Chapter Three
Introduction to Triads and Seventh Chords

Introduction

In this chapter we begin working with chords, the basic vocabulary of tonal harmony. We will not be concerned at this stage with how chords are used compositionally or even what kinds of chords occur in the major and minor modes, although we will encounter these topics soon enough. First we have to learn how to spell the more common chord types and how to recognize them in various contexts.

Triads

In “To the Student” (pp. ix–xi), we explained that tonal harmony makes use of tertian (built of 3rds) chords. The fundamental tertian sonority is the triad, a three-note chord consisting of a 5th divided into two superimposed 3rds. There are four possible ways to combine major and minor 3rds to produce a tertian triad.

![Triad Diagram]

The names and abbreviations for these four triad types are given in Example 3-1.

Example 3-1

![Example 3-1]

augmented (+)  major (M)  minor (m)  diminished (−)
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Play these triads at the piano and compare the way they sound. You might be able to guess from listening to them that in tonal music the major and minor triads are found the most often, the augmented the least often. There are also names (in addition to note names) for the members of a triad (Ex. 3-2).

Example 3-2

Study the preceding diagram and examples very carefully before going on.

CHECKPOINT

1. Which triad type contains a m3 as the bottom interval? As the top interval?
2. Which triad type contains a M3 as the top interval? As the bottom interval?
3. Which triad type contains a P5 between the root and the 5th? a "5? a +5?

Self-Test 3-1

(Answers begin on page 609.)

A. Spell the triad, given the root and the type. Major triads are indicated by an uppercase letter (G), minor by an uppercase letter followed by the letter "m" (Gm), augmented by a "+" (G+), and diminished by a "−" (G−).

1. Bbm
2. E
3. G
4. F
5. Cm
6. D+
7. A
8. Dm
9. Gb
10. B
11. A♭m
12. C♭m
Seventh Chords

B. Notate the triad, given the root and type.

C. Fill in the blanks.

D. Given the chord quality and one member of the triad, notate the remainder of the triad, with the root as the lowest tone.

Ex. 3-1 See Workbook.

Seventh Chords

If we extend a tertian triad by adding another 3rd on top of the 5th of the triad, the result is a four-note chord. Because the interval between this added note and the root is some kind of 7th (major, minor, or diminished), chords of this sort are called **seventh chords**.

Because it would be possible to use more than one kind of 7th with each triad type, there are many more seventh-chord types than triad types. However, tonal harmony commonly makes use of only five seventh-chord types (Ex. 3-3). Below each chord in Example 3-3 you will find the commonly used name for each chord and the symbol used as an abbreviation. Be sure to play Example 3-3 to familiarize yourself with the sound of these chords.
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**Example 3-3**

Type of chord: major seventh
Symbol: M7
Construction: major triad

Type of chord: major-minor seventh
Symbol: Mm7
Construction: major triad

Type of chord: minor seventh
Symbol: m7
Construction: minor triad

Type of chord: half-diminished seventh
Symbol: #7
Construction: diminished triad

Type of chord: diminished seventh
Symbol: 7
Construction: diminished triad

Quite soon we will begin composition exercises using triads. Although seventh chords will not be used in composition exercises for some time, you will nevertheless begin to become familiar with them from an analytical standpoint through examples and analysis assignments.

**CHECKPOINT**

1. Which seventh-chord types have a diminished triad on the bottom?
2. Which ones have a M3 between the 5th and the 7th of the chord?
3. Which ones have a m3 between the 3rd and the 5th of the chord?
4. Which ones contain at least one P5? Which contain two?
5. Which one consists entirely of a stack of minor thirds?

**Self-Test 3-2**

(Answers begin on page 610.)

A. Identify the type of each seventh chord, using the abbreviations given in Example 3-3 (M7, Mm7, m7, #7, 7).

*Do not use the symbol "Mm7" - Instead use "dom7" or just "7"*
Seventh Chords

B. Notate the seventh chord, given the root and type.

C. Given the seventh chord quality and one member of the chord, notate the rest of the chord.

Exercise 3-2 See Workbook.
Inversions of Chords

Up to now, we have been notating all chords with the root as the lowest tone. How a musical context, any part of a chord might appear as the lowest tone. The three bass positions of the triad are illustrated in Example 3-4.

Example 3-4

The bass position that we have been using, with the root as the lowest tone (or bass), is called root position. You might assume that “third position” would be for a chord with the 3rd as the lowest tone, but musical terminology is fraught with inconsistencies. Instead, this position is called first inversion. Reasonably enough, inversion is used for chords with the 5th in the bass. The term inversion is used to mean the transfer of the lowest note to some higher octave.

Example 3-5

All the chords in Example 3-6 are first inversion F major triads. Notice that the upper frequencies of the chord can be spaced in any way without altering the bass position. Also, any notes can be duplicated (or doubled) in different octaves.

Example 3-6

The inversion of seventh chords works just like the inversion of triads, except that inversions (four bass positions) are possible (Ex. 3-7).
Example 3-7

![Chord Diagram]

Root position inversion inversion inversion

It is important to understand that the inversion of a triad or seventh chord is determined only by what member of the chord is in the bass; any chord members may appear in the soprano or in the other voices without changing the inversion.

Inversion Symbols and Figured Bass

In analyzing music we often use numbers to indicate the bass positions of chords. Instead of using 1 for first inversion, 2 for second inversion, and so on, we use numbers derived from the Baroque system called figured bass or thoroughbass. During the Baroque period (approximately 1600–1750), the keyboard player in an ensemble read from a part consisting only of a bass line and some symbols indicating the chord to be played.

In the Baroque system, the symbols consisted basically of numbers representing intervals above the bass to be formed by the members of the chord, but the notes could actually be played in any octave above the bass. The system dealt only with intervals, not with roots of chords, because the theory of chord roots had not been devised when figured bass was first developed.

The following table illustrates the figured-bass symbols for root position and inverted triads and seventh chords for a G major triad and a G Mm 7.

<table>
<thead>
<tr>
<th>Sonority desired</th>
<th>Bass</th>
<th>6th above</th>
<th>4th above</th>
<th>Bass</th>
<th>6th above</th>
<th>4th above</th>
<th>2nd above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete figured</td>
<td>5/3</td>
<td>6/3</td>
<td>6/4</td>
<td>7/3</td>
<td>6/3</td>
<td>6/4</td>
<td>6/2</td>
</tr>
<tr>
<td>bass symbol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symbol most</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>often used</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How to find</td>
<td>Bass note</td>
<td>6th above</td>
<td>4th above</td>
<td>Bass note</td>
<td>6th above</td>
<td>4th above</td>
<td>2nd above</td>
</tr>
<tr>
<td>the root</td>
<td></td>
<td>bass</td>
<td>bass</td>
<td></td>
<td>bass</td>
<td>bass</td>
<td>bass</td>
</tr>
</tbody>
</table>

The Baroque keyboardist reading a figured bass followed the key signature unless told to do otherwise. So a root position triad, for example, might be major, minor, or diminished, depending upon the key signature. If the Baroque composer wanted to direct the
keyboard player to raise or lower a note, several methods could be used, including the following three.

1. An accidental next to an arabic numeral in the figured bass could be used to raise or lower a note.

\[
\begin{align*}
\text{Accidental} & : \\
& = \\
& = \\
\end{align*}
\]

2. An accidental by itself always referred to the 3rd above the bass and could be used after that note.

\[
\begin{align*}
\text{Accidental} & : \\
& = \\
\end{align*}
\]

3. A slash or plus sign in connection with an arabic numeral meant to raise that note.

\[
\begin{align*}
\text{ Slash } & : \\
& = \\
\end{align*}
\]

Another symbol that you will occasionally encounter is a horizontal line, usually meaning to keep the same note or chord. For instance, \(\frac{5}{6}\) over a bass note means to use the same bass note for a root position triad followed by one in first inversion.

Example 3-8 illustrates a portion of an actual figured bass part from the Baroque period, along with a possible realization that would have been improvised by the keyboard player. Some keyboard players may have added embellishments not shown in this realization, including the numeral 5 at several places to remind the player to play a root position triad.

\[
\begin{align*}
\text{Example 3-8} & : \\
\text{Bach, Easter Oratorio, II} & : \\
\end{align*}
\]
The realization of figured basses is still considered to be an effective way to learn certain aspects of tonal composition, and we will occasionally use exercises of this kind in the text.

A few figured-bass symbols have been adopted for use in harmonic analysis. We call these bass-position symbols to distinguish them from figured bass, which is not the same thing. Bass-position symbols are usually used with a roman numeral (as in I or V7) as part of a harmonic analysis. (Roman-numeral analysis is explained in the next chapter.) Notice that when a seventh chord is inverted, the 7 is replaced by the appropriate bass-position symbol.

<table>
<thead>
<tr>
<th>Bass position</th>
<th>Triad symbol</th>
<th>Seventh chord symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root position</td>
<td>(none)</td>
<td>7</td>
</tr>
<tr>
<td>Root position</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Second inversion</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Third inversion</td>
<td>(none)</td>
<td>7 or 3</td>
</tr>
</tbody>
</table>

Lead-Sheet Symbols

There are some intriguing parallels and contrasts between the figured-bass system of the seventeenth and eighteenth centuries and the lead-sheet symbols (sometimes called pop symbols) developed for use with jazz and other types of popular music in the twentieth and twenty-first centuries. Both facilitated the notation process and served to provide sufficient information to allow the performer to improvise within certain bounds. However, whereas the figured-bass system provided the bass line with symbols indicating the chords that were to be constructed above it, lead-sheet symbols appear along with a melody and indicate the chords that are to be constructed below.

Example 3-9 illustrates some lead-sheet symbols for the nine chord types that we have studied so far, along with some commonly used alternatives. Other chords and alternate symbols can be found in Appendix B in the back of this book.

Example 3-9

\[ E \quad E_{im} \quad E_{dim} \quad E_{+} \]

\[ E_{M7} \quad E_{7} \quad E_{m7} \quad E_{m7k5} \quad E_{7} \quad E_{dim7} \quad E_{7} \]
The list of symbols in Example 3-9 is incomplete because there are some chords that will be introduced in later chapters. A special case is the chord with an added sixth, as in \( \text{I}^6 \), which calls for a triad with an added note a M6 above the root. Also, lead-sheet symbols will occasionally specify a particular bass note, as in C/G, which calls for a C major triad over a G in the bass—a triad in second inversion. Finally, you may discover that lead-sheet symbols frequently differ from one edition to the next because editors and arrangers typically make substitutions, simplifying or complicating the harmony as they see fit.

Example 3-10 is from the beginning of a typical American “standard” ballad, and uses five of the chord types seen in Example 3-9. Notice that the \( \text{I}^6 \) in Fm7\#5 does not literally mean to flat the fifth but to lower it from C to C\#.

**Example 3-10**  Kosma, “Autumn Leaves”

The falling leaves drift by the window.

...the autumn leaves, of red and gold.


Lead-sheet symbols can be a very helpful first step toward a harmonic analysis, and will occasionally give you practice with them in self-tests and exercises.

**Self-Test 3-3**

(Answers begin on page 611.)

A. Identify the root and type of each chord, and show the correct bass-position symbol (B

<table>
<thead>
<tr>
<th>Root</th>
<th>Type</th>
<th>Bps</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>M</td>
<td>6</td>
</tr>
<tr>
<td>Bb</td>
<td>M</td>
<td>6</td>
</tr>
</tbody>
</table>
B. The bottom staff of this recitative is played on bassoon and keyboard, the keyboard player (the "continuo") realizing the figured bass. Fill in each blank below the bass line with the lead-sheet symbol of the chord to be played at that point. Remember that a numeral 5 by itself is simply a reminder to use a root position triad.

Bach, *Easter Oratorio*, II

Wir sind erfreut.

dass unser Jesus wieder

lebt, und unser Herz so erst in

Treuigkeit zerrissen und geschwelt, vergisst den Schmerz und

singt auf Freudenlieder; denn unser Heiland lebet wieder.
C. Notate on the bottom staff the chords indicated by the lead-sheet symbols. Notate chords in root position unless the symbol calls for an inversion. A 6 after a c7 symbol means to add a note a M6 above the root.

Hendricks and Adderley, "Sermonette"

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Exercise 3-3 See Workbook.

Recognizing Chords in Various Textures

Some students, especially those without much keyboard experience, find it difficult at to analyze a chord that is distributed over two or more staves, as in Example 3-11.
Recognizing Chords in Various Textures

One procedure to follow with the chord is to make an inventory of all the pitch classes* found in the chord (B, G, and D) and to note the chord with each pitch class in turn as the lowest note. The other notes should be put as close to the bottom note as possible. The version that consists only of stacked 3rds is in root position. We can see from Example 3-12 that the chord in Example 3-11 is a g minor triad in first inversion.

The chord in Example 3-13 contains the pitch classes E, A, C, and G, allowing four bass positions.

Example 3-13

\[ \text{Example 3-14} \]

Example 3-14 tells us that the chord in Example 3-13 is an A major-minor seventh chord in second inversion.

Example 3-14

You might already be able to carry out this process in your head, which will speed things up considerably. If not, you will learn to do so with practice.

CHECKPOINT

1. What is the symbol for the first inversion of a triad? Of a seventh chord?
2. Explain $4_r$, $6_a$, and $4_l$.
3. Which bass position for which chord type requires no symbol?

* The term pitch class is used to group together all pitches that have an identical sound or that are identical except for the octave or octaves that separate them. For example, all $B_b$, $C$, and $B_b1$ belong to the same pitch class, no matter what octave they are found in.
Self-Test 3-4

(Answers begin on page 612.)

A. Label each chord with an appropriate lead-sheet symbol in the space above the chord. You do not need to show bass positions. All of the notes in each exercise belong to the same chord.

B. Provide the root, type, and bass-position symbol (Bps) for each chord in the following excerpt. Each chord is numbered. Put your analysis of the chords in the blanks below each excerpt.

1. Schubert, Moment Musical, op. 94, no. 6

DISK 1: TRACK 2
2. Byrd, *Psalm LIV*

The 8 under the treble clef on the tenor staff (third staff from the top) means that the notes are to be sung an 8ve lower than written.

3. Fischer, *Blumen-Strauss*
C. Time signature review. Fill in the blanks.

<table>
<thead>
<tr>
<th>Beat and meter type</th>
<th>Beat note</th>
<th>Division of the beat</th>
<th>Time signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Compound dupla</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td>( \frac{3}{2} )</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Exercise 3-4 See Workbook.

Summary

The fundamental sonority of tonal harmony is the triad, a three-note chord consisting of a 5th divided into two superimposed 3rds. The bottom note of the 5th is the root and the top note is the 5th. The note that divides the 5th is the 3rd. There are four triad types: major, minor, diminished, and augmented.

A seventh chord may be thought of as a triad with another 3rd added above the 5th of the triad. The added note is a 7th above the root. Although many seventh chord types are possible, only five occur with any frequency in tonal harmony:

- **major seventh chord** (M7): major triad with a M7 above the root
- **major-minor seventh chord** (Mm7): major triad with a m7 above the root
- **minor seventh chord** (m7): minor triad with a m7 above the root
- **half-diminished seventh chord** (\(^7\)): diminished triad with a m7 above the root
- **diminished seventh chord** (\(^7\)): diminished triad with a 7 above the root

**Root position** is the term for a chord with the root notated as the lowest tone. Any other arrangement is called an inversion. A chord with the 3rd as the lowest tone is in first inversion, whereas one with the 5th as the lowest tone is in second inversion. A seventh chord with the 7th as the lowest tone is in third inversion. There are symbols for most of the various bass positions:
<table>
<thead>
<tr>
<th>Bass position</th>
<th>Triad symbol</th>
<th>Seventh-chord symbol</th>
<th>Bass note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root position</td>
<td>none</td>
<td>7</td>
<td>root</td>
</tr>
<tr>
<td>First inversion</td>
<td>6</td>
<td>5</td>
<td>third</td>
</tr>
<tr>
<td>Second inversion</td>
<td>4</td>
<td>3</td>
<td>fifth</td>
</tr>
<tr>
<td>Third inversion</td>
<td>n/a</td>
<td>2</td>
<td>seventh</td>
</tr>
</tbody>
</table>

Inversion symbols are derived from **figured bass**, a method of abbreviated notation used in the Baroque era. **Lead-sheet symbols** are used in jazz and most popular music to indicate chords to be played under a given melody. Both figured-bass symbols and lead-sheet (pop) symbols will be used occasionally throughout much of this text.

**Variations**

For additional review and practice, please see Chapter 3 on our website at [www.mhhe.com/tonalharmony6](http://www.mhhe.com/tonalharmony6).