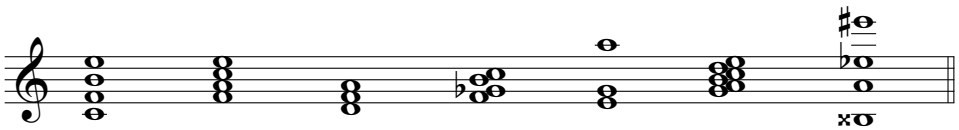
Harmony

Harmony is the musical result of tones sounding together. Whereas melody implies the linear or horizontal aspect of music, harmony refers to the vertical dimension of music.

Chord

A *chord* is a harmonic unit with at least three different tones sounding simultaneously. The term includes all possible such sonorities.

Figure 4.1



Triad

Strictly speaking, a *triad* is any three-tone chord. However, since western European music of the seventeenth through the nineteenth centuries is *tertian* (chords containing a superposition of harmonic thirds), the term has come to be limited to a three-note chord built in superposed thirds.

Triad Root

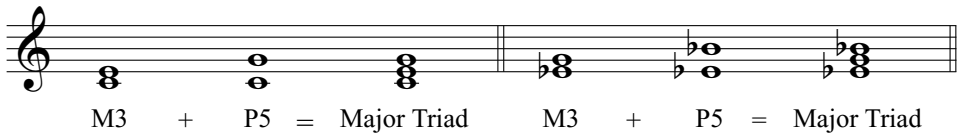
The term *root* refers to the note on which a triad is built. “C major triad” refers to a major triad whose root is C. The root is the pitch from which a triad is generated.

Four types of triads are in common use. They are identified by the quality names major, minor, diminished, and augmented.

Major Triad

A *major triad* consists of a major third and a perfect fifth.

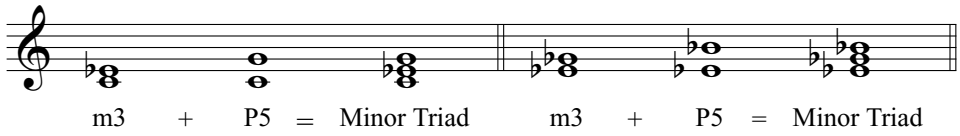
Figure 4.2



Minor Triad

A *minor triad* consists of a minor third and a perfect fifth.

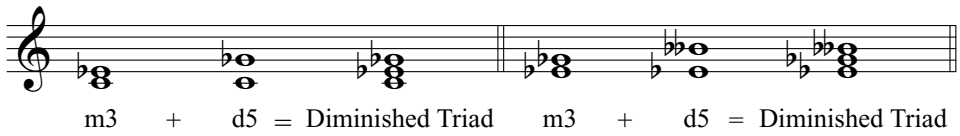
Figure 4.3



Diminished Triad

A *diminished triad* consists of a minor third and a diminished fifth.

Figure 4.4



Augmented Triad

An *augmented triad* consists of a major third and an augmented fifth.

Figure 4.5

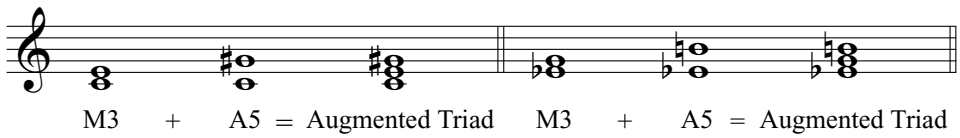
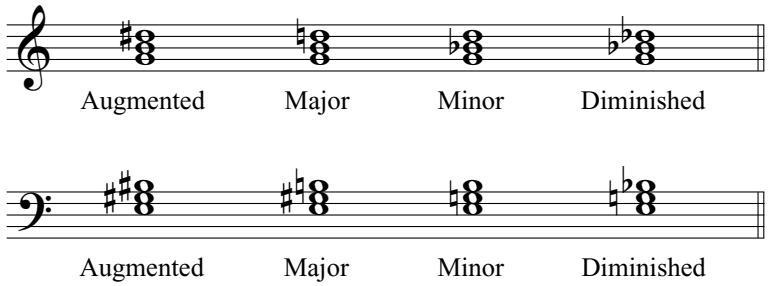


Figure 4.6 demonstrates how each of the four types of triads can be constructed. Each triad includes a root, a third, and a fifth.

Figure 4.6



Triad Stability

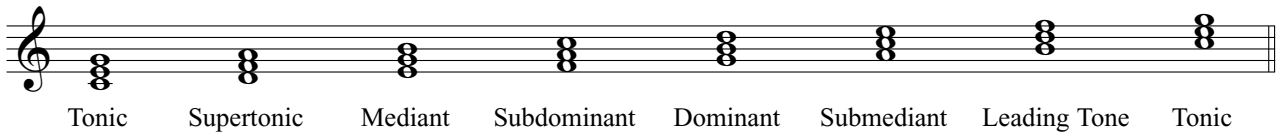
A triad that is a combination of the strongest intervals is the most stable. The perfect fifth is by far the strongest interval, and this accounts for the superior stability of the major and minor triads.

Strongest and most stable	Major triad
Strong and quite stable	Minor triad
Weak and unstable	Diminished triad
Weak and unstable	Augmented triad

Triad Names

You can construct a triad on any of the scale degrees. The triad has the same function name as the individual pitch. Both the pitch C and the C major triad are the tonic in Figure 4.7.

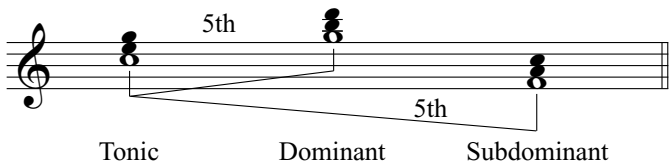
Figure 4.7



Primary Triads

The triads built on the tonic, subdominant, and dominant are often referred to as the *primary triads* because of their strong relationship to each other. The tonic stands in the center of the tonal system, with the dominant a perfect fifth above and the subdominant a perfect fifth below.

Figure 4.8



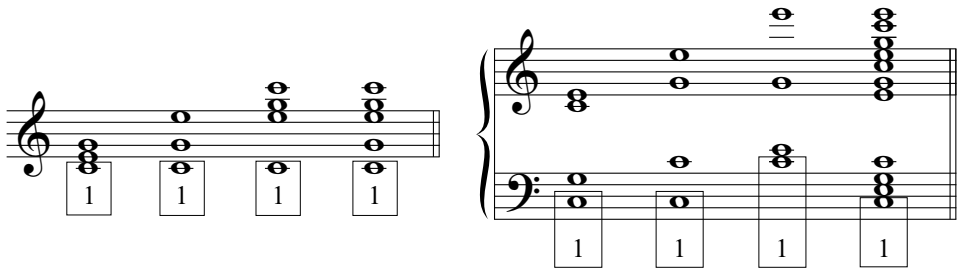
Triad Position

Triad position identifies the note of the chord that appears as the lowest-sounding pitch of the harmony. Any of the three notes of the triad can appear as the lowest-sounding pitch.

Root Position

No matter what the arrangement of the third and fifth factors, the triad is in *root position* if the root of the triad is the lowest-sounding pitch. All the triads in Figure 4.9 are in root position.

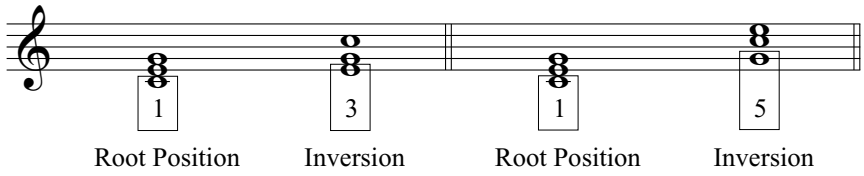
Figure 4.9



Triad Inversion

An *inversion* of a triad occurs when the root is not the lowest-sounding pitch.

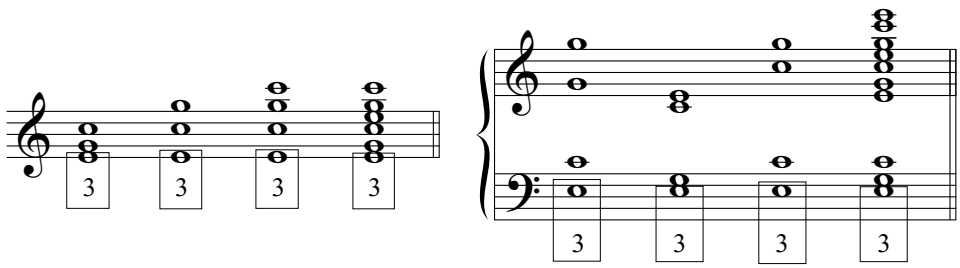
Figure 4.10



First Inversion

No matter what the arrangement of the root and fifth factors, the triad is in *first inversion* if the third factor is the lowest-sounding pitch.

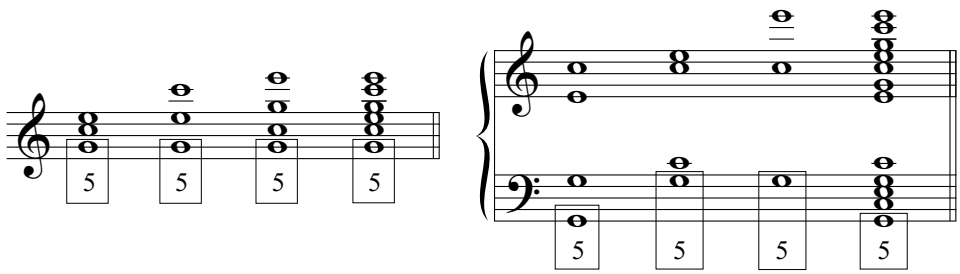
Figure 4.11



Second Inversion

No matter what the arrangement of the root and third factors, the triad is in *second inversion* if the fifth factor is the lowest-sounding pitch.

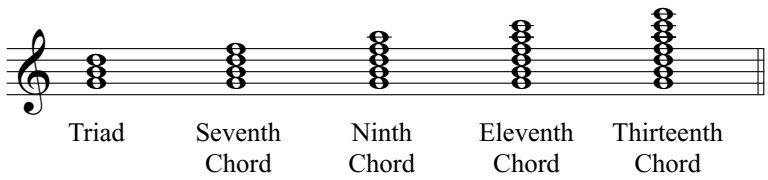
Figure 4.12



Other Tertian Chords

Triads by no means exhaust the possible tertian sonorities. We can continue adding thirds to tertian chords, resulting in seventh chords, ninth chords, eleventh chords, and thirteenth chords (discussed in detail in the latter chapters of this volume and in volume 2).

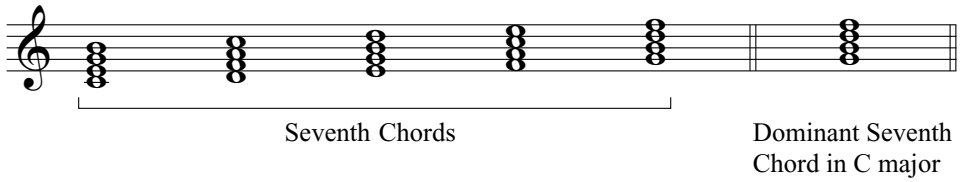
Figure 4.13



Seventh Chords

Although triads are the focus of this chapter, you will also encounter seventh chords when analyzing music. A *seventh chord* is formed by adding another third above the fifth of a triad. The seventh chord built on the dominant is the most common seventh chord in tonal music (see Figure 4.14).

Figure 4.14



History

Emerging during the thirteenth century from a composition type known as *organum*, harmony developed gradually during the medieval and Renaissance periods. In the Renaissance period (1450–1600) harmony was the result of the combination of melodic lines, and the study of harmony was a study of the consonant and dissonant relationships between melodic lines.

During the baroque period (1600–1750) the concept of accompanying a melody with chords was developed. The keyboard performer was expected to improvise the accompaniment from a given bass line and a set of symbols used to indicate in a general way the chords to be used. The bass line with its accompanying symbols is called a *figured bass*, and the instruments that play from this part are called the *continuo*. Musicians employed the figured-bass system throughout the baroque period for keyboard accompaniments and keyboard parts for solo songs, solo instrumental compositions, and small and large ensembles.

In 1722 Jean-Phillipe Rameau wrote the *Traité de l'harmonie* (*Treatise on Harmony*), which described a theory of harmony. In Book One of this treatise, Rameau discusses the inversion of chords, a concept that profoundly influenced later theoretical writing. Many of the principles presented in this book are direct outgrowths of Rameau's ideas.

APPLICATIONS

Musicians analyze harmonic elements in music using sets of symbols to identify chord types, function, and relationships. A chord's connection to a key center, or perceived forward motion in a composition, can often be explained through harmonic analysis. Two analytical methods, Roman numeral analysis and macro analysis, are presented throughout this volume as tools for categorizing tonal harmonies and chord relationships.

Symbols are not limited to analysis. Composers and arrangers use both the baroque figured-bass system and modern-day popular music symbols as shorthand systems to reveal harmonic vocabulary to performers.

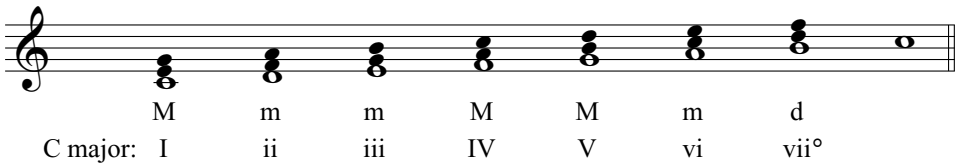
Roman Numeral Analysis

In analysis, *Roman numerals* are used to distinguish triads based on scale degrees (Arabic numerals with carets are used for scale degrees themselves). Memorize the type of triads that appear on each tone of the major scale and the three forms of the minor scale.

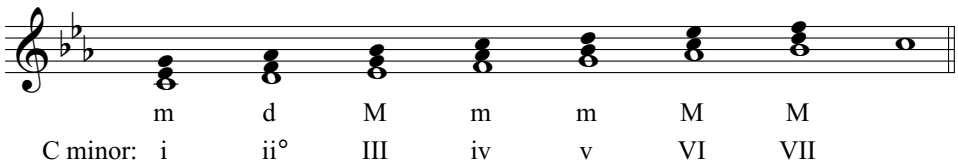
Capital Roman numerals	=	Major triads	Examples: I, IV, V
Lowercase Roman numerals	=	Minor triads	Examples: ii, iii, vi
Lowercase Roman numerals with °	=	Diminished triads	Examples: ii°, vii°
Capital Roman numerals with +	=	Augmented triads	Example: III+

Figure 4.15

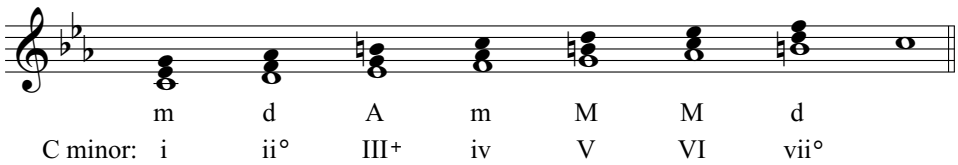
In the major scale:



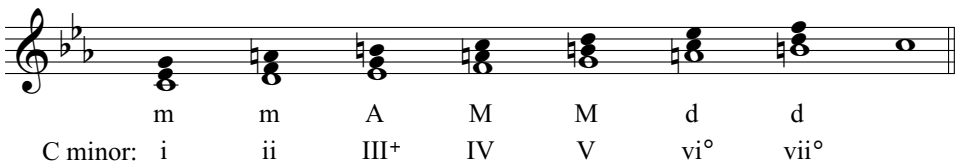
In the natural minor scale:



In the harmonic minor scale:



In the melodic minor scale:



The following chart is a summary of triad types in the diatonic scales:

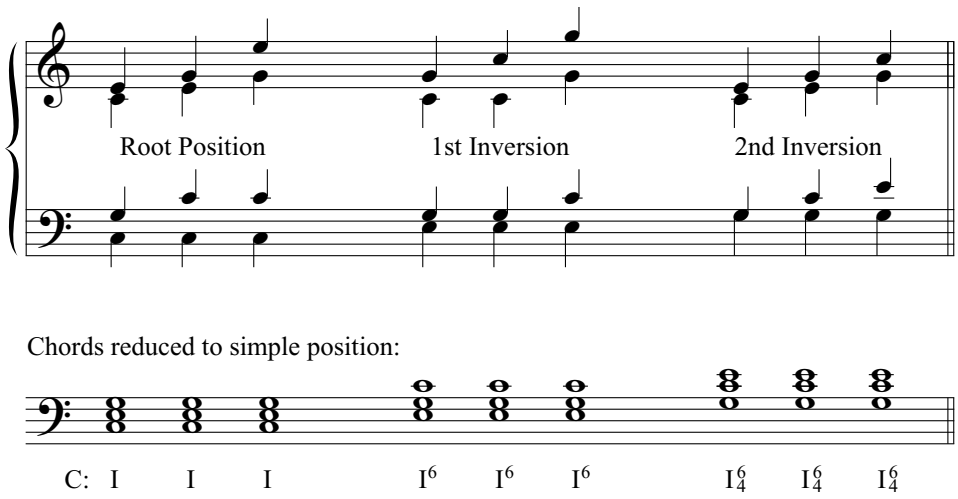
Scale	Major Triads on	Minor Triads on	Diminished Triads on	Augmented Triads on
Major	I, IV, V	ii, iii, vi	vii°	None
Natural Minor	III, VI, VII	i, iv, v	ii°	None
Harmonic Minor	V, VI	i, iv	ii°, vii°	III+
Melodic Minor	IV, V	i, ii	vi°, vii°	III+

Triad Position Symbols

Root-position triads are indicated with Roman numerals without additional symbols. First-inversion triads are indicated with a superscript ^{6} to the right of the Roman numeral. Second-inversion triads are indicated with a superscript $^{6}_{4}$ to the right of the Roman numeral.

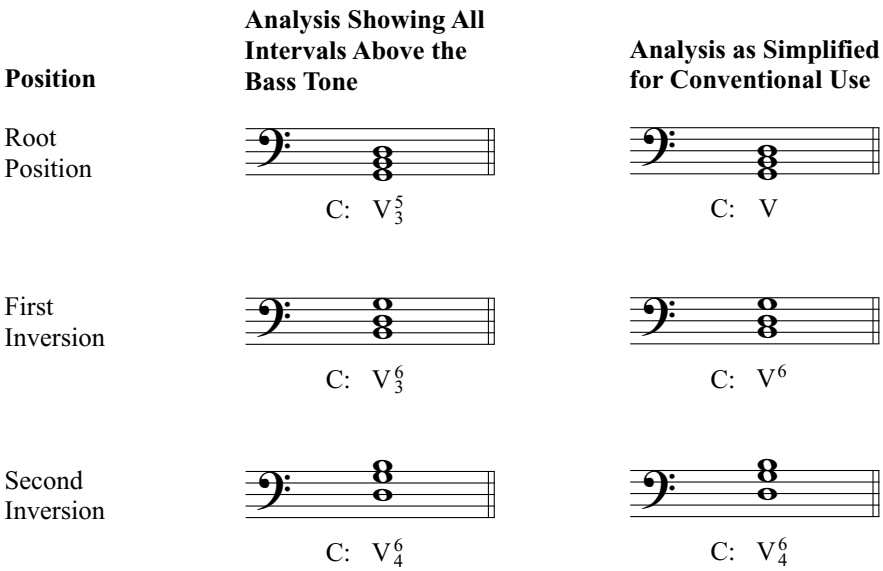
When triads are reduced to three notes spaced as close together as possible, we say they are in *simple position*.

Figure 4.16



Although ^{6} and $^{6}_{4}$ accompany Roman numerals to indicate inversions, they are shorthand symbols to represent intervals above the lowest sounding note. Figure 4.17 illustrates the complete interval figures for triads, along with the abbreviated symbols.

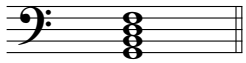
Figure 4.17



Seventh-Chord Position Symbols

We indicate root-position seventh chords by adding a small superscript ^{7} to the right of the Roman numeral.

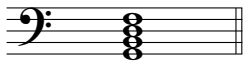
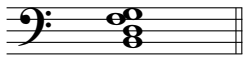
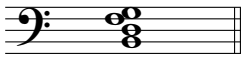
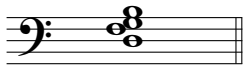
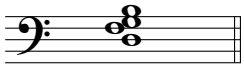
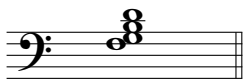
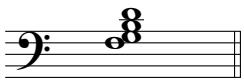
Figure 4.18



C: V^{7}

The dominant seventh chord can appear in various inversions, including *third inversion*, as shown in Figure 4.19.

Figure 4.19

Position	Analysis Showing All Intervals Above the Bass Tone	Analysis as Simplified for Conventional Use
Root Position	 C: $V^{7}_{5}_{3}$	 C: V^{7}
First Inversion	 C: $V^{6}_{5}_{3}$	 C: V^{6}_{5}
Second Inversion	 C: $V^{6}_{4}_{3}$	 C: V^{4}_{3}
Third Inversion	 C: $V^{6}_{4}_{2}$	 C: V^{4}_{2} or V^{2}

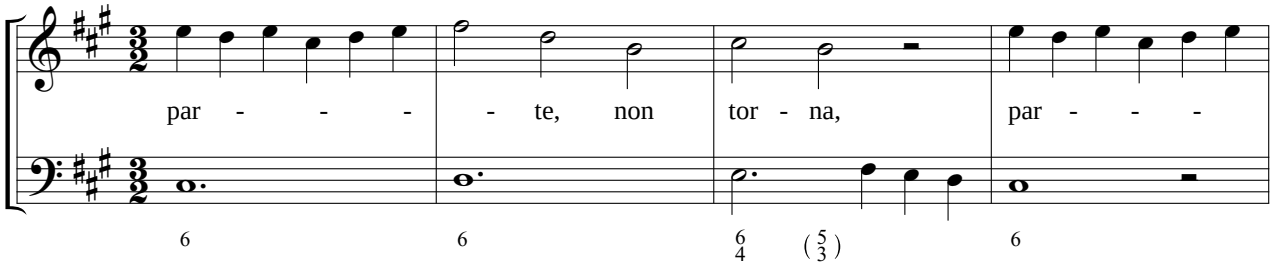
Figured Bass

Figured bass consists of a bass part (single line) with figures (mostly numbers) below to indicate the type of harmony. It is a contrapuntal, intervallic shorthand method of showing the harmony (along with nonharmonic tones). Because this method saved time, musicians employed it throughout the baroque period for keyboard accompaniments and keyboard parts for solo songs, solo instrumental compositions, and small and large ensembles. It also exemplifies the baroque tendency to emphasize the outer voices (soprano and bass) in contrast to the Renaissance tradition of equal voices (soprano, alto, tenor, and bass).

Figure 4.20 is an excerpt from a baroque composition with figured bass.

Figure 4.20

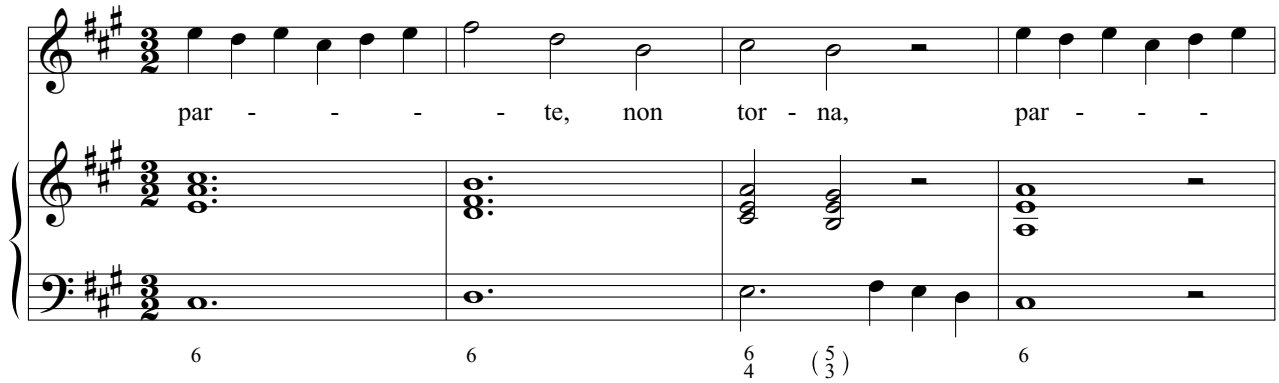
Cesti: *Bella Clori* (Beautiful Chloris), mm. 185–188.



Modern editions of music are often printed with the figured bass *realized*. This means that the harmony is filled in according to the figures. Figure 4.21 shows the previous excerpt with a *realization* of the figured bass.

Figure 4.21

Cesti: *Bella Clori* (Beautiful Chloris), mm. 185–188, with figured bass realized.



Figured-Bass Symbols

As we have seen, the numbers ^{6} and $^{6}_{4}$ refer to intervals above the bass note, but they imply others such as 3, 8, or an additional 6 or 4 to fill out the four voices. Figured-bass numbers do not denote specific arrangements; they do not indicate what note should be placed in a particular voice (soprano, alto, or tenor). Composers of the baroque period could have indicated all intended notes above the bass note—including octaves, thirds, and doublings where they occur—but this would have proven burdensome. In actual practice they chose only figures that would specifically define a position (root, first inversion, or second inversion). Thus, ^{6} clearly distinguishes first inversion from root position (no numbers) and second inversion ($^{6}_{4}$).

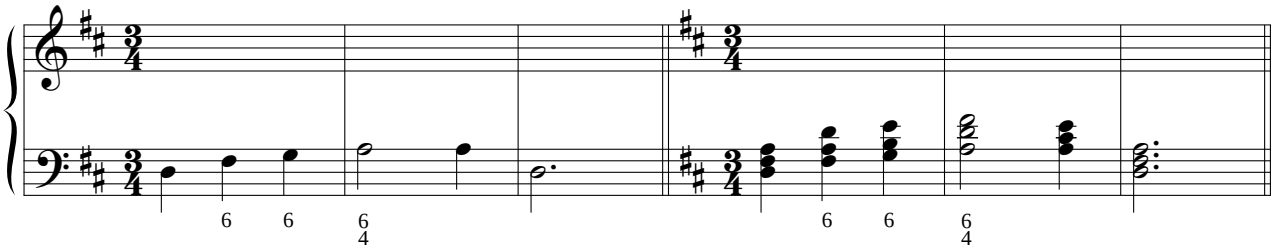
Some standard figured-bass symbols along with their realizations are shown in the following table and in Figure 4.22.

Symbol	Meaning	Realizations
None	Triad in Root Position	Short for: $^{5}_{3}$, $^{3}_{3}$, $^{8}_{5}_{3}$, $^{5}_{5}_{3}$, $^{5}_{3}_{3}$, or $^{8}_{8}_{3}$.
^{6}	Triad in First Inversion	Short for: $^{6}_{3}$, $^{6}_{6}$, $^{8}_{6}_{3}$, $^{6}_{6}_{3}$, or $^{6}_{3}_{3}$.
$^{6}_{4}$	Triad in Second Inversion	Short for: $^{8}_{6}_{4}$, $^{6}_{6}_{4}$, or $^{6}_{4}_{4}$.

Figure 4.22

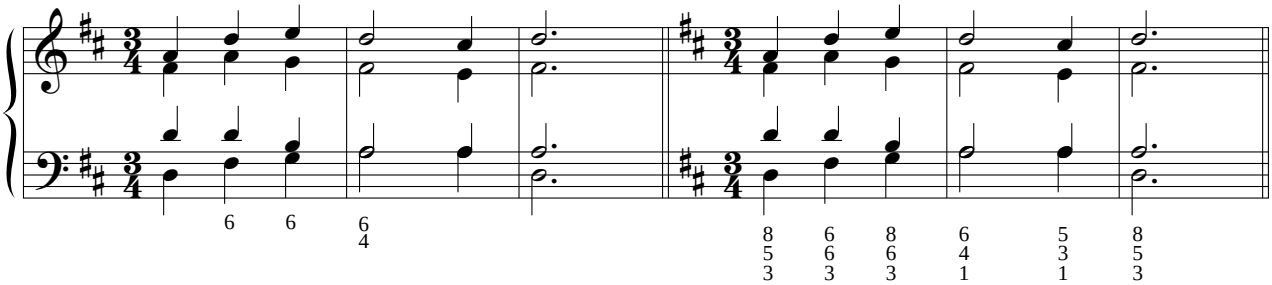
Figured bass as it appears originally:

Same figured bass harmonized in simple position:



Same figured bass harmonized in four-part harmony:

Same figured bass with all intervals indicated:



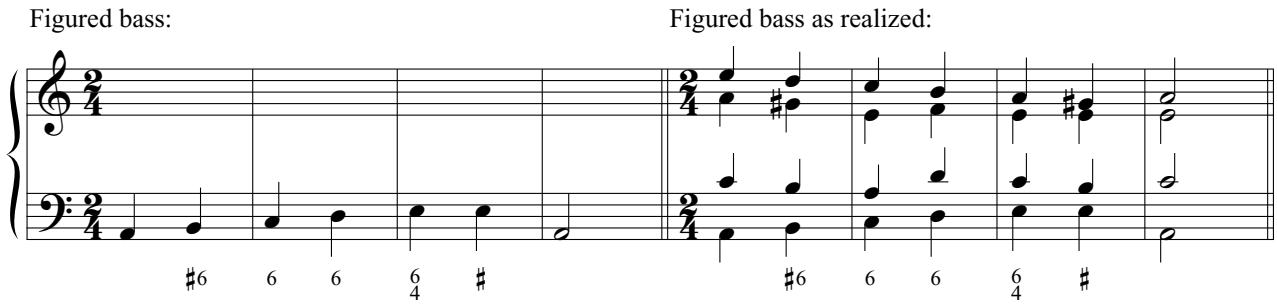
When you are considering triads, note that any figured bass that contains a 6 but *not* a 4 means first inversion. Any figured bass that contains a 6 *and* a 4 means second inversion.

Sometimes it is necessary to indicate sharps, flats, or naturals above the bass note. These are shown in the following manner:

Symbol	Meaning
♯, ♭, or ♮	A sharp, flat, or natural alone beneath a bass note indicates a triad in root position with the third interval above the bass note sharped, flatted, or naturaled.
$\overset{6}{\sharp}$, $\overset{6}{\flat}$, or $\overset{6}{\natural}$	A sharp, flat, or natural below a 6 indicates a first-inversion triad with the third interval above the bass note sharped, flatted, or naturaled.
♯6, $\underset{4}{\flat 6}$, ♮6, $\underset{\flat 4}{\sharp 6}$	Any sharp, flat, or natural sign on either side of a number indicates that this interval above the bass note should be sharped, flatted, or naturaled depending on the symbol. Remember that accidentals beside numbers do not change the original intent of the numbers themselves.
6̸, 6̸, 4̸, 4+, 2̸	A slash mark through a number indicates that this interval above the bass note should be raised a half step. It means the same as a sharp sign beside the number. The plus sign (+) also has the same meaning.

If none of these symbols are present, assume that you should follow the key signature in realizing figured-bass symbols.

Figure 4.23



Macro Analysis

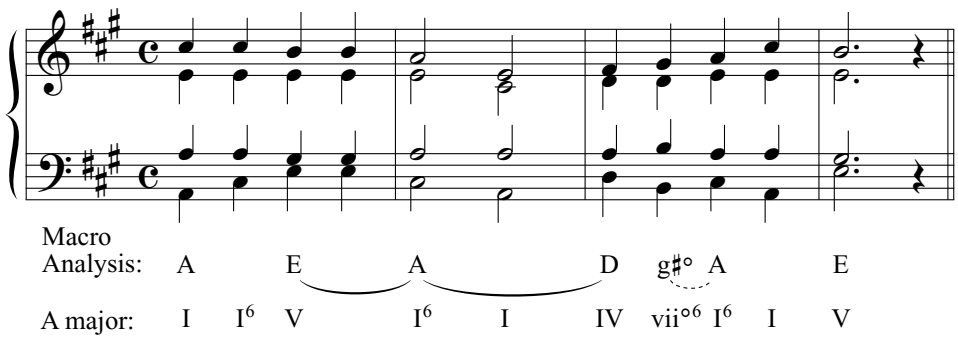
Macro analysis is an analytical procedure that you can employ along with, or instead of, more conventional methods of analysis. The system's name *macro* (meaning large) defines the technique's fundamental purpose—to reveal large harmonic gestures in music. Patterns that are not easily seen in music become more visible through the use of macro analysis. Although Roman numeral analysis monitors chord-by-chord harmonic details, macro analysis provides a panoramic view of a composition's harmonic landscape.

The excerpt in Figure 4.24 has been analyzed using the two techniques. Note the relationship between the macro analysis symbols in the top layer and the Roman numeral analysis below. Both share a similar use of capital and lowercase letter symbols to identify chord qualities, but macro analysis identifies chord roots with letters instead of Roman numerals. The macro symbols should not be confused with other letter-based symbols (such as popular-music symbols). Instead, think of them as a shorthand analysis system.

Macro analysis exposes the harmonic durations and forward motion (with slur symbols), whereas the Roman numeral analysis draws attention to smaller details such as chord position.

Figure 4.24

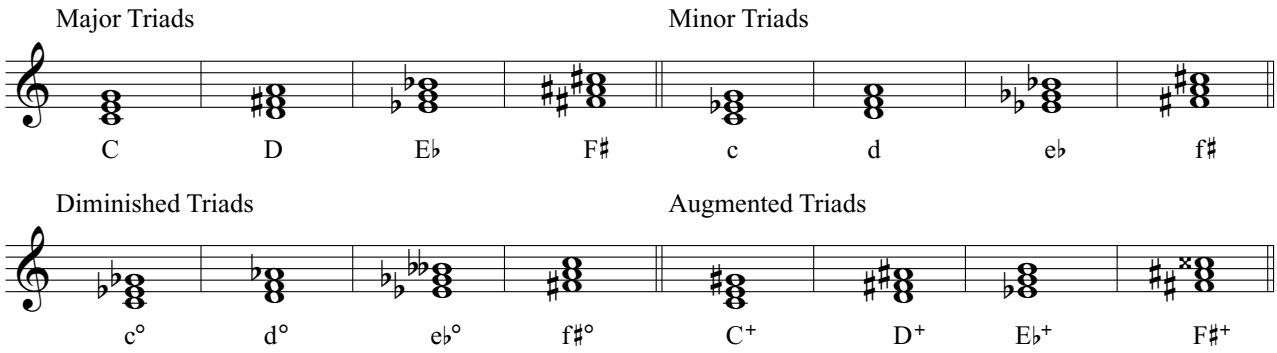
Rinck: "St. Lucian," mm. 1–4



The system employs letters to indicate the roots of chords, accompanied by specific symbols to depict chord quality. The letter symbol will correspond with the pitch name of the root of the triad. Macro analysis symbols for triads are written as follows:

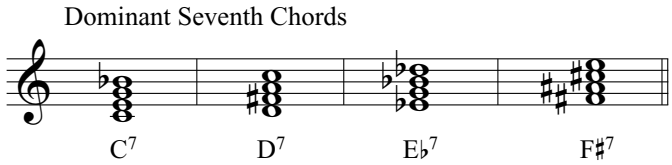
1. Major triads are represented by capital letter names.
2. Minor triads are represented by lowercase letter names.
3. Diminished triads are represented by lowercase letter names followed by the ° symbol.
4. Augmented triads are represented by capital letter names followed by the + symbol.

Figure 4.25



The dominant seventh chord is represented by a capital letter followed by the superscript ^{7} symbol.

Figure 4.26

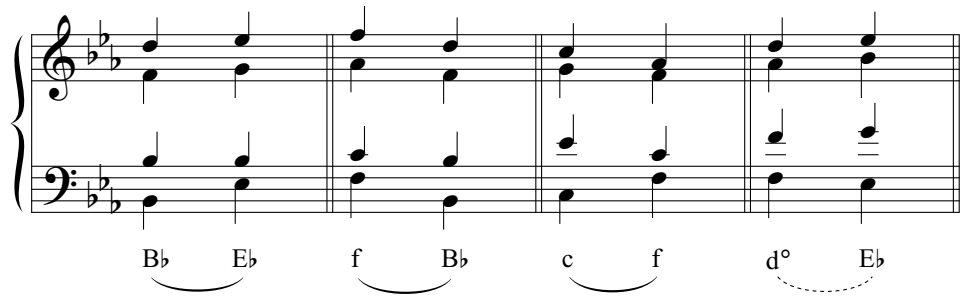


Slur symbols are used in macro analysis to label forward motion in music. Two types of slurs are added to the letter-based symbols:

1. The solid slur is attached to adjacent letter symbols whose roots are either an ascending fourth or a descending fifth apart. In macro analysis, this type of progression is known as a *circle progression*.
2. The dotted slur is connected to leading-tone chords whose roots resolve up a half step. Since the leading tone is functioning as a substitute for the dominant in this type of progression, the dotted slur indicates the use of a related chord as a substitute. In macro analysis, this type of progression is known as a *leading-tone progression*.

Refer to Chapter 10 for additional information about types of harmonic progressions.

Figure 4.27



Macro analysis symbols are traditionally positioned below the score. If used in conjunction with Roman numerals, the macro analysis will occupy the upper level with the Roman

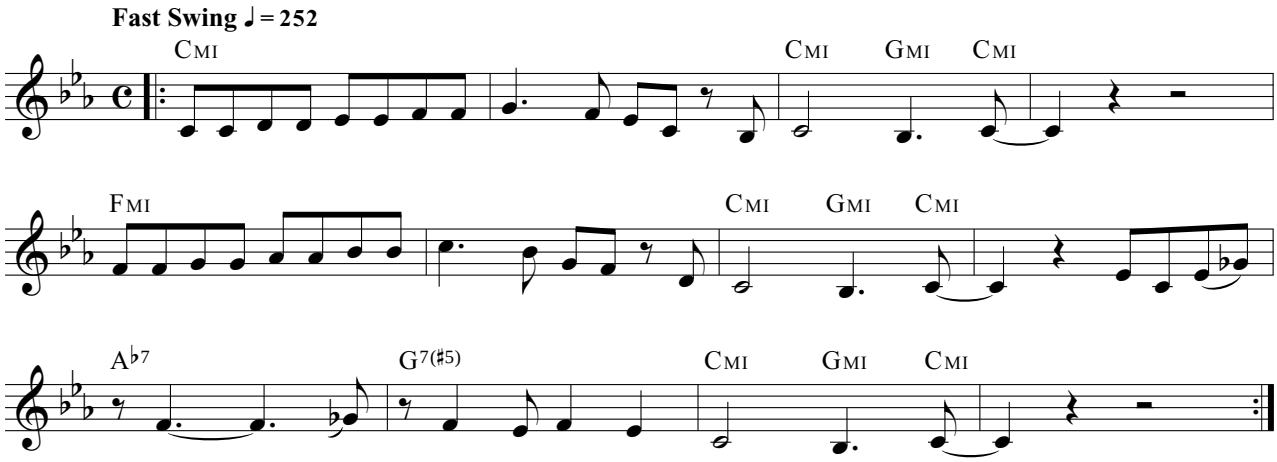
numerals positioned below. A summary of macro analysis symbols can be found in Appendix B.

Popular-Music Symbols

Just as figured bass was the shorthand of the eighteenth century, popular-music symbols are the shorthand of the twentieth century—a system for notating chords when the performer is expected to improvise the specific details. Instead of writing out the exact notes on score paper, popular music composers and arrangers indicate the chords to be used for accompaniment with chord symbols written above the melody line of the composition. Such a score, with the melody and the popular-music symbols, is called a *lead sheet* or *fake sheet*.

Figure 4.28

Coltrane: *Mr. P.C.*



Popular-music symbols, like figured-bass symbols, give the performer information about the chords required, but popular-music symbols usually give no information about the bass line. The performer is expected to improvise that part.

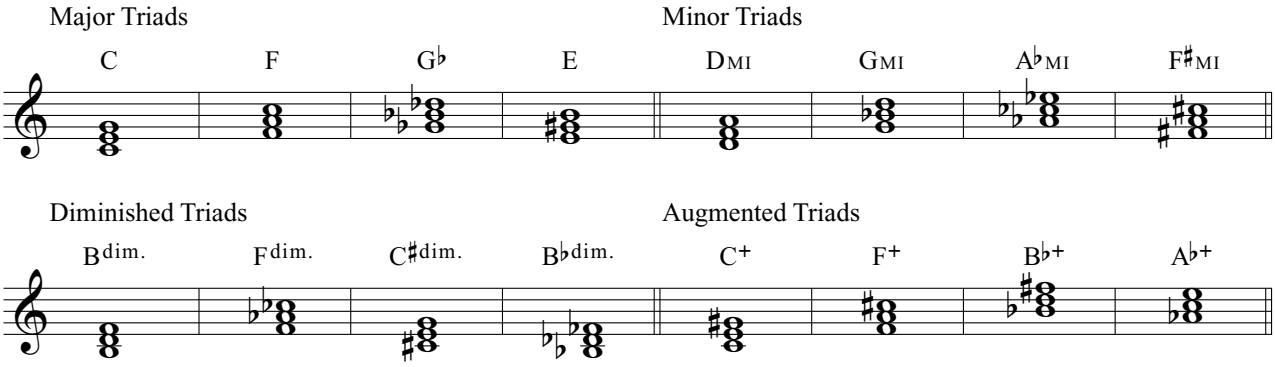
The chord indications are simple to master and generally refer to root-position chords. Guitar players and keyboard players alike can read and interpret them. The addition of rhythmic patterns and arrangements of the chord factors is left to the performers, most of whom are well trained in the art of improvisation. Although chord indications are given in root position, most performers will voice the chords—that is, arrange them for the best voice leading, which may mean placing some chords in inversion. In some recent popular music, the bass position is indicated with a slash followed by the bass note: C/G means a C major chord with G in the bass.

The following examples illustrate popular-music chord symbols for triads, as well as some of the chords with added sixths and sevenths that are common in jazz and popular music. These symbols are presented in *The New Real Book* series (Sher Music Co.) and are adaptations of the recommendations made by Carl Brandt and Clinton Roemer in *Standardized Chord Symbol Notation* (Roevick Music Co., 1976). Other symbols that are sometimes seen in popular music and jazz are shown in Appendix C.

Popular music symbols for triads are written as follows:

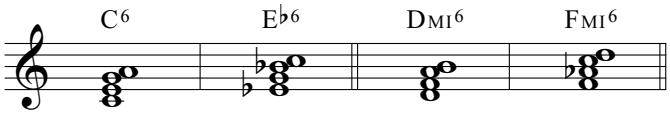
1. A major triad is shown by a capital letter designating the root.
2. A minor triad is shown by a capital letter with MI added.
3. A diminished triad is shown by a capital letter with $^{\text{dim.}}$ added.
4. An augmented triad is shown by a capital letter with $^{+}$ added.

Figure 4.29



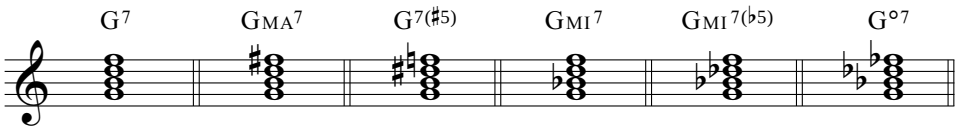
A triad with an added tone a major sixth above the triad root (common in popular music) is indicated by adding a superscript 6 after the letter designating the triad (C6).

Figure 4.30



Seventh chords appear regularly in popular music. Figure 4.31 provides an example of some of the more common seventh chords.

Figure 4.31



Summary

Four methods for labeling chords have been presented in this chapter: Roman numerals, figured bass, macro analysis symbols, and popular-music symbols. Each system has advantages and disadvantages. The Roman numeral system has the advantage that it shows both the quality of the chord and its relationship to a diatonic scale. This relationship is vital to your understanding of the structure of harmony, and for this reason the Roman numeral system will be the primary system for labeling chords in this book. The figured-bass system is useful in learning voice leading since it shows some details of melodic motion; you will see it in many assignments. The macro analysis system excels at identifying both the root and quality of a chord while highlighting important harmonic motion within a composition. The popular-music symbols are universally used in jazz and popular music, and an understanding of these symbols is vital for studying this music.