

Chapter Three

Name _____

Introduction to Triads and Seventh Chords

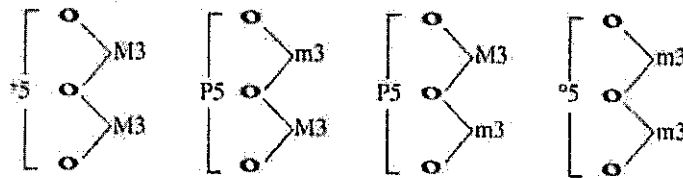
Text

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. xi-xiv), 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.



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

Example 3-1

Example 3-1 shows four triads on a treble clef staff with a key signature of one sharp (F#). The triads are:

- augmented (+):** F#4, A4, C#5
- major (M):** F#4, A4, C5
- minor (m):** F#4, A4, B4
- diminished (°):** F#4, A4, Bb4

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 types contain a m3 as the bottom interval? As the top interval?
2. Which triad types contain a M3 as the top interval? As the bottom interval?
3. Which triad types contain a P5 between the root and the 5th? a °5? a +5?

Self-Test 3-1

(Answers begin on page 568.)

A. Spell the triad, given the root and type. (As with keys, uppercase letters indicate major, and lowercase letters indicate minor; augmented triads are represented by uppercase letters followed by + and diminished by lowercase letters followed by °.)

- | | |
|-------------------------|--------------------------|
| 1. b ₃ _____ | 7. A _____ |
| 2. E _____ | 8. d _____ |
| 3. g° _____ | 9. G _b _____ |
| 4. f° _____ | 10. B _____ |
| 5. c _____ | 11. a _b _____ |
| 6. D+ _____ | 12. c _# _____ |

ex.

 M

B

 +

ex.

 third
 +

B

 fifth
 M

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

ex. 1 2 3 4 5 6 7

8 9 10 11 12 13 14 15

M m M + ° M M m

+ M m m M ° m +

C. Fill in the blanks.

ex.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Fifth	F	_____	_____	D \sharp	_____	_____	_____	_____	G \sharp	B
Third	D	A	G \flat	_____	_____	F \sharp	G	_____	_____	_____
Root	B \flat	_____	B	_____	C \flat	_____	_____	F	_____	_____
Type	M	+	m	m	+	M	°	M	°	m
										M

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. 1 2 3 4 5 6 7

8 9 10 11 12 13 14 15

third + third M fifth ° root m fifth M root + fifth m third m

fifth M root ° third m fifth + root M fifth m third M third °


Exercise 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.

Example 3-3



Type of chord:	major seventh	major-minor seventh	minor seventh
Symbol:	M7	Mm7	m7
Construction:	major triad major 7th	major triad minor 7th	minor triad minor 7th



Type of chord:	half-diminished seventh	diminished seventh
Symbol:	$\flat 7$	$\circ 7$
Construction:	diminished triad minor 7th	diminished triad diminished 7th

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.

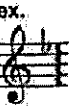
CHECKPOINT

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?

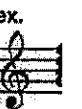
Self-Test 3-2

(Answers begin on page 569.)

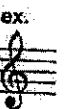
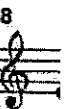
- A. Identify the type of each seventh chord, using the abbreviations given in Example 3-3 (M7, Mm7, m7, $\flat 7$, $\circ 7$).



M7



M



thi
M



se7

ex. 1 2 3 4 5 6 7

Mm7

8 9 10 11 12 13 14 15

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

ex. 1 2 3 4 5 6 7

Mm7 °7 Mm7 M7 Mm7 m7 °7 °7

8 9 10 11 12 13 14 15

°7 M7 M7 M7 m7 m7 M7 °7

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

ex. 1 2 3 4 5 6 7

third of Mm7 seventh of °7 root of Mm7 third of M7 fifth of °7 fifth of M7 seventh of °7 third of °7

8 9 10 11 12 13 14 15

seventh of Mm7 root of °7 fifth of m7 third of M7 root of °7 seventh of °7 fifth of m7 third of Mm7

Exercise 3-2 See Workbook.

Inversions of Chords

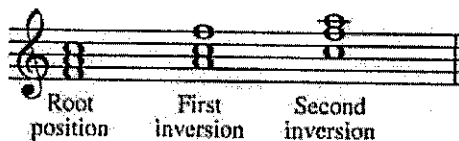
Up to now, we have been notating all chords with the root as the lowest tone. However, in a musical context, any part of a chord might appear as the lowest tone. The three possible **bass positions** of the triad are illustrated in Example 3-4.

Example 3-4



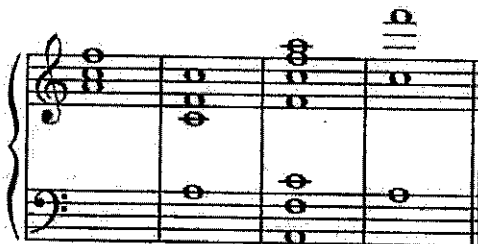
The bass position that we have been using, with the root as the lowest tone (or “in the bass”), is called **root position**. You might assume that “third position” would be the term for a chord with the 3rd as the lowest tone, but musical terminology is fraught with inconsistencies. Instead, this position is called **first inversion**. Reasonably enough, **second inversion** is used for chords with the 5th in the bass. The term **inversion** is used here 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 notes of the chord can be spaced in any way without altering the bass position. Also, any of the notes can be duplicated (or **doubled**) in different octaves.

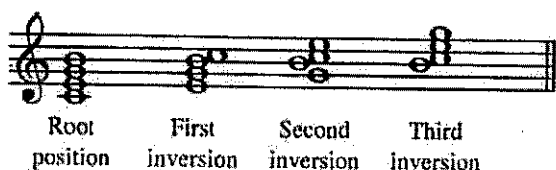
Example 3-6



(All are in first inversion)

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

Example 3-7



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

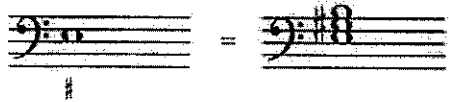
Sonority desired								
Complete figured bass symbol		5 3	6 3	6 4	7 5 3	6 5 3	6 4 3	6 4 2
Symbol most often used			6	6 4	7	6 5	4 3	4 2
How to find the root	Bass note	6th above bass	4th above bass	Bass note	6th above bass	4th above bass	2nd above bass	

In the figured bass system, the number 6 designates a 6th above the bass. Whether it is a M6 or a m6 depends on the key signature. If the Baroque composer wished to direct the keyboard player to raise or lower a note, there were several methods that could be used, including the following three.

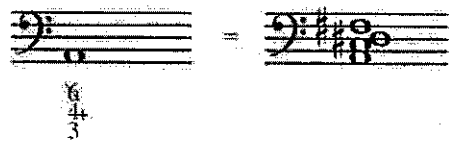
1. An accidental next to an arabic numeral in the figured bass could be used to raise or lower a note.



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



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



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 keyboardist. Some keyboard players may have added embellishments not shown in this realization. Bach included the numeral 5 at several places to remind the player to play a root position triad.

Example 3-8 *Bach, Easter Oratorio, II*

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.

The inversion symbols that we use today are summarized in the table below. These symbols are usually used with a roman numeral (as in I^6 or V_3^6) 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 inversion symbol.

Bass position	Triad symbol	Seventh chord symbol
Root position	(none)	7
First inversion	6	$\frac{6}{5}$
Second inversion	$\frac{6}{4}$	$\frac{4}{3}$
Third inversion	(none)	3 or 2

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*.

There are various lead sheet symbol systems in use, just as there were frequently minor differences between the approaches taken by different composers to the use of figured bass symbols. Nevertheless, the system below is quite widely used today and would be understood by any competent jazz or pop musician. Example 3-9 illustrates the four triad types and the five common seventh chords with their associated pop symbols. Under each chord you will find the symbols introduced in Examples 3-1 and 3-3, and under each of these is the lead sheet symbol. With the exception of the half-diminished seventh, there is a clear correlation between the two systems.

Example 3-9

Example 3-9 illustrates the four triad types and the five common seventh chords with their associated pop symbols. The notation shows the following:

- Triads:**
 - M (Major): E
 - m (Minor): Em
 - ° (Diminished): Edim
 - + (Augmented): E+
- Seventh Chords:**
 - M7 (Major 7): EM7
 - Mm7 (Minor-Major 7): E7
 - m7 (Minor 7): Em7
 - °7 (Half-Diminished 7): Em7b5
 - °7 (Diminished 7): Edim7

Root	_____	_____	_____	_____	_____	_____	_____	_____
Type	_____	_____	_____	_____	_____	_____	_____	_____
Inversion symbol	_____	_____	_____	_____	_____	_____	_____	_____

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 root and type 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

Bass

Bassoon Continuo

DM
ex.

1 2

Bass

Bassoon Continuo

3 4 5 6 7 8

Bass

Bassoon Continuo

9 10 11 12 13

- C. Notate using whole notes on the bottom staff the chords indicated by the lead sheet symbols. Notate all chords in root position unless the symbol calls for an inversion. A 6 after a chord symbol means to add a note a M6 above the root.



Hendricks and Adderley, "Sermonette"

By Julian Adderley and John Hendricks. Copyright © 1959 (Renewed) by Silhouette Music Corp. All rights administered by WB Music Corp. All rights reserved. Used by permission. Warner Bros. Publications U.S. Inc., Miami, FL 33014.

Exercise 3-3 See Workbook.

Recognizing Chords in Various Textures

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

Example 3-11

Example 3-12

One procedure to follow with the chord is to make an inventory of all the **pitch classes*** found in the chord (B \flat , G, and D) and to notate 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.

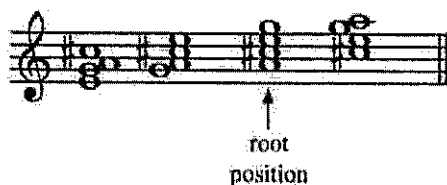
The chord in Example 3-13 contains the pitch classes E, A, C \sharp , and G, allowing four bass positions.

Example 3-13



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 $\frac{4}{2}$, $\frac{5}{4}$, and $\frac{4}{3}$.
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 \flat 's, C's and D \flat 's belong to the same pitch class, no matter what octave they are found in.

Self-Test 3-4

(Answers begin on page 571.)

A. Identify the root, type, and inversion symbol for each chord. All the notes in each exercise belong to the same chord. The lowest note is the bass note for the purpose of analysis.

Root	_____	_____	_____	_____	_____
Type	_____	_____	_____	_____	_____
Inversion symbol	_____	_____	_____	_____	_____

Root	_____	_____	_____	_____	_____	_____
Type	_____	_____	_____	_____	_____	_____
Inversion symbol	_____	_____	_____	_____	_____	_____

B. The excerpts below are to be analyzed in a similar fashion. Each chord is numbered. Put your analysis of the chords in the blanks below the excerpt.



1. Schubert, Moment Musical, Op. 94, No. 6

Root	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Type	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Inversion symbol	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____



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.

Root	_____	_____	_____	_____	_____	_____
Type	_____	_____	_____	_____	_____	_____
Inversion symbol	_____	_____	_____	_____	_____	_____



3. Fischer, "Blumen-Strauss"

	1	2	3	4	5	6	7	8	9	10	11	12	13
--	---	---	---	---	---	---	---	---	---	----	----	----	----

Root	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Type	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Inversion symbol	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

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 ($^{\circ}7$): diminished triad with a m7 above the root

diminished seventh chord ($^{\circ}7$): diminished triad with a $^{\circ}7$ 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:

Bass position	Triad symbol	Seventh-chord symbol	Bass note
Root position	none	7	root
First inversion	6	$\frac{6}{5}$	third
Second inversion	$\frac{6}{4}$	$\frac{4}{3}$	fifth
Third inversion	n/a	$\frac{4}{2}$	seventh

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 web site at www.mhhe.com/tonalharmony5.