Fifth Edition

Elementary Harmony

Theory and Practice

Robert W. Ottman

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Contents

1

Basics I

pitch on the staff and the keyboard; scales; key signatures

For many college-level students, most of Chapters 1 through 3 will constitute a review of basic materials already learned from previous musical experience. Additional practice is available in the Workbook, *where exercises correlate closely with the presentation in these three chapters. Most of these exercises include a section with answers given, followed by a section without answers. Students requiring more extensive and rigorous review are referred to either of two texts designed to precede* Elementary Harmony. *They are* Rudiments of Music, *third edition (Prentice Hall, 1995), and* Programmed Rudiments of Music, *second edition (Prentice Hall, 1994), both by Robert W. Ottman and Frank D. Mainous.*

Let us assume that you have just heard a single musical sound, perhaps a note on the piano or on some other instrument. What did you hear? Within this one sound, you should be able to distinguish four properties.

1. *Pitch:* How high or low is the sound?
2. *Duration:* How long is the sound held?
3. *Intensity:* How loud or soft is the sound?
4. *Timbre:* What is the quality of the sound; that is, does it sound like a piano, a trumpet, a violin, or what?

As you can see (or hear), even a single sound is complex; but in listening to music, we hear many sounds simultaneously and in rapid succession. For maximum comprehension of these combined musical events, we need to know how the pitches are grouped, how the durations are related to each other, and how these are combined with intensity and timbre to form a musical composition. To accomplish that, we must first know the symbols used to represent these four characteristics, how those symbols are placed on paper, and how they are interpreted.

Chapters 1 through 3 cover elementary considerations in the areas of *pitch* and *duration.* The *timbre* of a musical sound is a function of acoustics (see Appendix C). Terms indicating *intensity* and *tempo* can be found in the appendixes of each of the *Rudiments* texts listed at the beginning of this chapter, as well as in general music dictionaries and dictionaries of musical terms.

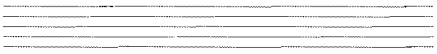
For the student of harmony, knowledge of the basics is essential. In regard to pitch, the student should be able to do the following with absolute accuracy and without hesitation:

1. Name both the major and the minor key for any key signature.
2. State the number of sharps or flats in the signature of a given key and spell these accidentals in their correct order on the staff.
3. Spell all the major scales and the three forms of each minor scale, ascending and descending.

Pitch on the Staff

To indicate pitch on paper, we use a *staff* (plural *staves*) consisting of five parallel horizontal lines and four intervening spaces.

FIGURE 1.1 *The Staff*



Lines and spaces are named using the letters A B C D E F G. Where on the staff these letter names are placed is determined by a *clef* sign. A clef sign is ordinarily placed at the beginning of each staff in a music composition.[1] See page 37 for the origin of the staff and the clefs.

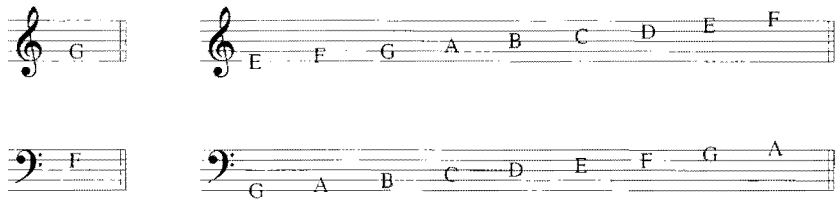
 = Treble or G clef (The line that the lower loop encircles is designated as G.)

 = Bass or F clef (The line between the two dots is designated as F.)

Once these pitches are established, adjacent lines and spaces use adjacent letter names.

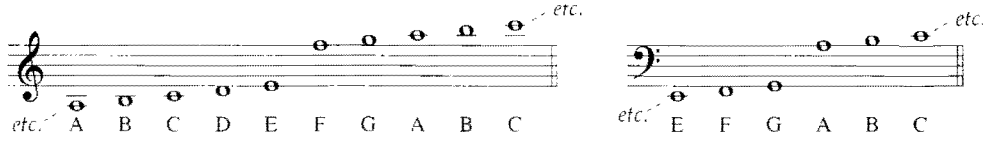
[1] The C clefs and their staff spellings are presented in Chapter 8.

FIGURE 1.2 *Staff Spellings*



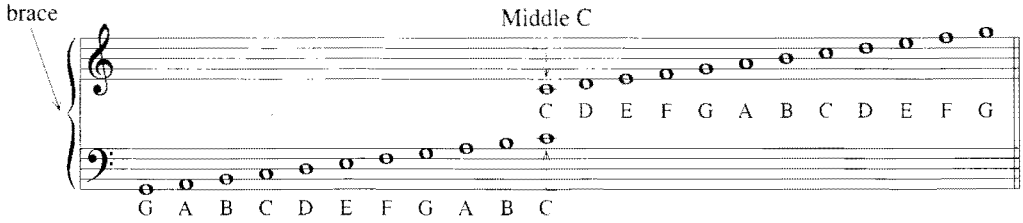
We can also place notes above or below the staff by using *ledger (leger) lines*, short lines equidistant from each other.

FIGURE 1.3 *Ledger Lines*



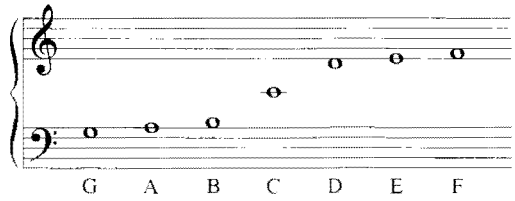
The treble and bass clefs can be joined together by a *brace* to produce a *grand staff (great staff, piano staff). Middle C* is a special name given to that C occuring between the staves.

FIGURE 1.4 *The Grand Staff*



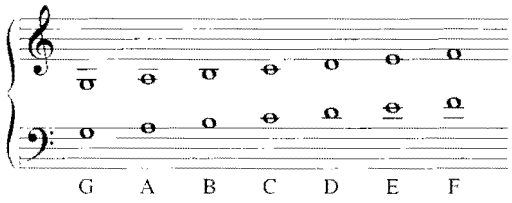
Observe that middle C occurs both above the bass staff and below the treble staff. Placing it midway between the staves, as in Figure 1.5, is incorrect.

FIGURE 1.5 *Incorrect Placement of Middle C*



The correct placement of middle C allows us to continue the ledger lines downward in the treble clef and upward in the bass clef. The two notes above each letter name in Figure 1.6 are identical in pitch.

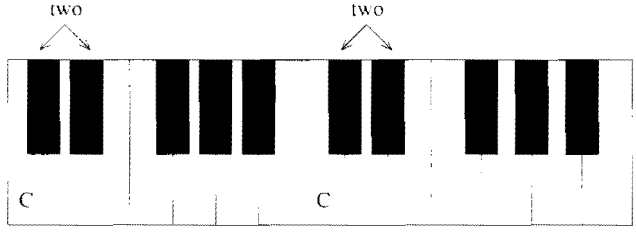
FIGURE 1.6 *Ledger Lines between Staves*



Pitch on the Keyboard

Pitch names for the keys on the keyboard are conveniently figured from the pitch C. You can easily find any C on the keyboard by finding the white key immediately to the left of any group of two black keys.

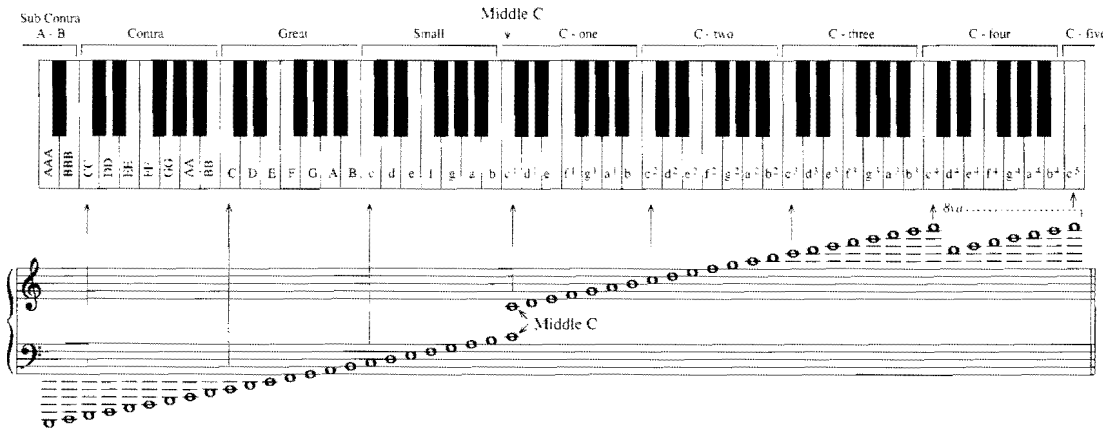
FIGURE 1.7 *Location of C on the Keyboard*



When you sit at the center of the keyboard, middle C is immediately before you. The keys to the right are named in alphabetical order ascending to the next C: C D E F G A B C. The distance from C to the next C, up or down, is called an *octave* (from the Latin *octo,* meaning "eight"), since eight letter names or keys are spanned. The same is true for any letter name and its repetition eight letter names away. A up to A, for example, is an octave.

In Figure 1.8, you see that there are eight C's (the sign *8va* means that these notes sound an octave higher than written). To the right of each C, the letters of the musical alphabet extend to the next C, except, of course, for the last C. In addition, there are two extra keys—A and B—at the left of the keyboard. How are these successive octaves, C to C, differentiated from each other? In a system known as *octave registers,* each C has its own designation and, to the right of any C, each of the other letter names carries the same designation. (There are several systems; the one shown here is the most widely used.)

FIGURE 1.8 *Names of the Keys on the Keyboard (Octave Registers)*



The octave register designations are spoken thus:

AAA = Sub Contra
CC = Contra
C = Great
c = small
c^1 = c-one
c^2 = c-two
c^3 = c-three
c^4 = c-four
c^5 = c-five

Intervals: Half Steps and Whole Steps

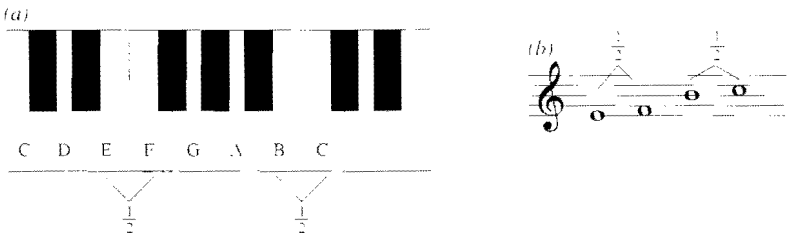
An interval is the distance between two pitches, either as heard or as represented by two notes on the staff or two keys on the keyboard. The octave described on page 4 is an interval. For the present, we will consider only the two intervals used in writing or playing a scale: the half step and the whole step.

A *half step* consists of two pitches as close together as possible. See Figure 1.9.

On the keyboard: Look at the white keys on the keyboard (Figure 1.9*a*), and you will see half steps between E and F and between B and C. A half step may also occur between any white key and an adjacent black key.

On the staff: The white-key half steps occur on the staff as shown in Figure 1.9*b*.

FIGURE 1.9 *Half Steps*



A *whole step* is made up of two half steps.

On the keyboard: Each pair of adjacent white keys, except E–F and B–C, is a whole step because there is a black key intervening. A whole step may also include a black key—white-to-black or black-to-white—provided that only two adjacent half steps are involved.

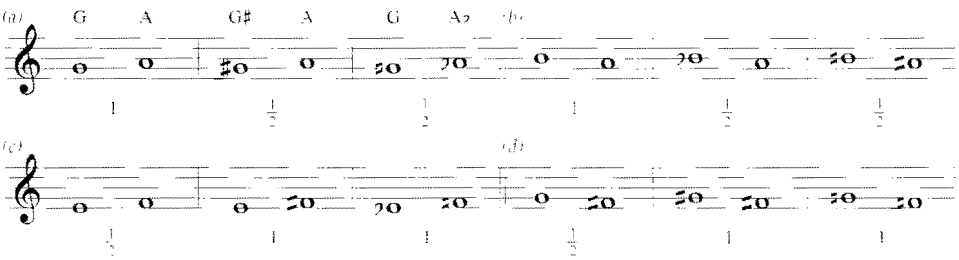
On the staff: Any adjacent line and space except E–F and B–C constitute a whole step. To create other half steps and whole steps—for example, a whole step above E—use *chromatic alterations* (also called *accidentals*) to raise or lower the pitch of a given note. Listed here are the accidentals and how each alters a pitch.

Sharp (♯)	Raises the pitch of a tone one half step (C♯ is one half step higher than C).
Flat (♭)	Lowers the pitch of a tone one half step.
Double sharp (𝄪)	Raises the pitch of a tone one whole step.
Double flat (𝄫)	Lowers the pitch of a tone one whole step.
Natural (♮)	Cancels a previously used accidental.

Figure 1.10 illustrates how accidentals are used. To change a whole step to a half step, shown in Figure 1.10*a*, raise the lower note one half step or lower the upper note one half step. Raising the lower note of the whole step G–A produces the half step G♯–A; lowering the upper note produces the half step G–A♭. In a similar manner, explain the intervals in Figure 1.10*b*.

To change a half step to a whole step, raise the upper note one half step or lower the lower note one half step. In Figure 1.10*c*, raising the upper note of the half step E–F produces the whole step E–F♯; lowering the lower note produces the whole step E♭–F. In a similar manner, explain Figure 1.10*d*.

FIGURE 1.10 *Use of Accidentals*

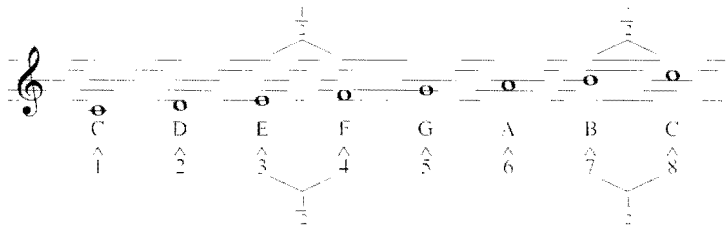


Major Scales

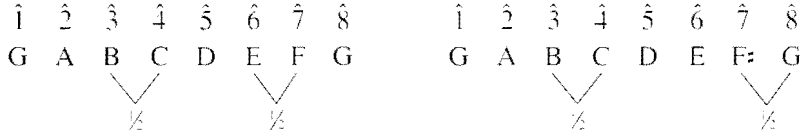
A *scale* is a series of eight pitches using eight consecutive letter names extending from a given pitch to its octave, ascending or descending. The series usually consists of whole steps and half steps, and it is the location of the half steps within the scale structure that determines the type of scale (major, minor, Dorian, Mixolydian,[2] and so forth). In the major scale, the half steps are located between $\hat{3}$ and $\hat{4}$ and between $\hat{7}$ and $\hat{8}$. (The symbol ^ means *scale degree*. $\hat{3}$–$\hat{4}$ means *scale degrees three and four*. This designation of scale degrees will continue throughout the text.)

When a major scale begins on C, the half steps $\hat{3}$–$\hat{4}$ and between $\hat{7}$–$\hat{8}$ coincide with the half steps E–F and B–C on the keyboard (Figure 1.9*a*). Consequently, the C major scale uses only the white keys on the keyboard. On the staff, $\hat{3}$–$\hat{4}$ and $\hat{7}$–$\hat{8}$ in C mjaor also coincide with E–F and B–C (Figure 1.11).

FIGURE 1.11 *C Major Scale on the Staff*



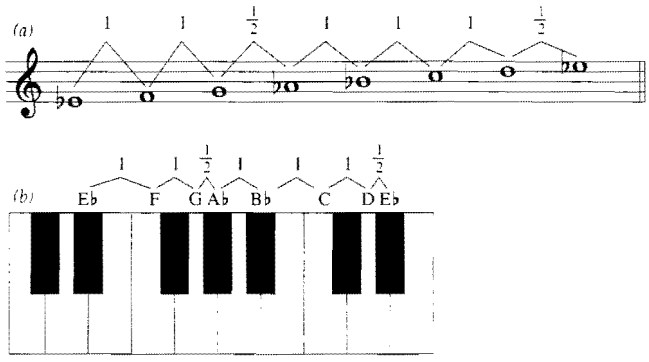
When a major scale begins on any other letter name, accidentals are necessary to provide the correct arrangement of half steps and whole steps. In a white-key scale starting on G, for example, there is a half step between $\hat{6}$ and $\hat{7}$ and a whole step between $\hat{7}$ and $\hat{8}$. If F is raised to F♯, $\hat{7}$–$\hat{8}$ becomes a half step, $\hat{6}$–$\hat{7}$ becomes a whole step, and the scale becomes major.



A scale can begin on a note with an accidental. Figure 1.12*a* shows the E♭ major scale on the staff, and in *b* we see the same scale on the keyboard.

[2]See page 15 for a Mixolydian scale and melody; see Appendix D for a discussion of modal scales.

FIGURE 1.12 *The E♭ Major Scale*



Scale-Degree Names

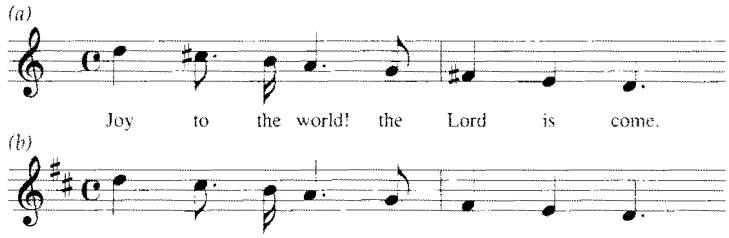
Scale degrees are known by name as well as by number. Instead of saying "first scale degree," we can say "tonic scale degree" or "tonic note."

Scale degree	*Name*	*Meaning*
$\hat{1}$	Tonic	The tone that identifies the key
$\hat{2}$	Supertonic	The tone a whole step above the tonic
$\hat{3}$	Mediant	The tone midway between the tonic and the dominant
$\hat{4}$	Subdominant	The tone five tones below the tonic
$\hat{5}$	Dominant	The tone five tones above the tonic
$\hat{6}$	Submediant	The tone halfway between the tonic and the subdominant (or five tones below the mediant)
$\hat{7}$	Leading tone	The tone that leads to the tonic

Major Key Signatures

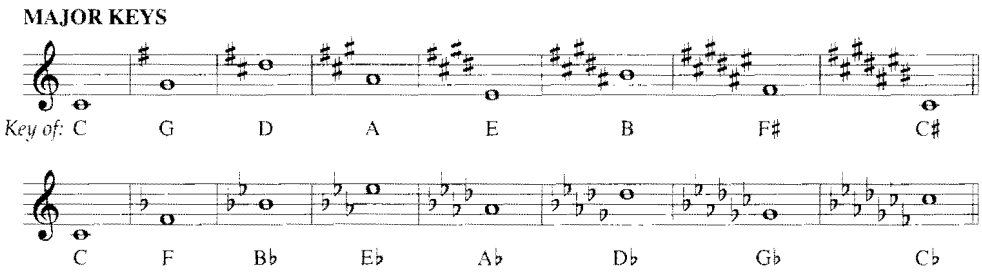
Music could be written with accidentals throughout the piece, placed as needed. The beginning of "Joy to the World," Figure 1.13*a*, consists of a descending D major scale, with sharps on F and C. Instead of putting a sharp before every F and C in the piece, we use a *key signature*, simplifying the problem by placing the accidentals at the beginning as in Figure 1.13*b*, thus indicating that all F's are F♯ and all C's are C♯.

FIGURE 1.13 *Use of a Key Signature*



Therefore, we say that two sharps in the key signature indicates the key of D major. In the same way, a system of fifteen key signatures will name each major key and identify its tonic note.

FIGURE 1.14 *Major Key Signatures*



In the bass clef, the accidentals are arranged in the same way.

FIGURE 1.15 *Key Signatures in the Bass Clef*

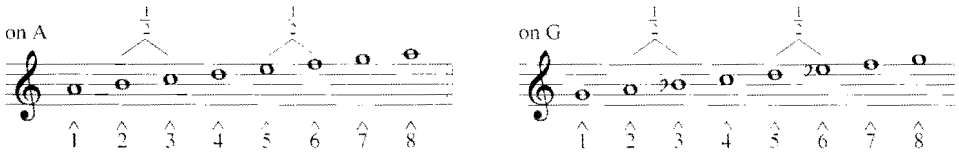
After the first sharp or flat, each additional accidental is added in a certain pattern. For sharps, it is down four lines and spaces, F–(E)–(D)–C, up five, C–(D)–(E)–(F)–G, down four, and so forth; for flats it is up four, down five, up four, and so forth. There is one exception: The fifth sharp, A♯, breaks the pattern by its placement a fourth down from D♯. That avoids placing sharps on ledger lines.

Minor Scales

Like major scales, minor scales show a succession of eight scale steps. They differ from major scales in that (a) there are three forms of the minor scale in a given key; (b) the placement of half steps differs from that in major scales; and (c) the analysis symbols ♯$\hat{6}$ and ♯$\hat{7}$ each indicate that the natural tone of the scale has been raised one half step, such as G to G♯ or B♭ to B.

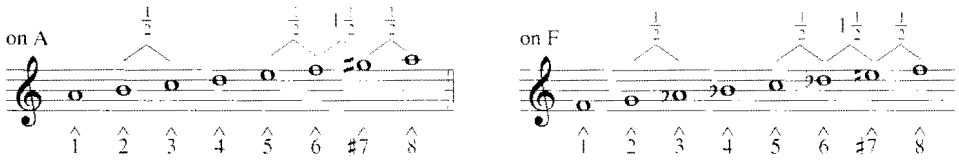
1. *Natural (pure) minor scale:* The half steps are between $\hat{2}$ and $\hat{3}$ and between $\hat{5}$ and $\hat{6}$. The natural minor scale with no accidentals starts on A.

FIGURE 1.16 *Natural Minor Scale*



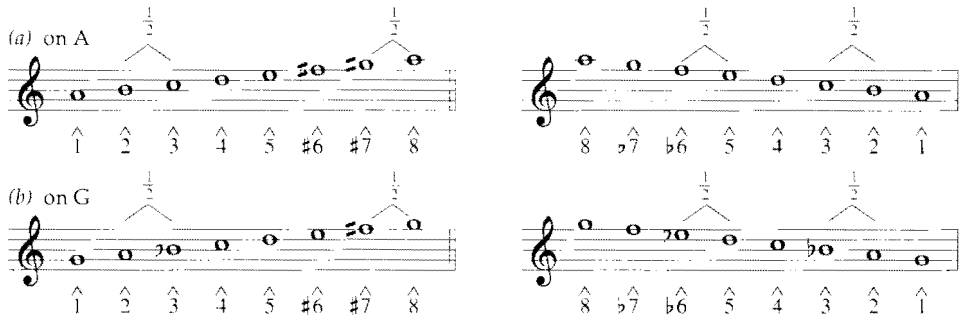
2. *Harmonic minor scale:* Raising $\hat{7}$ of the natural minor scale one half step (♯$\hat{7}$) supplies a leading tone not present in the natural minor scale. The half steps are now between $\hat{2}$ and $\hat{3}$, $\hat{5}$ and $\hat{6}$, and ♯$\hat{7}$ and $\hat{8}$. Note also that the interval from $\hat{6}$ to ♯$\hat{7}$ is a step and a half (called an augmented second).

FIGURE 1.17 *Harmonic Minor Scale*



3. *Melodic minor scale:* In the ascending form of this scale, both $\hat{6}$ and $\hat{7}$ are raised one half step, indicated as ♯$\hat{6}$ and ♯$\hat{7}$. The half steps are now between $\hat{2}$ and $\hat{3}$ and between ♯$\hat{7}$ and $\hat{8}$, and the awkward step and a half is eliminated. Descending, the form of the scale is the same as that of the natural minor scale. Though $\hat{7}$ and $\hat{6}$ descending are correct, ♭$\hat{7}$ and ♭$\hat{6}$ are commonly used to avoid confusion.

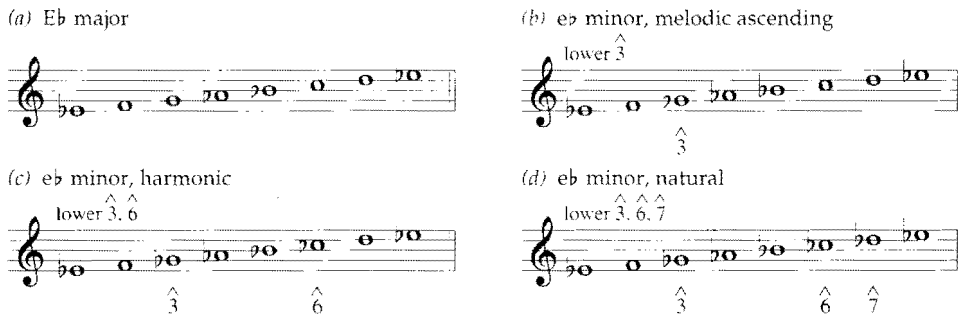
FIGURE 1.18 *Melodic Minor Scale*



Any minor scale with the same tonic as a major scale can easily be spelled as follows:

Minor scale	***To change from major scale***
Melodic minor	lower $\hat{3}$
Harmonic minor	lower $\hat{3}$ and $\hat{6}$
Natural minor	lower $\hat{3}$, $\hat{6}$, and $\hat{7}$

FIGURE 1.19 *Spelling Minor Scales on E♭*



Three minor scales, G♯, D♯, and A♯, must be spelled by whole steps and half steps, since no major scale has a tonic on these pitches. The leading tone in each requires a double sharp (×).

Scale-Degree Names in Minor

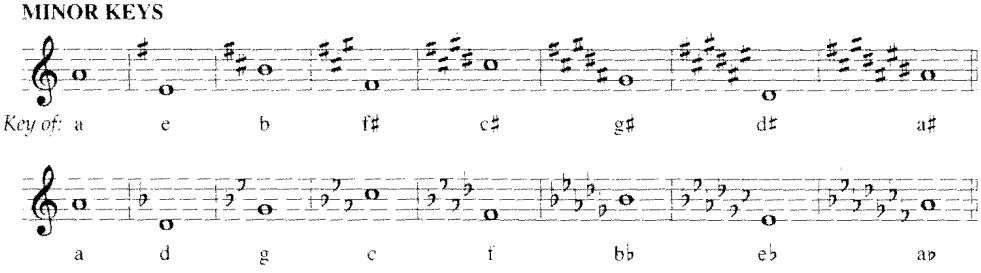
For $\hat{1}$ through $\hat{5}$, scale-degree names are the same in major and minor. These are names for $\hat{6}$ and $\hat{7}$:

Scale degree	*Name*
Lowered $\hat{6}$ (or $\flat\hat{6}$)	Submediant
Raised $\hat{6}$ ($\sharp\hat{6}$)	Raised submediant
Lowered $\hat{7}$ ($\flat\hat{7}$)	Subtonic
Raised $\hat{7}$ ($\sharp\hat{7}$)	Leading tone

Minor Key Signatures

Minor key signatures use the accidentals found in the natural minor scale. Thus, the key signature of the e♭ minor scale shown in Figure 1.19 is six flats. In Figure 1.20, note that lowercase letters are used for key names in minor (a minor, f♯ minor, and so forth).

FIGURE 1.20 *Minor Key Signatures*



The Circle of Fifths

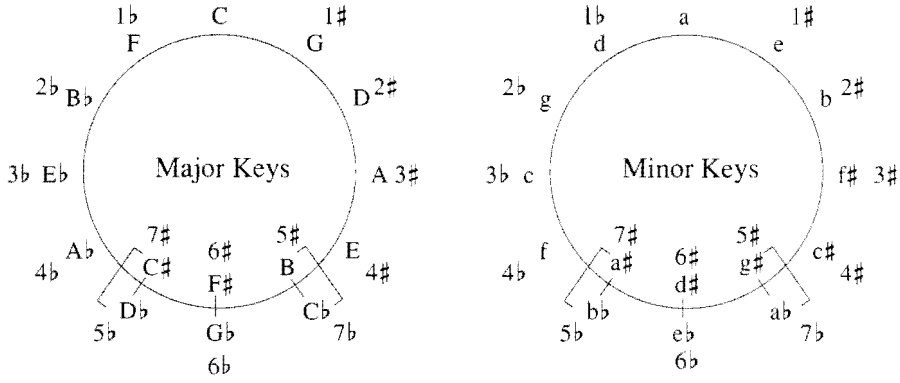
You may have observed in Figures 1.14 (major key signatures) and 1.20 (minor key signatures) that when you read the key names from left to right, $\hat{5}$ of any *sharp* key is $\hat{1}$ of the next key to the right: for example, $\hat{5}$ of G major is $\hat{1}$ of D major, and $\hat{5}$ of c♯ minor is $\hat{1}$ of g♯ minor.

Similarly, $\hat{4}$ of any *flat* key is $\hat{1}$ of the next key: for example, $\hat{4}$ of E♭ major is $\hat{1}$ of A♭ major, and $\hat{4}$ of d minor is $\hat{1}$ of g minor. This information is incorporated in a simple diagram called the *circle of fifths*, in which

reading clockwise:	Each tonic is the fifth scale step of the preceding tonic.

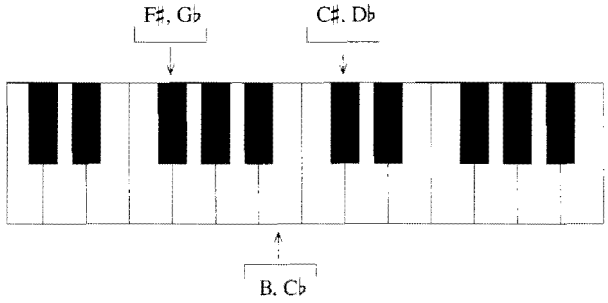
reading counterclockwise: Each tonic is the fourth scale step of the preceding tonic.

FIGURE 1.21 *The Circle of Fifths*



The bracketed keys are known as *enharmonic keys*. The two pitch names of a bracketed pair (for example, B and C♭) represent the same pitch and are the same key on the keyboard.

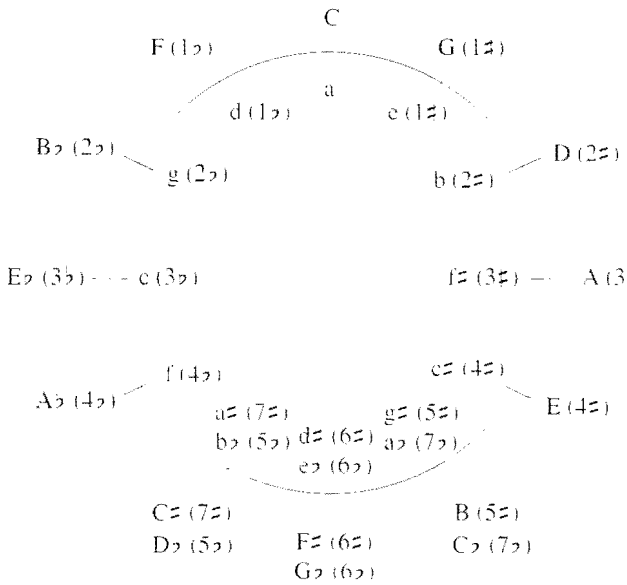
FIGURE 1.22 *Enharmonic Keys*



Relative and Parallel Keys

Relative Keys The two circles of fifths, major and minor, can be superimposed so that C major and A minor coincide (both have no ♯'s or ♭'s), with the other pairs of keys with the same key signatures also aligning. These coinciding keys are known as *relative keys*. B♭ major and g minor, for example, are relative keys, since both have a key signature of two flats.

FIGURE 1.23 *Circle of Fifths for Major and Minor Keys Together*



Parallel Keys Two keys employing the same tonic tone are known as *parallel keys*. B♭ major and B♭ minor are parallel keys.

Scales and Keys

With so much emphasis placed on the learning of scales in music lessons, one might be led to believe that music is derived from scales. Just the opposite is true. The scale is simply a pattern formed by an arrangement in alphabetical order of the pitches used in a composition. An obvious example is the Christmas hymn "Joy to the World" (Figure 1.13).

The first eight notes of the tune encompass all the pitch names and are in descending alphabetical order: D C♯ B A G F♯ E D. This is the descending form of the D major scale, usually stated in the ascending alphabetical form: D E F♯ G A B C♯ D. In most melodies, however, the scale structure is not so obvious, as in Figure 1.24.

FIGURE 1.24 *Scale: D E F♯ G A B C♯ D*

Mozart, Sonata for Piano, K. 284[3]

[3]K.: abbreviation for Köchel. Ludwig von Köchel in 1862 catalogued and assigned numbers to Mozart's works. Mozart did not number his compositions.

Here is the same D scale tones are present but in a more random order. Note that the Mozart example neither begins nor ends on D. Why, then, is this scale a D scale? Because all the notes seem to gravitate toward the single pitch D. Note the strength of the first D you hear and notice how the last note "wants" to continue to D (as it does in the sonata). A pitch with this quality of stability and finality is called the *tonic*, and it functions as the first note of a scale. It is usually found at or near the beginning of a composition and more often than not is also the last pitch. Music from which the scale is derived is said to be in the key of the tonic note. In the preceding two cases, it is in the key of D.

Whether the scale is major or minor depends on the arrangement of whole and half steps. The scale of the previous piece is major, whereas the scale in Figure 1.25 is minor.

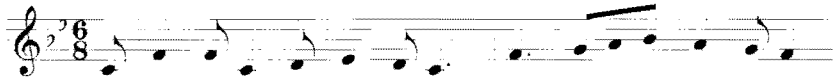
FIGURE 1.25 *Scale: G A B♭ C D E♭ F♯ G*

Bach, *English Suite*, III, Gigue, BWV 809[4]

Not all scales are major or minor. The note F in the melody of Figure 1.26 possesses the quality of tonic, but this F scale shows half steps between $\hat{3}$ and $\hat{4}$ and between $\hat{6}$ and $\hat{7}$. The effect is that of major but with a lowered $\hat{7}$. It is called a Mixolydian scale, one of several scales in common use in composed music before about 1650 and found universally in folk music. (See Appendix D.)

FIGURE 1.26 *Scale: F G A B♭ C D E♭ F*

England



A key signature is nothing more than the accidentals of the scale placed at the beginning of a composition. It does not determine the key; it merely reports the accidentals used, although for convenience we commonly do use the key signature to identify the key. A key signature of two flats, for example, usually indicates B♭ major or g minor, but in the preceding English folk song it indicates F Mixolydian.

The "Basics Quiz"

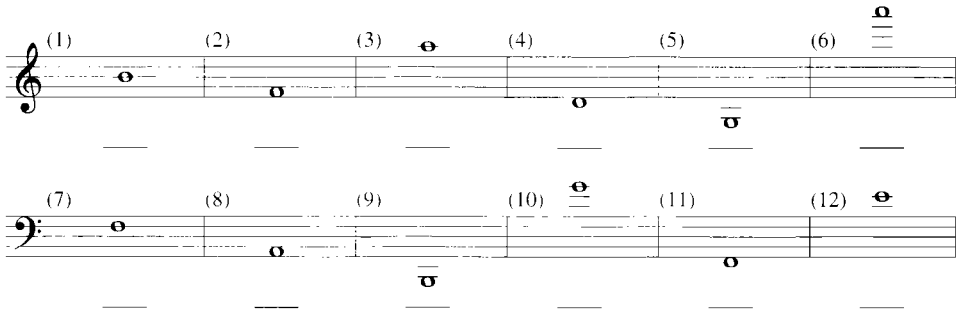
These short examinations are offered in Chapters 1–3. If you encounter any difficulty, review the problem thoroughly before proceeding to more advanced study.

[4]BWV: abbreviation for *Bach-Werke-Verzeichnis*, a compilation and numbering of Bach's works by Wolfgang Schmieder in 1950. Sometimes "S." (for "Schmieder") is used instead of BWV.

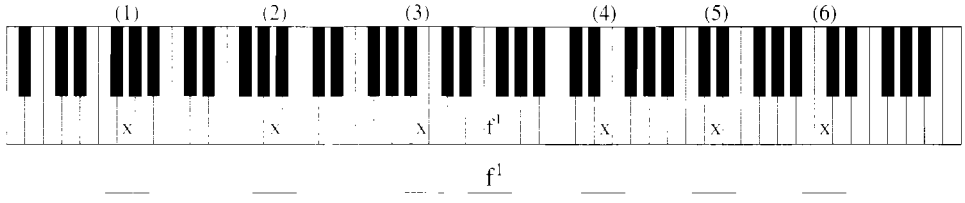
BASICS QUIZ #1

In Appendix E: Answers to all questions in this quiz are given.

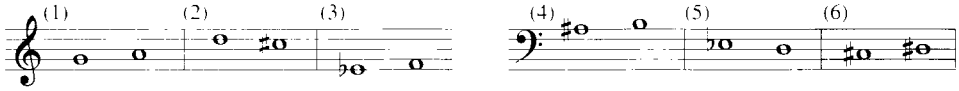
1. Name each of these pitches, using octave register symbols.



2. From this keyboard, identify each key name marked with an X, using octave register names. The letter name f^1 is already placed for you.

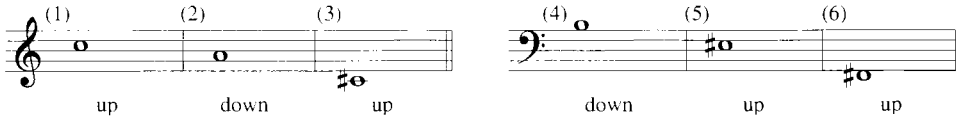


3. Identify each pair of pitches as a half step or a whole step.

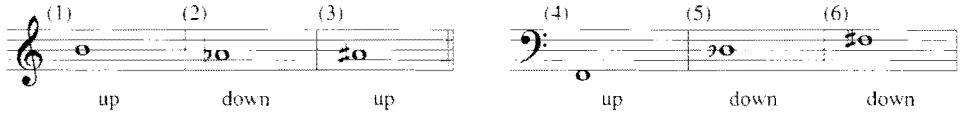


4. Write the second note of these half steps and whole steps. Always use an adjacent letter name.

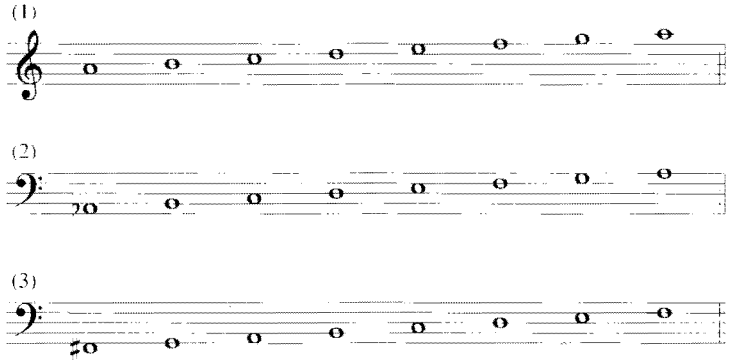
a. Half steps



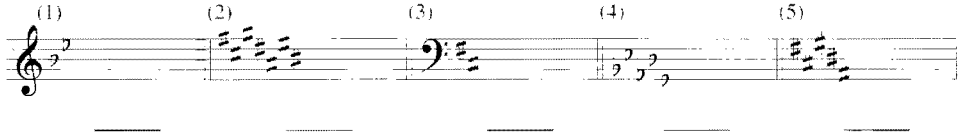
b. Whole steps



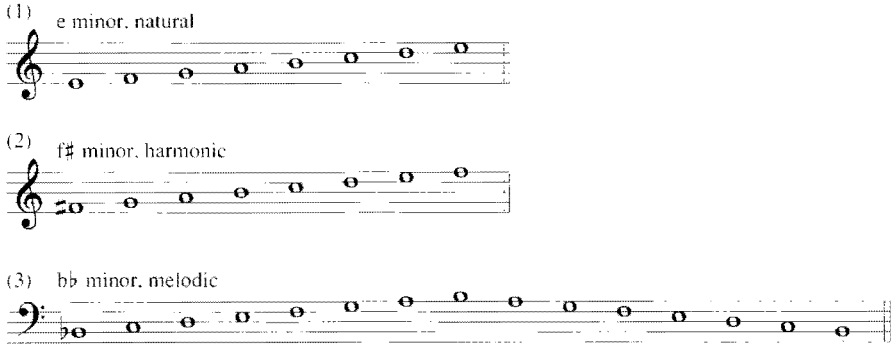
5. Add accidentals to convert these scales to major scales.



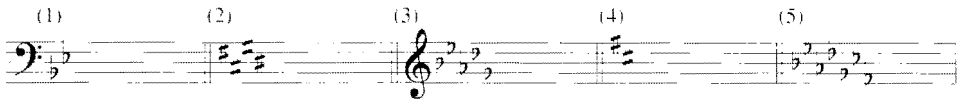
6. Name the major key for each of these key signatures.



7. Add accidentals to convert these scales to minor scales in the form given.



8. Name the minor key for each of these signatures. Place the tonic note on the staff.



_____ _____ _____ _____ _____

9. Name the relative and parallel keys of the given keys. Write "none" if there is no parallel key.

	Relative	***Parallel***
(1) D	_____	_____
(2) E♭	_____	_____
(3) d	_____	_____
(4) g♯	_____	_____
(5) b	_____	_____
(6) A♭	_____	_____

10. Enharmonic keys

a. The key enharmonic with F♯ is _____.

b. The key enharmonic with D♭ is _____.

c. The key enharmonic with B is _____.

2

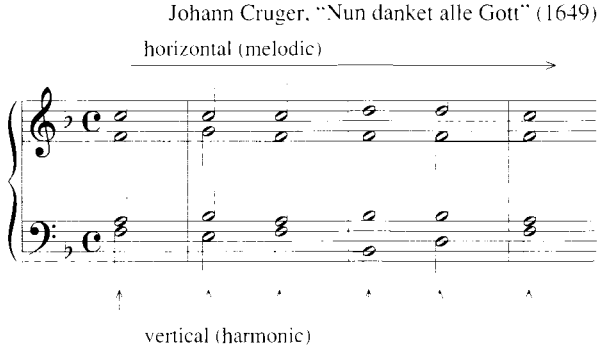
Basics II

intervals; chords; staff notation

When you listen to music, you are hearing, as it were, in two directions at once. You hear the melody, one note after another in an imaginary horizontal line, and you orient yourself at any given moment by relating the melody tone you are hearing to the one you have already heard, or even to what you expect to hear next. At the same time, you are hearing harmony, a vertical composite of several simultaneous sounds.

Figure 2.1 shows this concept graphically, using the opening of the well-known chorale "Now Thank We All Our God." The arrow over the soprano line indicates single pitches heard one after the other (melody), which in notation looks horizontal. (Where are the three other horizontal lines?) The arrows below the staff point to groups of notes heard simultaneously (harmony), which in notation looks vertical.

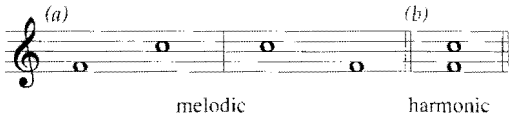
FIGURE 2.1 *Horizontal and Vertical Analysis*



Intervals

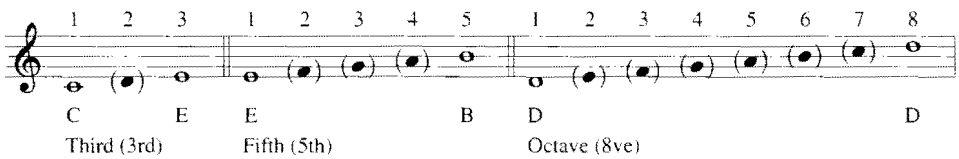
Both melody and harmony make constant use of intervals. In melody, the distance horizontally between each pair of notes is a *melodic interval* (Figure 2.2*a*). In harmony, the distance vertically between any two notes is a *harmonic interval* (Figure 2.2*b*). Combining two or more harmonic intervals produces a chord.

FIGURE 2.2 *Melodic and Harmonic Intervals*



An interval is described by its *quantity* and its *quality*. Its quantity is measured by the number of letter names encompassed. For example, C up to E is a *third* because three letter names (C, D, and E) are encompassed. C♯ up to E is also a third, since only letter names determine quantity.

FIGURE 2.3 *Measurement of Intervals*

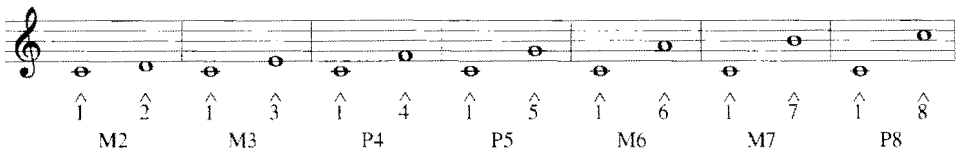


Since the distance between two letter names may vary, as in C–E and C♯–E, numerical size is qualified by terms indicating the quality of the interval: *perfect* (P), *major* (M), *minor* (m), *diminished* (d), and *augmented* (A).

Spelling Ascending Intervals[1]

Perfect and Major Intervals Any interval above the tonic note will be a perfect or a major interval, as shown in the key of C in Figure 2.4. A P5 (perfect fifth) above C, for example, is $\hat{5}$, or G, from the C major scale.

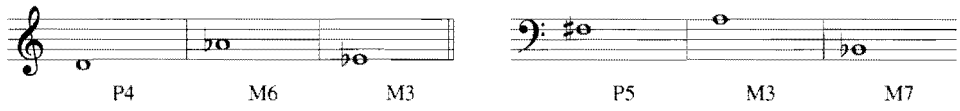
FIGURE 2.4 *Perfect and Major Intervals*



[1]Descending intervals will be easier to work with once you have studied "Inversion of Intervals," page 24.

Here is another example: Calculate a M6 above E. Call E the tonic of a major scale and count up to the sixth scale step, C♯. E up to C♯ is a M6.

DRILL #1 (INTERVALS) Place the second note of the interval above the given note.



In Appendix E: Answers to Drill #1 are given.

The other intervals, minor (m), diminished (d), and augmented (A), can be calculated and identified by comparing them with perfect (P) or major (M) intervals. For example, "M" reduced by one half step becomes "m"—as shown in the following chart:

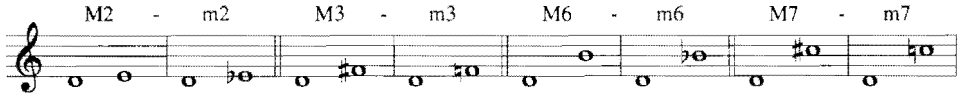
Reduce by	P	M	m
one half step	d	m	d
two half steps	–	d	–

Increase by	P	M	m
one half step	A	A	M
two half steps	–	–	A

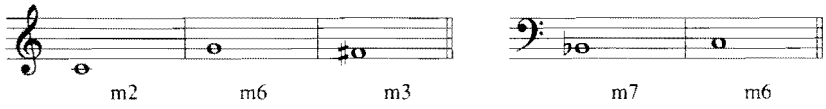
Minor Intervals These are one half step smaller than major intervals. The decrease is accomplished when the upper note of a major interval is lowered one half step or the lower note is raised one half step, *using the same letter names.* Altering the M3 C–E, for example, will produce the minor third C–E♭ or C♯–E. Spelling C–D♯ instead of C–E♭ produces an augmented second (A2), since only two letter names are involved.

Note that the half step and the whole step described in Chapter 1 have the numerical names of m2 and M2, respectively, as seen in Figure 2.5.

FIGURE 2.5



DRILL #2 (INTERVALS) Place the second note of the interval above the given note.

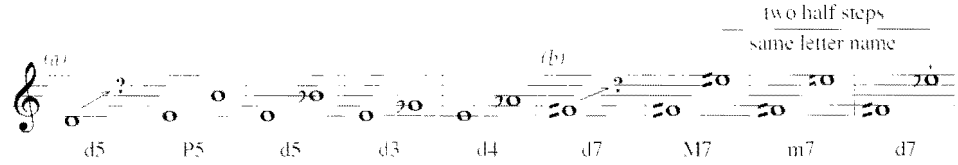


In Appendix E: Answers to Drill #2 are given.

Diminished Intervals These are one half step smaller than minor or perfect intervals; they are accomplished by lowering the upper note or raising the lower note, but

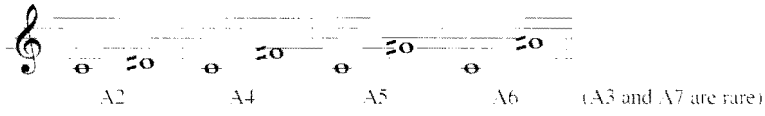
always using the same letter names. When you compute a d interval from a M interval, be sure to reduce the M interval by *two half steps (same letter names),* M to m, then m to d, as in Figure 2.6*b*.

FIGURE 2.6 *Diminished Intervals*

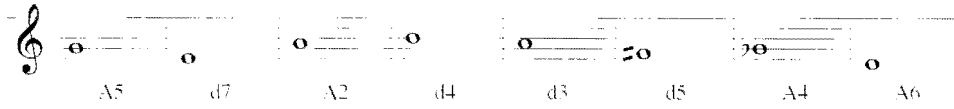


Augmented Intervals These are one half step larger than perfect or major intervals, *using the same letter names.* If the C to F♯ in Figure 2.7 were changed to C♭ to F, an A4 would also be produced.

FIGURE 2.7 *Augmented Intervals*



DRILL #3 (INTERVALS) Place the second note of the interval above the given note.

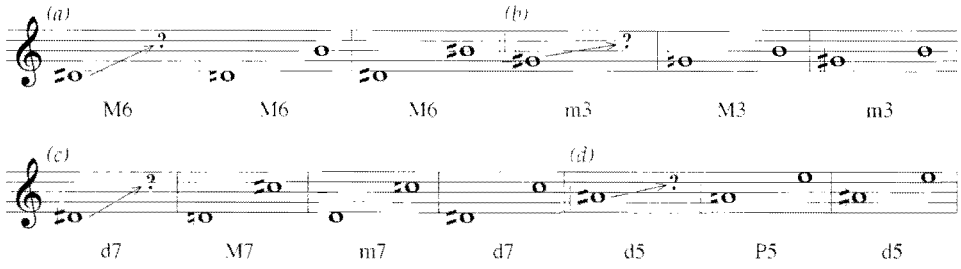


In Appendix E: Answers to Drill #3 are given.

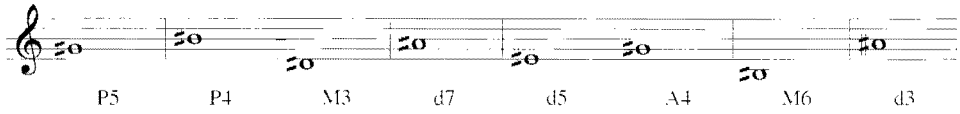
Some letter names with an accidental are not the tonic of any major scale. These are G♯, D♯, A♯, E♯, and B♯. (Only one flatted note, F♭, cannot be tonic. Its use is not common.) To spell intervals above the sharped notes:

1. For P, M, and A intervals, remove the ♯, spell the interval, then raise both notes one half step (Figure 2.8*a*).
2. For m intervals, remove the ♯, spell a M interval, then restore the ♯ to the lower note (Figure 2.8*b*).
3. For d intervals, remove the ♯, spell a P or m interval, then restore the ♯ to the lower note (Figure 2.8*c*).

FIGURE 2.8 *Spelling Intervals above Notes That Cannot Be Tonic in a Major Key*



DRILL #4 (INTERVALS) Place the second note of the interval above the given note.



In Appendix E: Answers to Drill #4 are given.

Terminology for Other Intervals

In addition to the terms just discussed, the following are also used.

Unison (P1) or *perfect prime* (PP): Two identical pitches sounding simultaneously (such as a flute and a clarinet playing the same pitch).

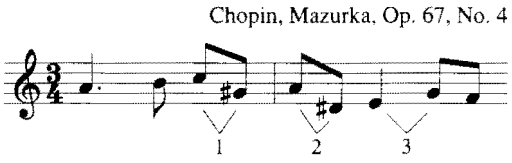
Diatonic and chromatic half steps: In a diatonic half step, the two tones are spelled with adjacent letter names, such as C to D♭. In a chromatic half step, the two tones are spelled with the same letter name, such as C to C♯. The term *diatonic* refers to those tones as spelled in the scale of a given key.

Tritone: Refers to each of the enharmonic intervals of the augmented fourth and the diminished fifth. Each interval includes three whole steps (discussed further in Chapter 10).

Identifying Intervals

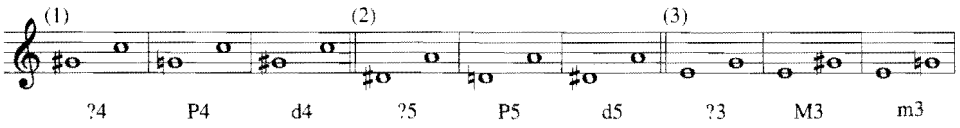
You should now be able to identify almost any interval you may find in a music score, using procedures similar to the preceding. Here are two measures of a melody by Chopin. What are the names of the marked intervals?

FIGURE 2.9 *Intervals in a Score*

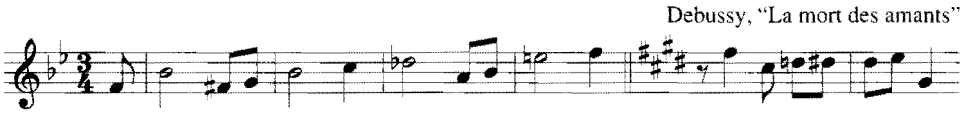


Work from the lower note of each interval: (1) G♯ up to C, (2) D♯ up to A, and (3) E up to G. In (1) the given interval is G♯–C. Lower G♯ to G; the result is G–C, a P4. Since a d4 is a half step smaller than a P4, raising G to G♯ creates a d4.

FIGURE 2.10 *Calculating Intervals from Figure 2.9*



DRILL #5 (INTERVALS) Name each interval in this melodic line. Note the change of key signature. Look for the use of a chromatic half step.

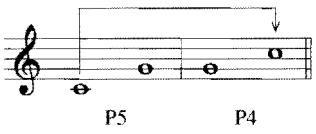


In Appendix E: Answers to Drill #5 are given.

Inversion of Intervals

By inversion of an interval, we mean that we have moved the lower note up an octave or the upper note down an octave. In the process, no pitch names have been changed, but the size of the interval is different. In Figure 2.11, each interval is composed of the pitches C and G, but the octave displacement changes the P5 (C to G) to a P4 (G to C).

FIGURE 2.11 *Interval Inversion*



When inverted, any interval will have a different quantity numerical measurement. The quality of a perfect interval when inverted, however, always remains perfect (hence the name "perfect"); major and minor intervals reverse their designations (P5 inverts to P4, but M3 inverts to m6).

FIGURE 2.12 *Table of Inversions*

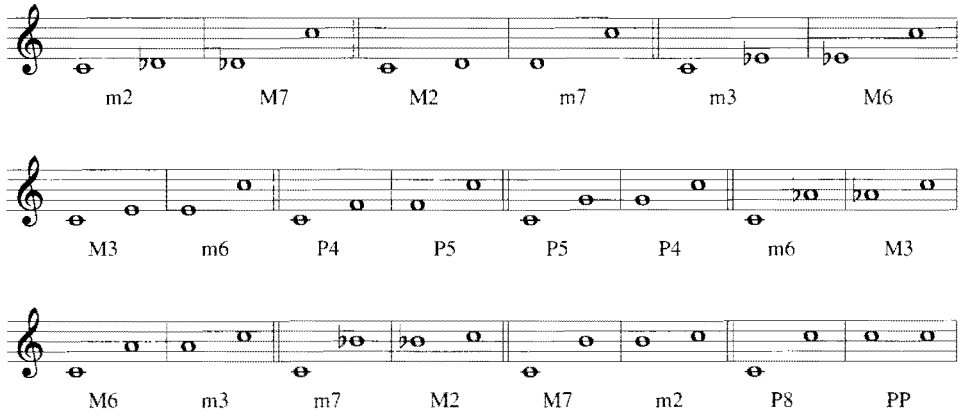
	Quantity (interval size)								*Quality*				
Original	1	2	3	4	5	6	7	8	P	M	m	d	A
Inversion	8	7	6	5	4	3	2	1	P	m	M	A	d

1 = unison; 8 = octave

You will notice that when any interval is inverted, the sum of the two numbers is always 9; for example, P5 + P4 = 9. You might have expected 8 because there is an octave (8) between the lowest and highest notes, but the number is 9 because one note is counted twice, as in Figure 2.11 where the G of C–G (P5) and G–C (P4) is counted twice. Thus, to find the numerical inversion of an interval, subtract its number from 9: The inversion of a third is 9 minus 3—a sixth.

Figure 2.13 shows inversions of P, M and m intervals only. Other intervals invert in the same way (A2–d7, d4–A5, and so forth).

FIGURE 2.13 Inversions of Intervals



Spelling Descending Intervals

The principle of inversion is helpful in spelling descending intervals.

To spell descending perfect and minor intervals: Example: m6 below E♭ (Figure 2.14*a*).

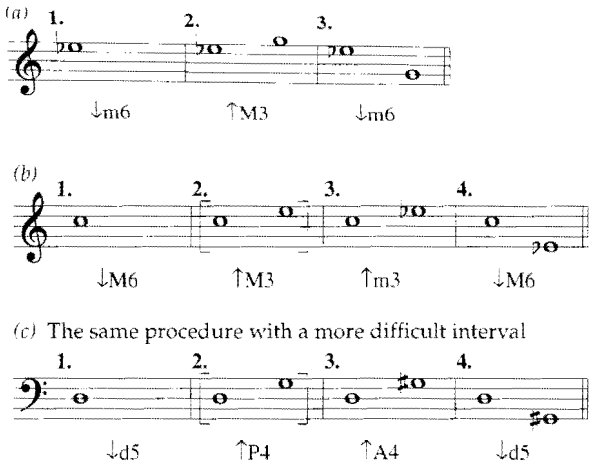
1. Find the inversion of a m6: 9 minus m6 down = M3 up.

2. Spell a M3: M3 above E♭ is G.
3. Place the upper note an octave lower: m6 below E♭ is G.

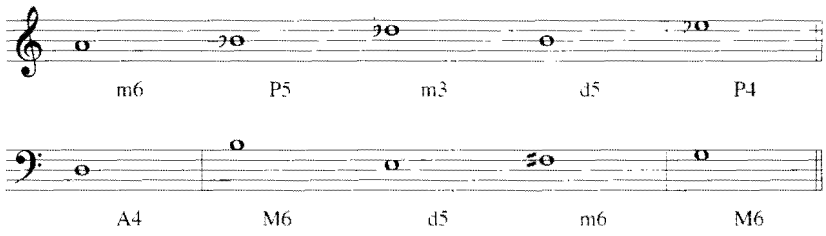
To spell descending major, diminished, and augmented intervals: An extra step (step 2) is required for these. Example: M6 below C (Figure 2.14*b*).

1. 9 minus M6 down = m3 up.
2. To find a m3 up, first spell a M3 up. M3 above C is E.
3. m3 above C is E♭.
4. M6 below C is E♭.

FIGURE 2.14 *Finding the Lower Note of an Interval*



DRILL #6 (INTERVALS) Place the second note of each interval, all descending, on the staff.



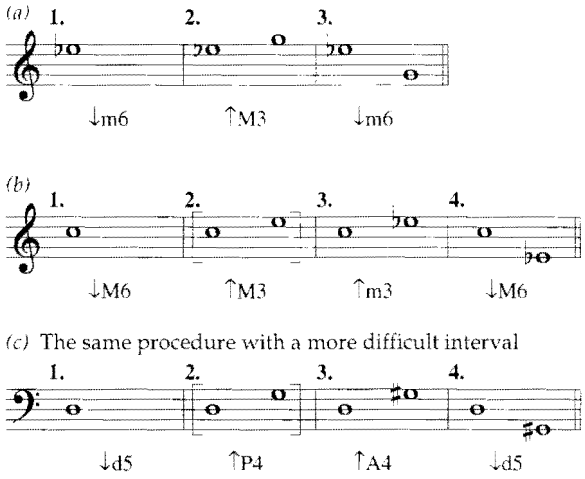
In Appendix E: Answers to Drill #6 are given.

2. Spell a M3: M3 above E♭ is G.
3. Place the upper note an octave lower: m6 below E♭ is G.

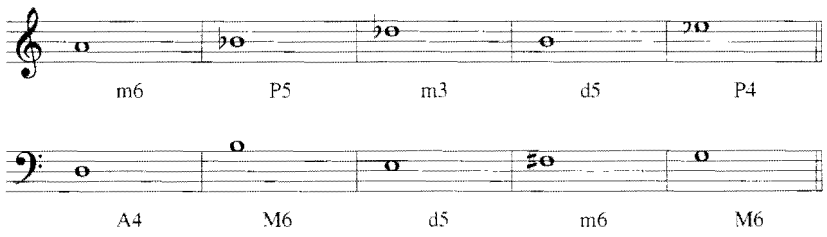
To spell descending major, diminished, and augmented intervals: An extra step (step 2) is required for these. Example: M6 below C (Figure 2.14*b*).

1. 9 minus M6 down = m3 up.
2. To find a m3 up, first spell a M3 up. M3 above C is E.
3. m3 above C is E♭.
4. M6 below C is E♭.

FIGURE 2.14 *Finding the Lower Note of an Interval*



DRILL #6 (INTERVALS) Place the second note of each interval, all descending, on the staff.

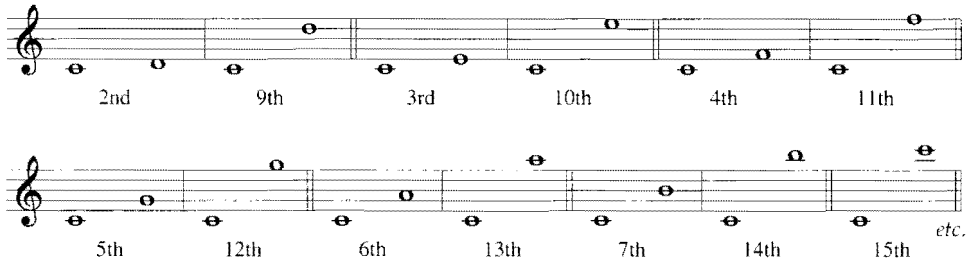


In Appendix E: Answers to Drill #6 are given.

Compound Intervals

Intervals larger than an octave are known as *compound intervals.* Except when the distinction is necessary, a compound interval is usually referred to by the name of its simple form; for example, a tenth is a third plus an octave but is often simply called a third.

FIGURE 2.15 *Compound Intervals*



Consonance and Dissonance

These are subjective terms. *Consonance* is supposed to mean a "pleasant sound," and *dissonance* is supposed to mean an "unpleasant sound." Theorists have argued about which sounds are which as long as there has been music in two or more voices. About 1300, Franco of Cologne described the M6 and the m6 as dissonances, and M and m thirds were at best imperfect consonances.

By commonly accepted definition, consonances in the Baroque, Classical, and Romantic periods (ca. 1600–ca. 1900) are the perfect intervals and their inversions, and the major and minor thirds and their inversions (except for one particular use of the P4, described in Chapter 9). All other intervals are dissonances, though in our century many hardly seem to sound that way. Still, this is a valuable distinction for study because it provides reasons for the ways some chord tones are handled as well as an explanation of any tones that are not part of a chord. A chord containing only the "consonant" intervals above its root (see the following section entitled "Chords") is considered to be a consonant chord. All other vertical structures are termed "dissonant."

A more liberal interpretation avoids placing intervals or chords in specific categories. Intervals can be listed linearly, where any given interval is more consonant than the one to its right, or more dissonant than the one to its left, but no interval is specifically consonant or dissonant.

More consonant ⟵ More dissonant

P8 P5 P4 M3 m6 m3 M6 M2 m7 m2 M7 tritone

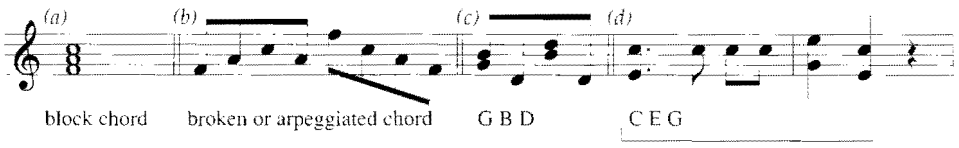
Music of the twentieth century generally disregards any distinction between consonance and dissonance, except perhaps in a relative way as above.

Chords

A *chord* is a group of notes sounding simultaneously or in close succession. In our study of harmony, we will be particularly interested in those chords built in thirds. Such chords are called *tertian chords,* and music based on tertian chords is known as *tertian harmony.*

When chord members sound simultaneously, a *block chord* is produced. Chord members may also sound in succession, resulting in a *broken* or *arpeggiated chord.* In addition, a limitless variety of configurations can occur, two of which are shown in Figure 2.16*c* and *d.*

FIGURE 2.16 *Chord Configurations*



Triads

The simplest chord is the *triad,* a three-note group formed by two consecutive thirds. The lowest note is called the *root,* above which are the *third* and the *fifth.* Since both major and minor thirds exist, four different combinations are possible.

1. A *major triad* consists of a major third and a perfect fifth above the root, or a major third and a minor third from the root upward.
2. A *minor triad* consists of a minor third and a perfect fifth above the root, or a minor third and a major third from the root upward.
3. A *diminished triad* consists of a minor third and a diminished fifth above the root, or two minor thirds from the root upward.
4. An *augmented triad* consists of a major third and an augmented fifth above the root, or two major thirds from the root upward.

FIGURE 2.17 *Triad Types*

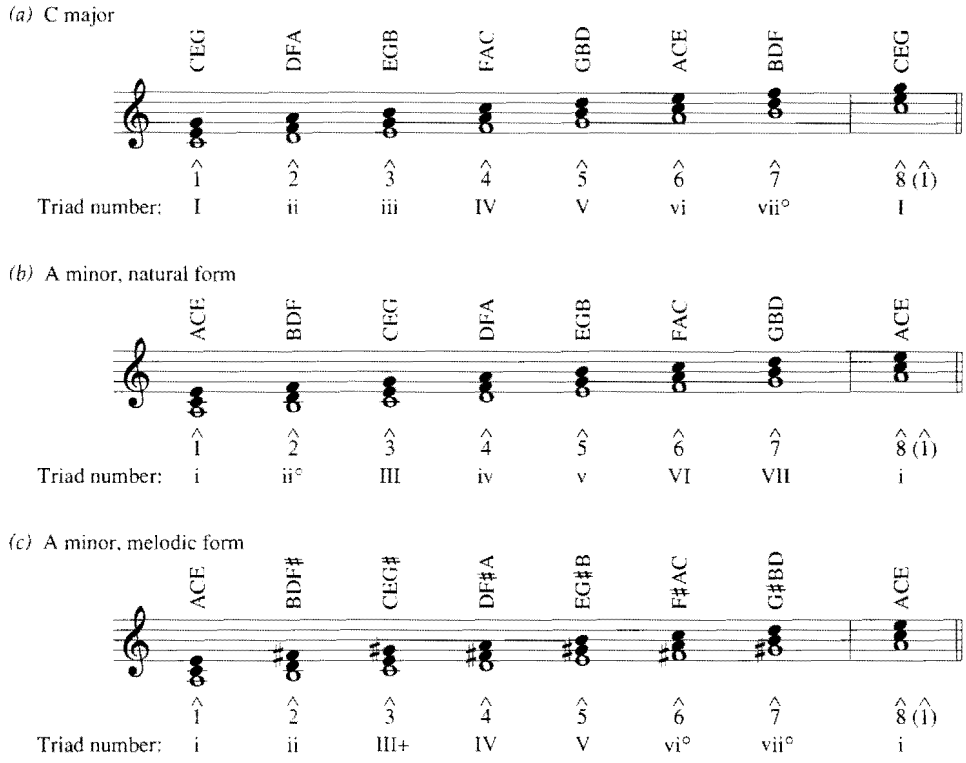
Triads in a Key

Triads can be built above each note of any major or minor scale. When only scale tones are used, any note or combination of notes, including triads, is called *diatonic.*

When a tone of a scale is modified by an accidental, it becomes an *altered tone,* and the chord in which it is found is an *altered chord,* except that $\hat{6}$ and $\hat{7}$ in minor are considered diatonic.

A triad in a key is identified by the scale-step number of its root and expressed by a roman numeral.

FIGURE 2.18 *Triad Identification*



The roman numeral not only designates the scale-step location of the root of the triad but also indicates triad construction.

Large numeral = major triad (I in C major = C E G)

Small numeral = minor triad (ii in C major = D F A)

Small numeral with small ° = diminished triad (vii° in C major = B D F)

Large numeral with + = augmented triad (III+ in A minor = C E G♯)

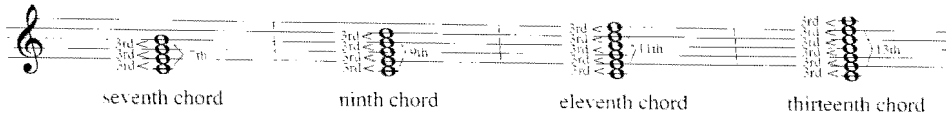
Thus, IV indicates a major triad built on the fourth scale degree, and iv indicates a minor triad built on the fourth scale degree. A triad in a key may also be designated by the name of the scale step on which it is built; for example: I = tonic triad; V = dominant triad.

Chords Larger Than a Triad

The presentation of these chords at this time is meant only for reference. Of the chords listed, the V^7 in major and minor, the ii^7 in major, and the $ii^{\circ 7}$ in minor are included for study in *Elementary Harmony*. The remaining chords will be found in *Advanced Harmony*.

Like triads, these chords are built in thirds. They are named according to the interval from the root to the final note in the series of thirds. Figure 2.19 shows all the possibilities above C. The thirteenth chord is the largest possible diatonic chord, since the next third higher is the same pitch as the root.

FIGURE 2.19 *Chords Larger Than a Triad*



Seventh Chords

Of the chords in Figure 2.19, only the seventh chord is commonly used. The use of seventh chords is important because the "dissonant" interval of the seventh provides a necessary contrast to the "purity" of the triads. Seventh chords are identified by the type of triad plus the quality of the seventh above the root. For example, a major triad plus a minor seventh is called a major–minor seventh chord. But shorter names are commonly used. Commonly used names, followed by the full name in parentheses, are listed in Figure 2.20.

FIGURE 2.20 *Names of Seventh Chords*

Triad type	*Interval (root to 7th)*	*Seventh chord name (Abbr.)*	*Example in C*
Major	m7	Major–minor seventh chord[a] (Mm7)	V^7 G B D F
Minor	m7	Minor seventh chord (m7) (Minor–minor seventh chord)	ii^7 D F A C
Major	M7	Major seventh chord (M7) (Major–major seventh chord)	I^7 C E G B
Diminished	d7	Diminished seventh chord ($^\circ 7$) (Diminished–diminished seventh chord)	$vii^{\circ 7}$ B D F A♭
Diminished	m7	Half-diminished seventh chord ($^\circ 7$) (Diminished–minor seventh chord)	$vii^{\circ 7}$ B D F A
Augmented		[rare]	

[a]The major–minor seventh chord is often casually called a "dominant seventh" because it is frequently built on the dominant of the key or used as a "secondary dominant," the same chord relationship as that between dominant and tonic, but applied to chords other than the tonic (see Chapter 18).

Chords Larger Than a Triad

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FIGURE 2.19 *Chords Larger Than a Triad*

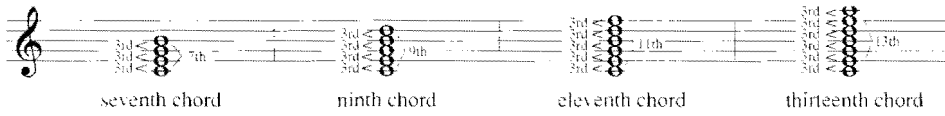

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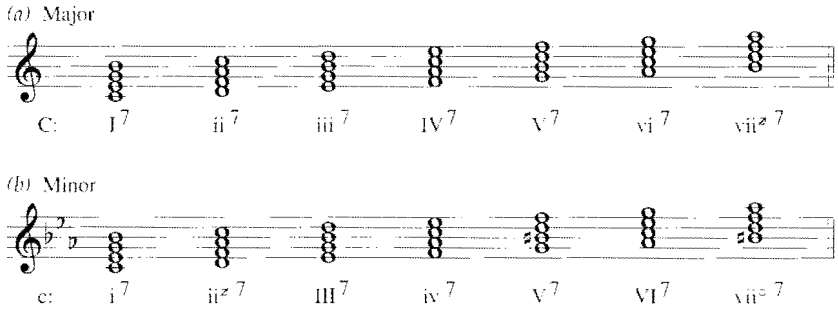
FIGURE 2.20 *Names of Seventh Chords*

Triad type	*Interval (root to 7th)*	*Seventh chord name (Abbr.)*	*Example in C*
Major	m7	Major–minor seventh chord[2] (Mm7)	V^7 G B D F
Minor	m7	Minor seventh chord (m7) (Minor–minor seventh chord)	ii^7 D F A C
Major	M7	Major seventh chord (M7) (Major–major seventh chord)	I^7 C E G B
Diminished	d7	Diminished seventh chord (°7) (Diminished–diminished seventh chord)	$vii^{\circ 7}$ B D F A♭
Diminished	m7	Half-diminished seventh chord (ø7) (Diminished–minor seventh chord)	$vii^{\varnothing 7}$ B D F A
Augmented		[rare]	

[2]The major–minor seventh chord is often casually called a "dominant seventh" because it is frequently built on the dominant of the key or used as a "secondary dominant," the same chord relationship as that between dominant and tonic, but applied to chords other than the tonic (see Chapter 18).

FIGURE 2.21 *Diatonic Seventh Chords*



Other seventh chords in minor caused by the variable sixth and seventh scale degrees are used only infrequently and will be discussed when the need arises.

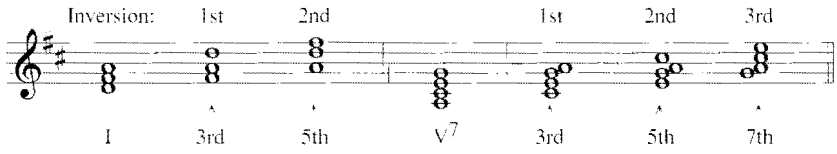
Inversion of Chords

Chords, like intervals, can be inverted, changing their intervallic content and the way they sound but without changing their spellings.

Lowest note	*Inversion*
1	(Root position)
3	First
5	Second
7	Third (seventh chords only)

Figure 2.22 shows the inversions of the D major triad and the A dominant seventh chord (I and V^7) in D major.

FIGURE 2.22 *Chords in Inversion*

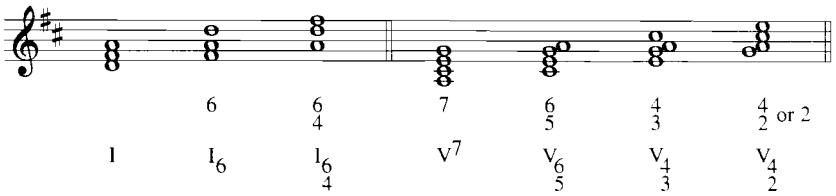


Figured Bass

A symbol indicating the inversion of a chord can be included with its roman numeral. Although "1" for first inversion, "2" for second inversion, and so forth, would seem logical, we use instead figured bass symbols. These are arabic numbers which, in a music score, appear below the lowest note to indicate the intervals above it. Thus, if

we see $\frac{6}{4}$ below the note G, we know that above G is a sixth (E) and a fourth (C). The complete chord, therefore, is C E G in second inversion. Its complete symbol in C major is I^6_4.

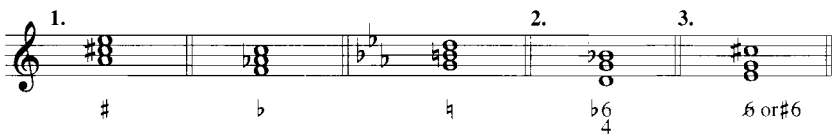
FIGURE 2.23 *Figured Bass Symbols*[3]



When chord members are chromatically altered, alterations are indicated in these ways:

1. A ♯, ♭, or ♮ standing alone refers to the third above the bass note.
2. A number preceded by a ♭ lowers the note one half step.
3. A number preceded by a ♯ (such as ♯6) or found with a slash (such as ø) indicates that the interval above the bass is to be raised one half step.

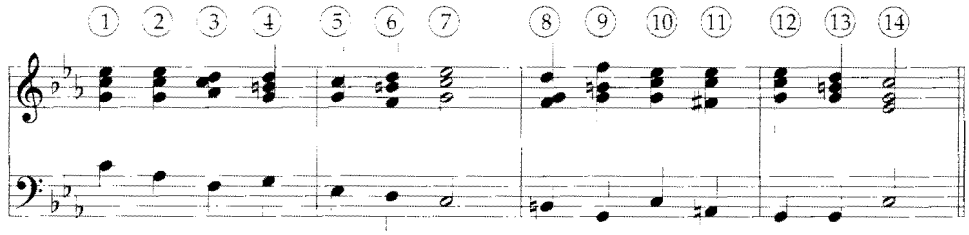
FIGURE 2.24



Performance of music using figured bass was a common practice in the Baroque period (ca. 1600–1750). A fuller description of figured bass with examples in music score will be found in an article on page 202. In the study of harmony, we will encounter frequent use of figured bass as a valuable pedagogical tool.

DRILL #7 (CHORD IDENTIFICATION) From the following music example: (*a*) find a chord that matches the symbol and place its number in the blank, and (*b*) find the chord that requires the given figured bass symbol and place its number in the blank.

[3]A complete figured bass symbol would account for all the notes above the lowest note. The shortened symbols in Figure 2.23 are generally used, with the remaining numbers being understood. For triads, the complete numbers are (used vertically): root in bass—5, 3; first inversion—6, 3; second inversion—6, 4. For seventh chords: root in bass—7, 5, 3; first inversion—6, 5, 3; second inversion—6, 4, 3; third inversion—6, 4, 2. When used under a bass line, any of these numbers may appear as circumstances dictate, as discussed in later chapters.



(a)	*(b)*
M	6
m	$\frac{6}{5}$
Mm7	:
ø7	$\frac{6}{4}$
°7	$\frac{6}{:}$
°	$\frac{\sharp}{5}$
M7	$\frac{7}{:}$
	7

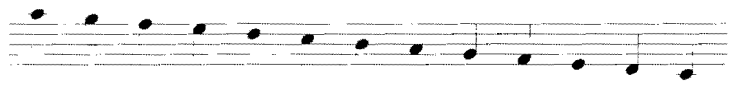
Staff Notation

For clear and legible notation, certain practices are universally used. To become completely proficient, make it a habit to carefully observe how music is notated in the scores you are studying and practicing. The following list presents the most common notational practices.

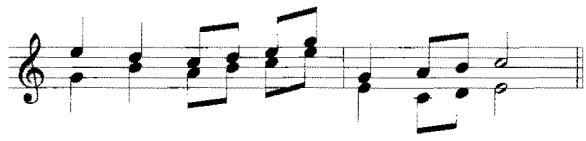
1. *The Single Note.* A note is drawn with one, two, or three parts:

An ascending stem is found on the right side of the head: 𝅗𝅥
A descending stem is found on the left side of the head: 𝅗𝅥

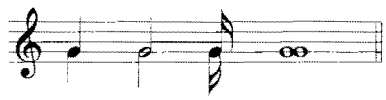
2. *Notes on the Staff.*
   a. When writing notes for a single part (one voice or one instrument) on the staff, place descending stems on notes found on the middle line or above and ascending stems on notes below the middle line.



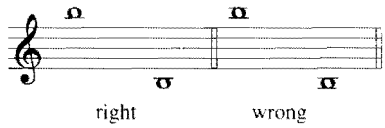
b. When writing for two parts on a single staff, place ascending stems on notes for the upper part and descending stems on notes for the lower part, regardless of their location on the staff.



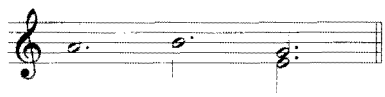
c. To indicate two parts performing the same pitch on a single staff (unisons), use a single note head with both ascending and descending stems. For two whole notes in unison, use two overlapping whole notes.



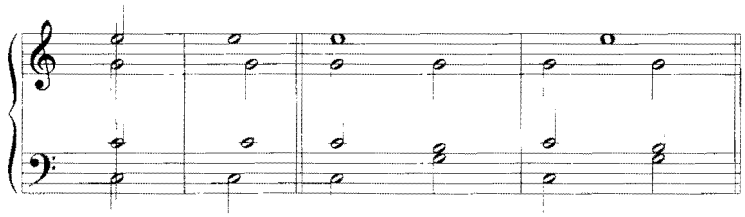
3. *Notes Using Ledger Lines or Spaces.* Above the staff, do not write ledger lines above the highest note. Below the staff, do not write ledger lines below the lowest note.

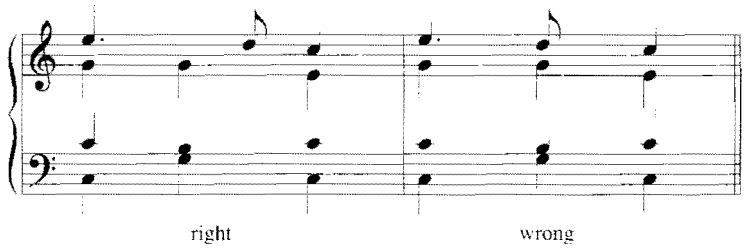


4. *Dotted Notes.* When the note head is in a space, the dot is found in the same space. When the note is on a line, the dot is usually found in the space above, though it is sometimes in the space below.

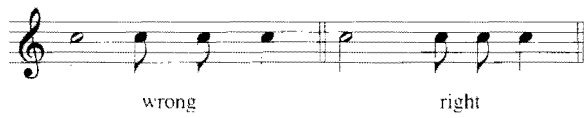


5. *Vertical Arrangement of Notes.* All notes sounding simultaneously must be written so that a line drawn through the note heads will be perpendicular to the lines of the staff.

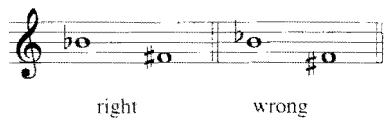




6. *Horizontal Arrangement of Notes.* Space between notes should be in approximate proportion to their time values.



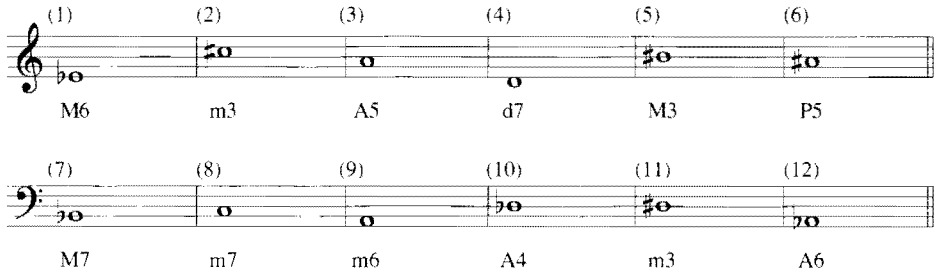
7. *Placement of Accidentals.* Accidentals are placed directly before the affected note and on the same line or space as the note head.



The effect of an accidental lasts until the following bar line, unless it is cancelled by a natural sign or the note is tied into the following measure or measures.

BASICS QUIZ #2

1. Write the second note of these ascending intervals.



2. Name the inversion of each interval.

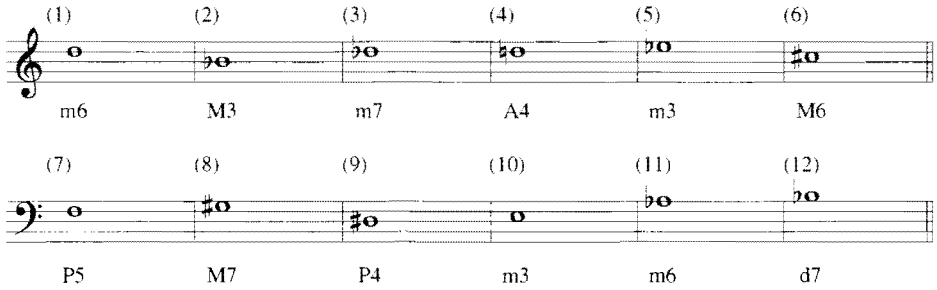
a. M3 _____ *e.* M6 _____

b. P5 _____ *f.* M2 _____

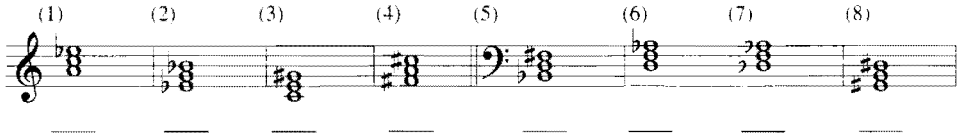
c. M7 _____ *g.* d5 _____

d. A4 _____ *h.* A2 _____

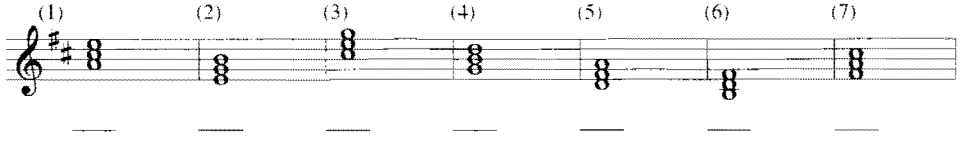
3. Write the second note of these descending intervals.



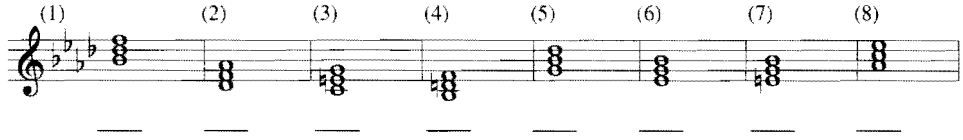
4. Name each triad: M, m, d, or A.



5. In D major, place the correct roman numeral under each chord.



6. In F minor, place the correct roman numeral under each chord.



In Appendix E: Answers to all questions in Basics Quiz #2 are given.

ARTICLE #1

Pitch Notation from Earliest Times

We know that music existed in ancient times from sources such as pictures, artifacts, and literary works (Psalm 150 from the Bible, for example). However, because there was no music notation in those times, we will never know exactly how ancient music sounded.

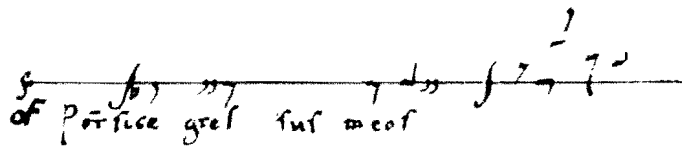
The earliest known notation is that of pre-Christian Greece, in which letters of the alphabet were used to represent pitches. Because very little of this notation survives, we know only a little about the sound of their music, despite the fact that the Greeks were prolific in writing about music.

The beginnings of our present notation date back to approximately the eighth century A.D., when the object of notation was to indicate pitch levels and directions in singing the chants of the church service. This was done with signs, called *neumes,* placed directly over the words of the chant. The result was a vague indication of the movement of the melody—helpful, probably, only to someone already acquainted with the melody.

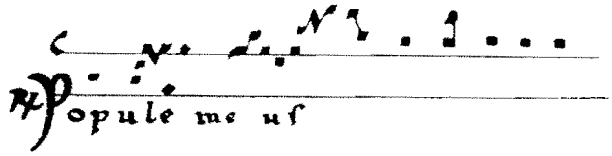
Neumes, circa 8th century

It occurred to someone in the tenth century that pitch could be indicated by drawing a line indicating a certain pitch (usually F) and placing neumes on, above, and below it. Staves with more lines followed, with four- and five-line staves appearing in the thirteenth century. By that time, neumes had evolved into note shapes more readily recognizable as precursors of our present notation. Notation was all black until the fifteenth century, when white notation appeared with the black to form a system that was used until approximately 1600 (see "Early Rhythmic Notation" on page 56).

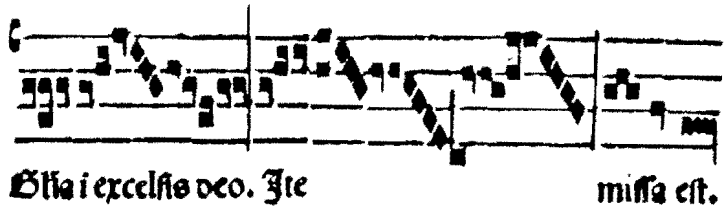
One-line staff, circa 10th century



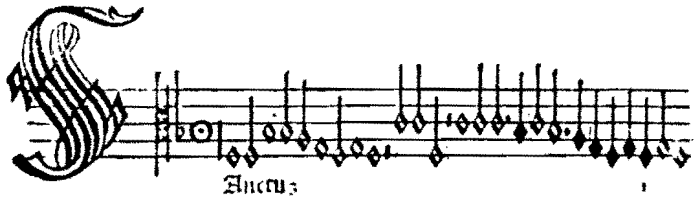
Two-line staff, circa 11th century



Four-line staff, circa 13th century

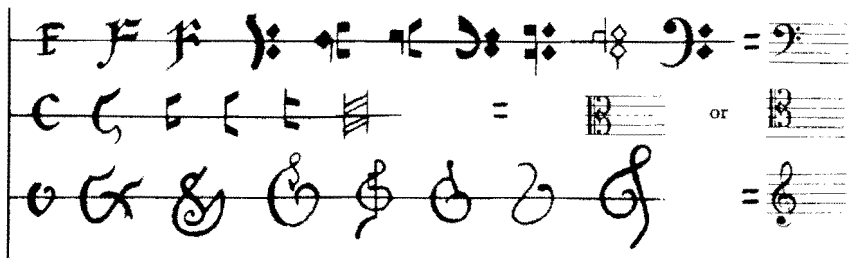


Five-line staff with white notation, 16th century



Clef signs developed from the need to designate the pitch names of the lines and spaces of the staff. The earliest clefs were representations of the letter names needed. These changed over the centuries to the forms used today.

Clefs



From Music Notation: A Manual of Modern Practice *by Gardner Read. Second Edition (Taplinger/Crescendo, 1979). © 1969 by Crescendo Publishing Company. Reprinted by permission.*

From 1600 to the present century, notation has undergone few developments. Contemporary composers express new ideas with a variety of notational devices, including conventional notation displayed in unconventional ways, new notational symbols accompanied by their own written directions, and graphic representations of the sounds the composer wishes to have produced.

The wide variety of notational devices, too numerous to be shown here, will be considered in *Advanced Harmony: Theory and Practice,* third edition. Further information can also be found in these texts: Reginald Smith Brindle, *The New Music* (London: Oxford University Press, 1975); Kurt Stone, *Music Notation in the Twentieth Century* (New York: W. W. Norton & Co., Inc., 1980); and Gardner Read, *Music Notation: A Manual of Modern Practice* (Taplinger/Crescendo, 1979).

3

Basics III

duration; time signatures

Note and Rest Values

Durations of pitch or silence may be indicated by characteristic note shapes and rest signs.

FIGURE 3.1 *Notes and Rests*[1]

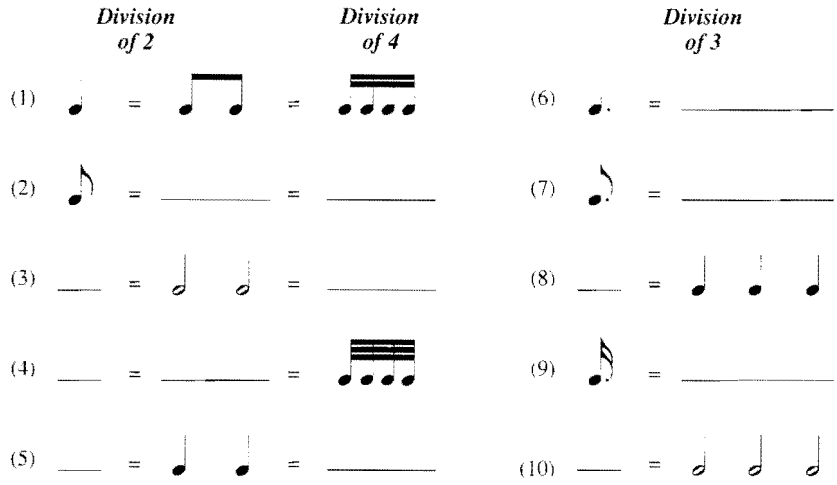
Double Whole Note	𝅜	2	Double Whole Rest	
Whole Note	𝅝	1	Whole Rest	
Half Note	𝅗𝅥	1/2	Half Rest	
Quarter Note	♩	1/4	Quarter Rest	𝄽
Eighth Note	♪	1/8	Eighth Rest	𝄾
Sixteenth Note	𝅘𝅥𝅯	1/16	Sixteenth Rest	𝄿
Thirty–second Note	𝅘𝅥𝅰	1/32	Thirty–second Rest	𝅀
Sixty–fourth Note	𝅘𝅥𝅱	1/64	Sixty–fourth Rest	𝅁

[1]The double whole note and rest are little used in post-sixteenth-century music. In many older or foreign editions of music, the quarter rest is written as 𝄽 (opposite of the eighth rest, 𝄾).

These notes do not indicate any specific duration of sound. Rather, their fractional names indicate relative durations: Any note value is twice as long as the next smaller value (= +) or half as long as the next higher value (= one half of).

Placing a dot after a note increases its value by one half—for example, . = ; . = . (The curved line is a *tie;* tied notes are performed as a single note value.) Although rests may be dotted, it is common practice to use two signs—for example, instead of . When a note is dotted, it is three times longer than the next lower undotted value (. =); or an undotted note is one third the length of the next higher dotted value (= one third of .).

DRILL #1 Fill in each blank with the appropriate note value or values.



Tempo

How long a sound or a rest is actually held can either be suggested or be specified by a *tempo (time) marking.* Most music before 1750 included no indication at all. It was assumed that a musician would understand from the character of the music itself how fast or how slow the music should be performed.

The first tempo indications were Italian words placed at the beginning of a piece, words such as *presto* (very fast), *allegro* (joyfully), *andante* (rather slow), and *largo* (very slow). Similar indications in other languages soon followed. As you can see, these words indicate tempo only in a general way.

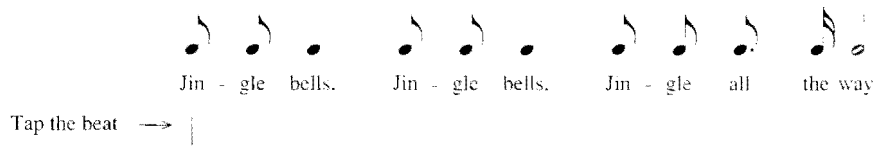
To indicate a specific duration, a marking such as M.M. = 60 often appears, meaning in this case that a quarter note has a duration of one second. M.M. stands for *Maelzel's metronome,* a ticking mechanism that Johann Maelzel claimed to have invented about 1816, and that can be set at numerous points between 40 and 208 beats per minute. Beethoven was the first composer to take advantage of metronome markings.

Although the metronome provides exact durations, exclusive reliance on it produces only mechanical results. Its use must be tempered by the performer's insight regarding the best artistic expression of the composer's ideas.

The Beat

The *beat* is a measurement that divides time into units of equal length, commonly moving you to tap your foot or your finger while listening to music. To illustrate this concept, sing "Jingle Bells" and tap as indicated in Figure 3.2. In so doing, you are dividing time into equal units, or beats, regardless of the staff notation used.

FIGURE 3.2 *Demonstration of Beats*



Grouping of Beats

As you listen for beats, as in Figure 3.2, you will note that they tend to group themselves, with one beat assuming more importance than the others. To experience this, sing "Jingle Bells" again. You should feel a grouping of two, a strong beat followed by a weaker beat (Figure 3.3*a*). Follow this by singing "America" (Figure 3.3*b*). Do you feel a three-beat grouping?

FIGURE 3.3 *Beat Groupings*

(*a*) Jin-gle bells, Jin-gle bells.

1 2 1 2

(*b*) My coun-try, 'tis of thee.

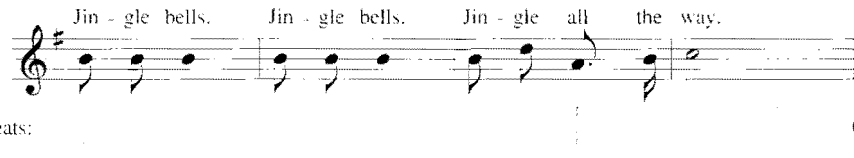
1 2 3 1 2 3

Groupings of four, commonly used in music composition, are more difficult to illustrate, since each grouping tends to sound like two groupings of two, although the third beat receives somewhat less emphasis than the first: 1 2 3 4.

Varieties of the Beat (Simple and Compound)

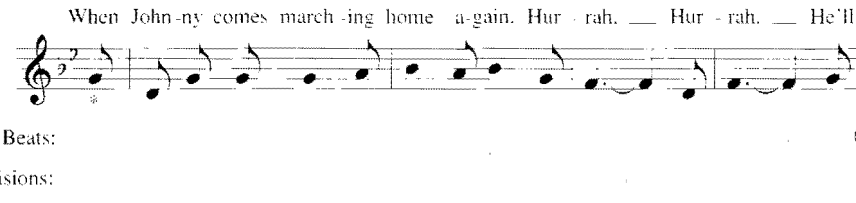
Two varieties of the beat exist: *simple beat* and *compound beat*. To illustrate the simple beat, sing "Jingle Bells" (Figure 3.2) once more. Notice that each beat has two divisions, easily demonstrated by making *two* taps instead of one at each beat. Then try tapping beats with the right hand while tapping the two simple divisions of each beat with the left hand.

FIGURE 3.4 *Tapping Simple Divisions*



The compound beat can be illustrated in the same way. Sing "When Johnny Comes Marching Home Again" (Figure 3.5). First listen for the beats and tap them. They are in groups of two. Then listen for the beat divisions and tap them. This time, there are *three* divisions for each beat.

FIGURE 3.5 *Tapping Compound Divisions*



*The first beat of a measure is known as a *downbeat*. A preceding beat or part of a beat is an *upbeat*.

In summary, beats tend to group themselves in patterns of two, three, or four. In each pattern, the beat division may be either two or three.

FIGURE 3.6 *Beat Groupings and Beat Divisions*

	Duple		Triple			Quadruple			
	1	2	1	2	3	1	2	3	4
Simple division	>	>	>	>	>	>	>	>	1 >
Compound division	>	>	>	>	>	>	>	>	>

Time Signature (Meter Signature)

A time signature consists of two numbers, one above the other (for example, $\frac{2}{4}$), at the beginning of a composition. It tells us

1. the number of beats in each grouping;
2. the division of the beat, simple or compound;
3. the notation to be used.

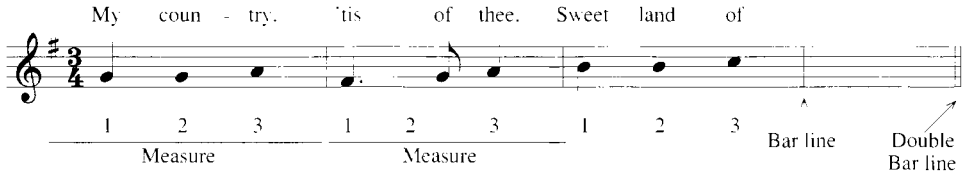
Simple Time Music in which the beat is divisible into two parts is said to be in *simple time*. The numerator (upper number) 2, 3, or 4 indicates the grouping of beats, and the denominator (lower number) indicates the simple note value receiving one beat.

In Figure 3.4, beats are grouped in twos, and the quarter ($\frac{1}{4}$) note is chosen to represent one beat. Hence, we can place a time signature of $\frac{2}{4}$ on the staff because

$\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$, or 2 (beats) times $\frac{1}{4} = \frac{2}{4}$.[2]

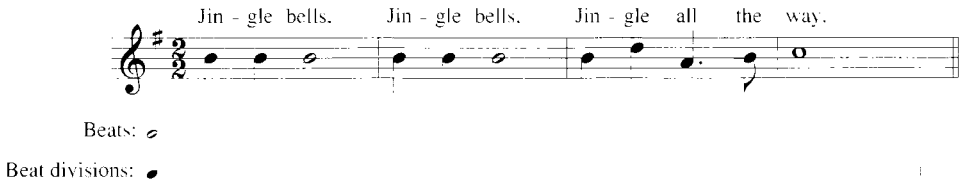
The time signature appears immediately after the key signature on the staff. When notes are placed on the staff, each beat grouping is separated by a *bar line (bar)*. The distance between two bar lines is a *measure*, and a *double bar* marks the end of a composition or the end of a major section of a composition.

FIGURE 3.7 *Bar Lines and Measures*



In simple time, any simple note value may be chosen to represent the beat—for example, a half note ($\frac{1}{2}$): $\frac{1}{2} + \frac{1}{2} = \frac{2}{2}$, or 2 (beats) times $\frac{1}{2} = \frac{2}{2}$. Notice in Figure 3.8 that the pattern below the staff is identical to that in Figure 3.4. This change in notation does *not* affect performance, assuming the duration of the beat is the same in each case.

FIGURE 3.8 *The Half Note as the Beat*



You will observe from Figure 3.9, a table of simple time signatures, that the numerators of simple time signatures are 2, 3, and 4.

2 = duple simple time (meter)

3 = triple simple time

4 = quadruple simple time

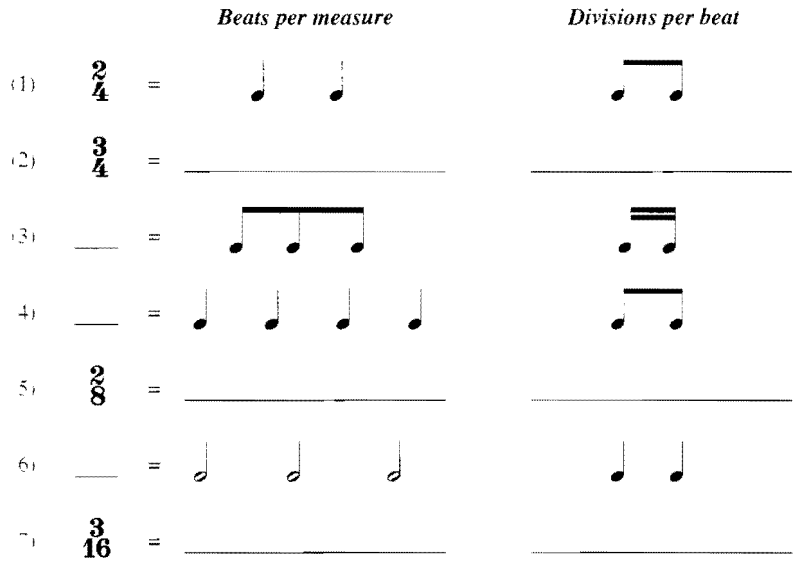
[2]The horizontal line is used for fractions but not in a time signature. Though they are arithmetical terms, "numerator" and "denominator" are convenient to describe members of the time signature.

FIGURE 3.9 *Simple Time Signatures*

Beat note		*2 beats per measure (Duple)*	*3 beats per measure (Triple)*	*4 beats per measure (Quadruple)*
𝅝	(1/1)	2/1	3/1	4/1
𝅗𝅥	(1/2)	*2/2 or ¢	*3/2	*4/2
♩	(1/4)	*2/4	*3/4	*4/4 or C
♪	(1/8)	2/8	*3/8	*4/8
𝅘𝅥𝅯	(1/16)	2/16	3/16	4/16
𝅘𝅥𝅰	(1/32)	2/32	3/32	4/32

* indicates the most commonly used time signatures

DRILL #2 Fill in the blanks, using number 1 as a guide.



Compound Time Music using compound beat values (notes with three divisions) is said to be in *compound time*. The numerators 6, 9, and 12 also represent 2, 3, and 4

beats per measure, as we will see by working out the time signature exactly as we did for simple time.

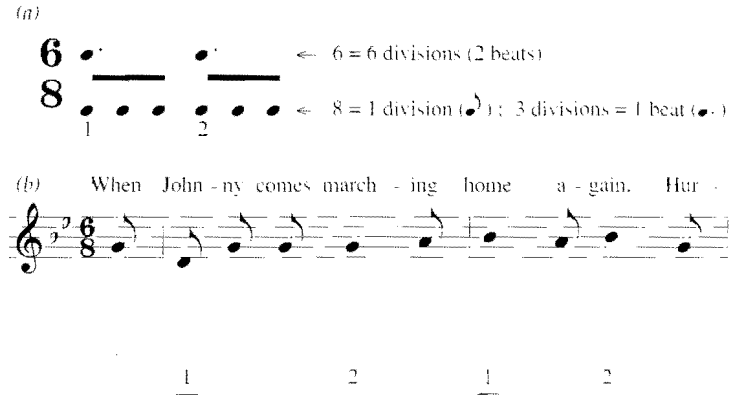
First, repeat the tapping exercise in Figure 3.5. Sing the tune and tap the beats. Result: beat groupings of two. Next, tap the beat divisions. Result: three divisions for each beat.

Next, choose a note to represent the beat. Only a dotted note can have three divisions. Choosing a commonly used dotted-note value, the dotted quarter note (♩.), we find its fractional value to be $\frac{3}{8}$. The time signature must be $\frac{6}{8}$ because

$\frac{3}{8} + \frac{3}{8} = \frac{6}{8}$, or 2 (beats) times $\frac{3}{8} = \frac{6}{8}$.

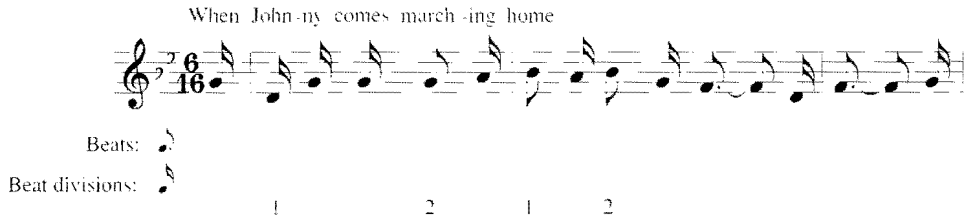
Confusion about compound time signatures stems from the fact that the numerator, instead of indicating how many beats per measure, actually shows the number of *beat divisions* per measure, and the denominator indicates the *note value of the beat division*, as shown in Figure 3.10*a* and on the staff in Figure 3.10*b*.

FIGURE 3.10 *Compound Time Signature ($\frac{6}{8}$ Time)*



Again, we could have chosen a different note value to represent the beat—for example, a ♩.: $\frac{3}{16} + \frac{3}{16} = \frac{6}{16}$. The pattern below Figure 3.11 is identical to that in Figure 3.5.

FIGURE 3.11 *Example of $\frac{6}{16}$ Time Signature*



Observe from the table of Compound Time Signatures in Figure 3.12 that the numerators of signatures are 6, 9, and 12, representing 2, 3, and 4 beats per measure.

6 = duple compound time
9 = triple compound time
12 = quadruple compound time

FIGURE 3.12 *Compound Time Signatures*

Beat note	*2 beats per measure (Duple)*	*3 beats per measure (Triple)*	*4 beats per measure (Quadruple)*
𝅝. (3/2)	6/2	9/2	12/2
𝅗𝅥. (3/4)	*6/4	*9/4	12/4
♩. (3/8)	*6/8	*9/8	12/8
𝅘𝅥𝅯. (3/16)	*6/16	*9/16	*12/16
𝅘𝅥𝅰. (3/32)	6/32	3/32	12/32

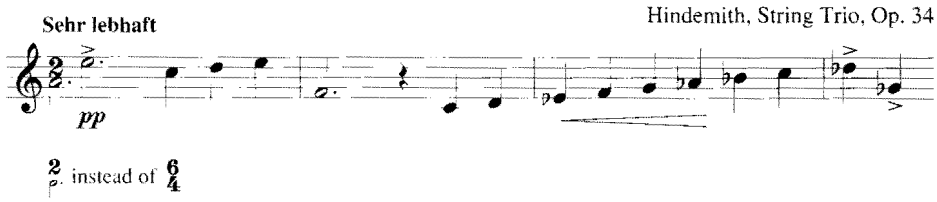
* indicates the most commonly used time signatures

DRILL #3 Fill in the blanks, as in Drill #2 (page 45).

			Beats per measure	*Divisions per beat*
(1)	6/8	=	_____	_____
(2)	9/8	=	_____	_____
(3)	____	=	𝅗𝅥. 𝅗𝅥.	♩ ♩ ♩
(4)	12/8	=	_____	_____
(5)	6/16	=	_____	_____
(6)	____	=	𝅘𝅥𝅯. 𝅘𝅥𝅯. 𝅘𝅥𝅯.	♩ ♩ ♩
(7)	____	=	𝅗𝅥. 𝅗𝅥. 𝅗𝅥. 𝅗𝅥.	♩ ♩ ♩

An example of a better but little used way of writing compound time signatures is seen in Figure 3.13, in which the composer has used $\frac{2}{\text{𝅗𝅥}}$ instead of $\frac{6}{4}$. In the same way, the common time signature $\frac{6}{8}$ would be written $\frac{2}{\text{𝅗𝅥}.}$ and $\frac{2}{4}$ would be written $\frac{2}{\text{𝅗𝅥}}$. If all time signatures, both simple and compound, were written in this manner, interpretation of any time signature would be much easier.

FIGURE 3.13

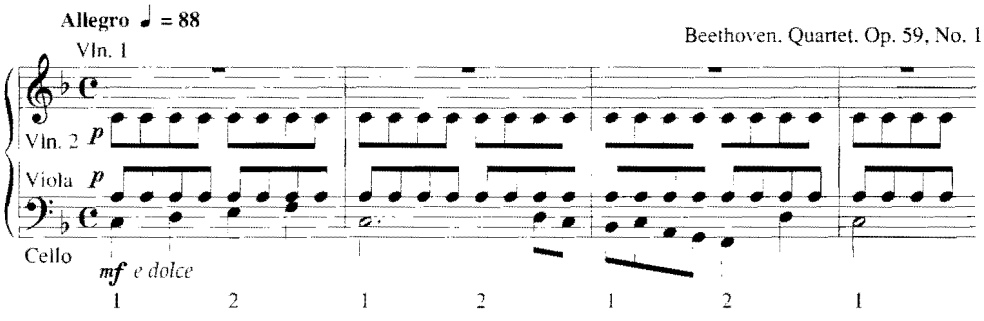


Other Interpretations of Time Signatures

In any time signature the upper number always indicates how many of the note values expressed by the lower number will be found in one measure. Although interpretations of time signatures such as those just presented are generally useful, there are occasions when a very fast or a very slow tempo requires a different interpretation.

In a Fast Tempo In music in a fast tempo with a signature of $\frac{4}{4}$, there may actually be two half-note beats rather than four beats per measure. This is often indicated by a metronome marking, such as 𝅗𝅥 = 88 as used by Beethoven in Figure 3.14.

CD FIGURE 3.14

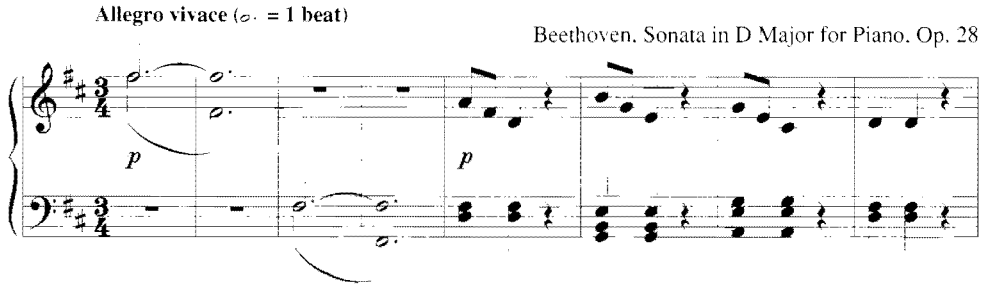


When a fast tempo is indicated but no metronome marking is present, any decision to interpret $\frac{4}{4}$ or **c** as two beats in a measure must depend upon a subjective evaluation of the composer's intent. In the case of many well-known works, such interpretations have become traditional, as can be heard in the final movement of Mendelssohn's

Symphony No. 4 (*Italian*), Op. 90 (tempo marking *Presto*), or in the final movement of Tchaikovsky's Symphony No. 4, Op. 64 (tempo marking *Allegro con fuoco*).

Similarly, a fast tempo with a signature of $\frac{3}{4}$ or $\frac{3}{8}$ is often performed with one beat per measure. In Figure 3.15, each dotted half note receives one beat with a division of three quarter notes. The aural effect is that of compound time, one beat per measure.

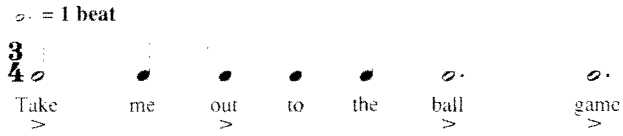
CD FIGURE 3.15



Why did Beethoven write this example in $\frac{3}{4}$, rather than using the duple compound time signature of $\frac{6}{4}$ 𝅗𝅥. 𝅗𝅥 𝅗𝅥. 𝅗𝅥 ? Composers use $\frac{3}{4}$ instead of $\frac{6}{4}$ (or $\frac{3}{8}$ instead of $\frac{6}{8}$) in those fast tempi in which every third division has an equally strong accent like that in Figure 3.15, in contrast to $\frac{6}{4}$ (or $\frac{6}{8}$) in which the first division is stronger than the fourth:

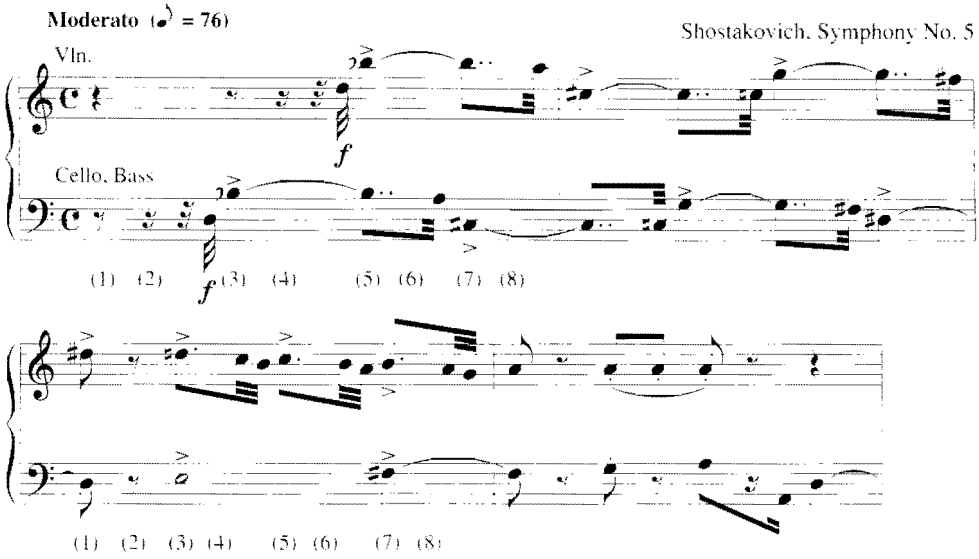
The same is true of the popular tune "Take Me Out to the Ball Game," in which the composer has used $\frac{3}{4}$ instead of a duple compound signature to emphasize the strong accent on each third division.

FIGURE 3.16



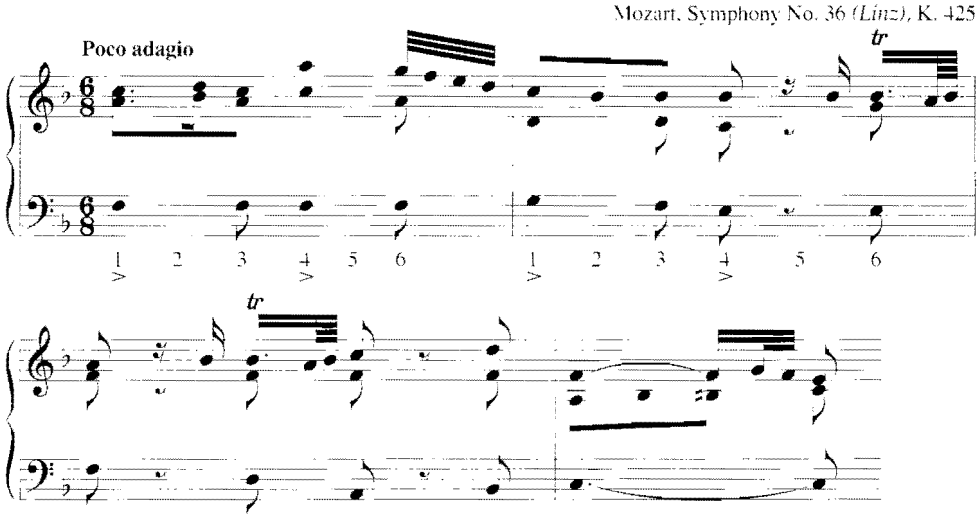
In a Slow Tempo In simple time, the division of the note value indicated in the denominator of the signature may sound as the beat value. In the slow $\frac{4}{4}$ of Figure 3.17, the aural effect is that of eight beats per measure.

CD FIGURE 3.17



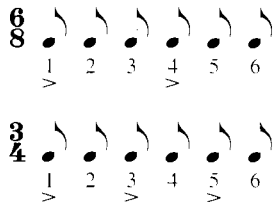
In compound time with a very slow tempo, the lower number of the time signature indicates the note value receiving one beat.

CD FIGURE 3.18



Observe that the numerator 6 in a very slow tempo still represents duple compound time because of the stress placed on the first and fourth beat divisions. The numerator 3 in a very slow tempo also has six beat divisions but represents triple simple time because the stress is on the first, third, and fifth beat divisions.

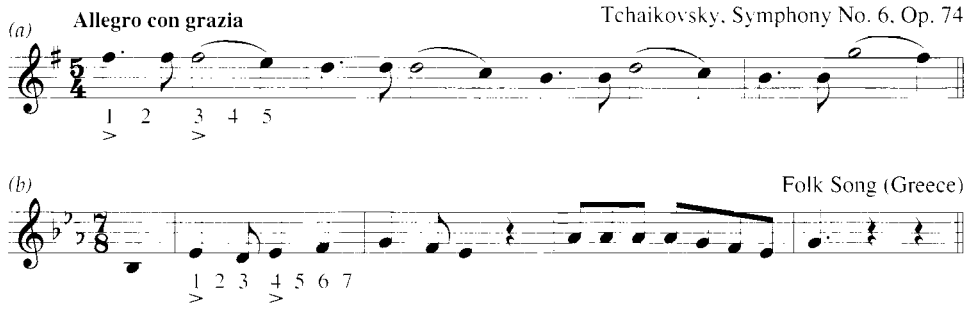
FIGURE 3.19



Numerators of 5 and 7; Other Numerators A numerator of 5 usually indicates simple time in which each measure includes a group of two beats and a group of three beats—for example, $\frac{5}{4}$ 𝅗𝅥 𝅘𝅥 𝅘𝅥 𝅘𝅥 𝅘𝅥 or 𝅗𝅥 𝅘𝅥 𝅘𝅥 𝅗𝅥 𝅘𝅥 . A numerator of 7 similarly indicates various groups of two beats and three beats: 3 + 2 + 2, 2 + 2 + 3, or 2 + 3 + 2—for example $\frac{7}{8}$ 𝅗𝅥 𝅘𝅥 𝅘𝅥 𝅗𝅥 𝅘𝅥 𝅗𝅥 𝅘𝅥 or $\frac{7}{4}$ 𝅗𝅥 𝅗𝅥 𝅗𝅥 𝅗𝅥 .

The desired grouping can be indicated in several ways: by beaming notes, by using phrase marks or accent marks, and by separating the groups with a vertical dotted bar line.

FIGURE 3.20



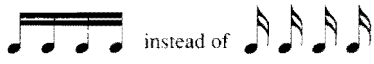
Many other signatures exist, used primarily in twentieth-century music. Some examples are $\frac{10}{4}$, $\frac{8}{8}$, $\frac{15}{8}$, $\frac{3\frac{1}{2}}{4}$, $\frac{3+2+2}{4}$, and $\frac{6}{8}\,\frac{2}{4}$.[3]

These examples point out the difficulty the composer often encounters in choosing a time signature that best represents the rhythmic and metric intentions of the music. Consequently, it is most important that the performer not rely solely on the time signature but make sufficient study of the music to determine the time signature's intent.

[3] See Gardner Read, *Music Notation* (Boston: Allyn & Bacon, 1969), chap. 10.

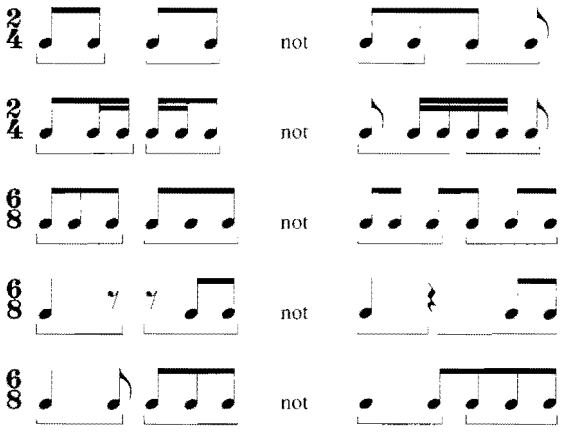
Beaming Notes for Rhythmic Clarity

Notes employing flags may be grouped together with beams.

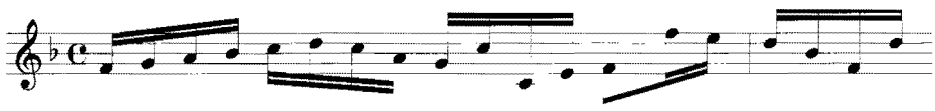


Notes ordinarily should be beamed according to beat units. In the following example, _____ indicates a beat unit.

FIGURE 3.21

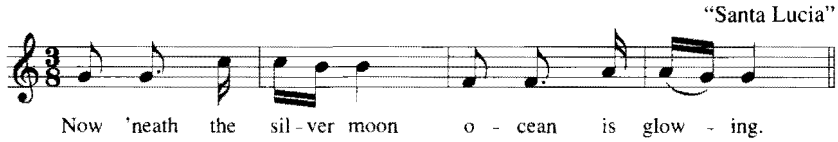


When you place a group of beamed notes on the staff, use a stem direction that is correct for the majority of notes in the group.



In vocal music, beams traditionally are used only when two or more notes are found on a single syllable. Recent practice allows beaming when syllables are carefully placed below beamed notation (beamed sixteenth notes in measure 2 of Figure 3.22). The curved line (*slur*) under "glow-" shows that the two notes are sung on a single syllable.

FIGURE 3.22

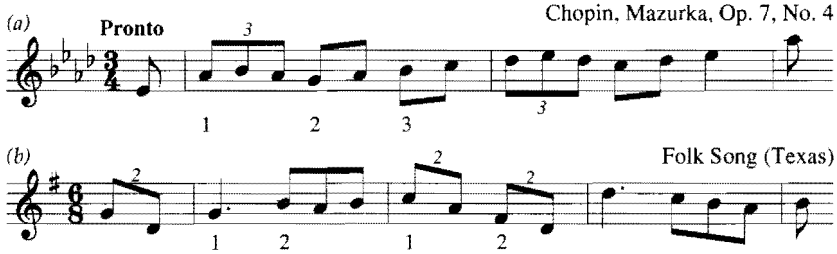


Triplets, Duplets, and Quadruplets

A *triplet* is a group of three notes dividing a simple note value into three equal parts (= ; =). Since the division is not mathematically accurate, a "3" is placed above the beam or the stems of the group. The triplet in $\frac{2}{4}$, for example, has the same duration as a or . Other examples are = = (three sixteenths have the same duration as two sixteenth notes) and = = (three quarter notes have the same duration as two quarter notes).

Similarly, a *duplet* is a group of two notes dividing a compound note value into two equal parts (= =). A *quadruplet* is a combination of two duplets (= or).

FIGURE 3.23

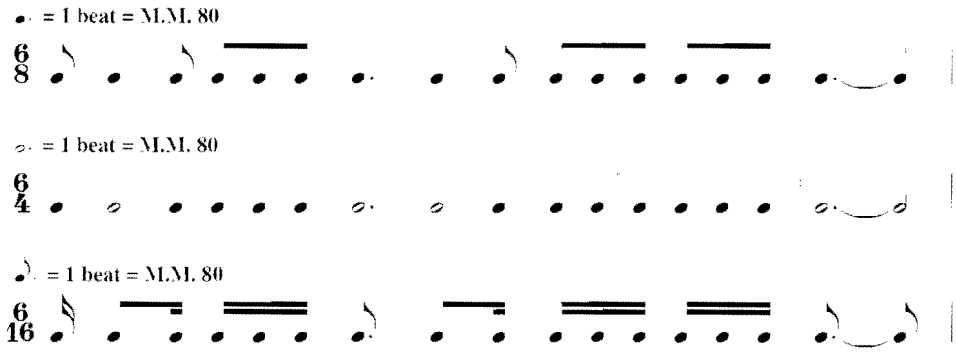


Rhythmic Transcription

Now that you have studied the derivation of time signatures, it should be obvious that any two or more time signatures with identical numerators designate the same meter.

If, for example, you hear music that you can identify as being in duple compound time, you can assume that the numerator of the time signature is 6, but it would be absolutely impossible to tell which of the possible denominators the composer had used. It could be any of them, since the denominator affects only the notation to be used. The same music with like numerators but with differing denominators will sound identical when the tempo of the beat is equal in each.

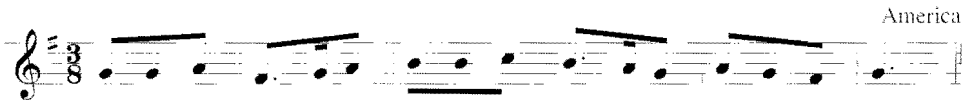
FIGURE 3.24



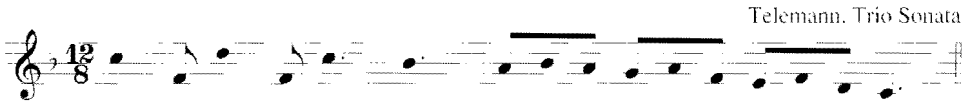
DRILL #4 Rewrite each of these melodies using the time signatures indicated.

1. In $\frac{4}{2}$ and $\frac{4}{8}$

2. In $\frac{3}{4}$ and $\frac{3}{16}$

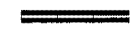


3. In $\frac{12}{16}$ and $\frac{12}{4}$



BASICS QUIZ #3

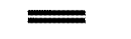
1. Write the single note value equivalent to the given group. Example: =

a.  _____

b.  _____

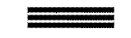
c.  _____

d.  _____

e.  _____

f.  _____

g.  _____

h.  _____

2. Describe each time signature as shown in the example.

			Description		*Beat note*	*Divisions*
Example:	$\frac{2}{4}$	=	duple	simple		
a.	$\frac{3}{4}$	=				
b.	$\frac{6}{8}$	=				
c.	$\frac{4}{2}$	=				
d.	$\frac{9}{8}$	=				
e.	$\frac{12}{4}$	=				
f.	$\frac{2}{2}$	=				
g.	$\frac{12}{16}$	=				
h.	$\frac{3}{16}$	=				

In Appendix E: Answers to all questions in Quiz #3 are given.

ARTICLE #2

Early Rhythmic Notation

In the history of the notation of rhythm, the time signature made its appearance at a comparatively late date. One reason for this is that music before the seventeenth century did not make use of bar lines, and another is that a note value did not come to indicate a specific division (such as 𝅗𝅥 = ♩ ♩) until about the same time.

The earliest notation, as found in the religious chants of the eighth and ninth centuries, represented pitch only. How the rhythmic element of this plainchant notation was interpreted is still not entirely clear.

The first measurable rhythmic notation was produced in the thirteenth century. In this system, the duration of each note depended upon what note value or values followed it. The system, called *mensural notation* and developed by Franco of Cologne about 1280, was used to represent the rhythmic modes—a series of six rhythmic patterns, each representing the triple division in which the music of the time was composed.

Observe in the figure that the *longa* (𝄽) equals a quarter note at some times and a dotted quarter note at others, depending on the context. The same principle holds true for the *breve* (𝅜). This music needed no time signatures. Its symbols were often combined into groups called *ligatures;* for example, 𝅜 𝄽 , 𝅜 𝅜 , and 𝅜 𝄽 𝅜 . Another example can be seen in the article "Pitch Notation from Earliest Times," on page 37.

Mensural notation

About 1320, Philippe de Vitry, in his treatise *Ars Nova (The New Art),* recognized duple rhythm (note values divisible by two) as well as triple rhythm. Also at this time, white notation was gradually replacing much of the black notation. To indicate division of note values into two or three, a system of *mensural signatures* was devised about 1450. But in this system, the actual value of a given note was still determined by its relation to the preceding or following note (again, review page 37).

Signature	Divisions	Modern Notation, if ▭ = 𝅗𝅥 or 𝅗𝅥.
C	▭ = ◇ ◇, ◇ = ♩ ◇	𝅗𝅥 = ♩ ♩, ♩ = ♫
○	▭ = ◇ ◇ ◇, ◇ = ♩ ◇	𝅗𝅥. = ♩ ♩ ♩, ♩ = ♫
⊙	▭ = ◇ ◇, ◇ = ♩ ♩ ◇	𝅗𝅥. = ♩. ♩., ♩. = ♬
⊙	▭ = ◇ ◇ ◇, ◇ = ♩ ♩ ♩	𝅗𝅥. ‿ ♩. = ♩. ♩. ♩., ♩. = ♬

Of these four signatures, the time signature C still remains, indicating duple division at all levels and now used to indicate $\frac{4}{4}$ meter. Another mensural signature, ¢ indicated that all notes following it were to be taken twice as fast as before. Known as *cut time* or *alla breve* (the symbol 𝅗𝅥 in the preceding table is called a *breve*), it is still used today to indicate $\frac{2}{2}$ meter. The time signatures we use today had developed by the early seventeenth century, and they have remained virtually unchanged since that time.

ARTICLE #3

What Is Music Theory?

A Prelude to the Study of Harmony

Music is universal. It exists in some form in every part of the world inhabited by humans. Its existence for thousands of years is attested to by references to music in humankind's earliest writing, pictures, and artifacts. During all this time, and in all these places, music has developed in a multitude of ways, each expressing the historical era and the local culture of its creators. In our own day, the number of ways in which the music of Western culture is expressed makes an impressive list: symphonic, folk song, military march, rock and roll, liturgical mass, jazz, and electronic music, to name only a few.

These diverse forms of musical expression have one characteristic in common: All use as their raw material the resources of sound—pitch, duration, intensity, and timbre. The art of composing music is dependent upon the skill of the composer in making choices from the raw materials of sound and in organizing those choices in ways that produce a successful composition.

The study of music theory is, in the broadest sense, the study of how sound has been organized to make music, regardless of geographical location or historical period. Obviously, a complete study of music theory would be one of great magnitude. But the task is simplified somewhat by the fact that throughout music history, ways of organizing musical sound in a given geographical area or a given historical period are often similar, making it convenient for the scholar or the student to concentrate on one such area or period at a time. Our present study will focus on music composed in western Europe and the areas under its influence, particularly the Americas, between the approximate dates 1600 and 1900, with comparative references to earlier styles, culminating in a survey of twentieth-century music. The era chosen encompasses the Baroque, Classical, and Romantic periods of music history and includes many of the best-known names in present-day concert repertoire, from J. S. Bach through such composers as Mozart, Beethoven, and Chopin, and at the end of the era, Brahms and Wagner.

It was during this period that harmony was a predominant characteristic of music composition. Harmony, defined broadly, results when two or more pitches sound simultaneously or in close succession. In this sense, most music of any period could be described as harmonic. But music of the period from about 1600 to about 1900 makes almost exclusive use of a system of tonal harmony so pervasive that the era is often known as the *common practice period.* Its principal characteristics are

1. chords built in thirds, such as C E G, called *tertian* harmony;
2. two scale systems, major and minor;
3. a tonal center represented by the tonic tone of a major or minor scale and a triad built on that tone, to which all tones and chords gravitate;
4. a certain predictability in the order of the various chords as they gravitate toward the tonic, a process often called *functional harmony.*

Before about 1600, music composition was based upon a system of six different scales, called *modes* (see Appendix D), and upon the concept of *counterpoint*—the simultaneous sounding of two or more melodic lines, their juxtaposition dependent upon the interval between any upper voice and the lowest sounding voice (see the example in the article on page 198). Counterpoint has been used extensively since 1600 but in addition to harmonic or other bases.

Since about 1900, composers of "serious" music have experimented with new ways of musical expression through nontertian and nontonal harmony, nontraditional uses of melody and rhythm, and use of new sound resources such as synthesizers and computers. Tonal music, however, is still widely used in the twentieth century and can commonly be heard in commercial music (radio, TV, motion pictures, "elevator music," and so forth) and in much educational and popular music.

4

Tonic and Dominant I

cadences

Beginning in this chapter, many assignments will be followed by one or two references to the locations of their answers. One of these references, In Appendix E, *indicates that answers are given in whole or in part, as indicated. The other,* In the Workbook, *indicates that a similar assignment using the same assignment number, such as* Assignment 4.1, *will provide additional practice, with answers. At appropriate places, there will be reference to additional assignments with given answers for closely related material; these are identified with a reference such as* Assignment 4A. *Lack of reference to an assignment in the* Workbook *indicates that no answers are given for that assignment.*

The Cadence

We will begin our study of harmony with an excerpt from the music of Bach, the well-known "Jesu, Joy of Man's Desiring," to illustrate the concept of *cadence,* a universal characteristic of music composition. First, listen to the music in Figure 4.1.

After you have listened to the music, sing the melody line of Figure 4.1, with or without the piano accompaniment. As you arrive at the final note, you should feel satisfied that you have come to a good stopping place and that there is no necessity to continue.

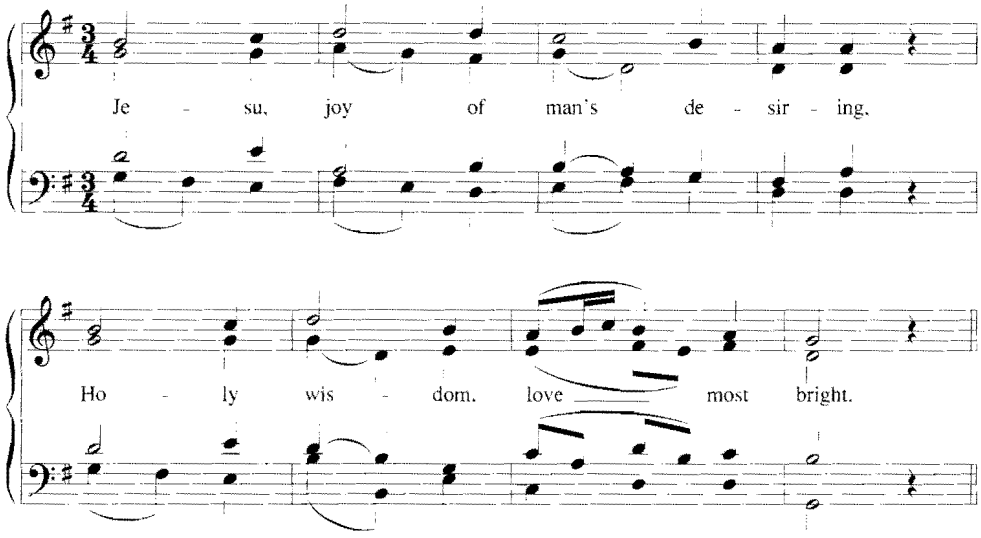
The sensation of arriving at a stopping place indicates the location of a cadence. You may have noticed another stopping place at the end of measure 4. But in this case, the cadence seems to be only temporary, requiring that the music continue. Poetry also exhibits these traits. In this stanza from an American folk ballad, note the two temporary pauses and the final stop at the end:

> When the curtains of night
> Are pinned back by the stars, *(pause)*
> And the beautiful moon sweeps the sky, *(pause)*
> I'll remember you, love, in my prayers. *(final stop)*[1]

[1] From Carl Sandburg's *The American Songbag* (1927).

FIGURE 4.1

Bach, *Herz und Mund und That und Leben,*
"Jesu, Joy of Man's Desiring," BWV 147



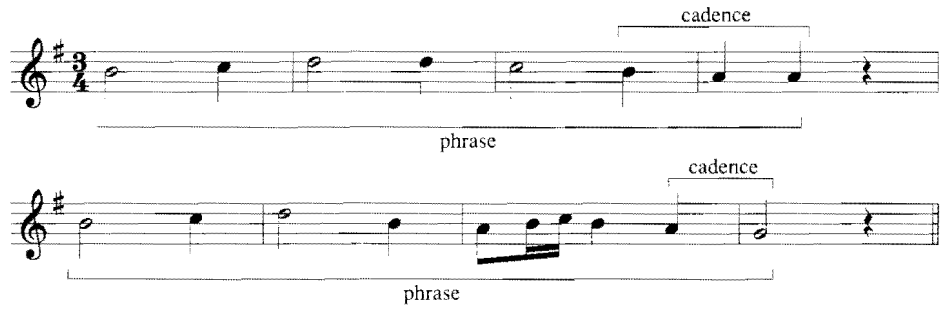
As you read the poem or sing the melody above, the function of the cadence is clear: to mark a pause, complete or incomplete, in the poetic or musical thought being expressed. In this way, cadences make it possible for poetry or music to be a true structure, rather than just a nonstop flow of words or pitches.

The Cadence in Relation to Form

The structure of a piece of music is known as its *form*.[2] The terminology of music form describes all aspects of musical structure, from the smallest unit of pitch or rhythm to the complete composition. In Figure 4.1, a cadence appears at the end of each group of four measures, and each marks the end of a "form," which in this case is called a *phrase*. The two phrases together, one with a temporary cadence and the other with a full stop, constitute a form known as a *period*, as shown in Figure 4.2, the melody line from Figure 4.1.

[2]Form is presented in more detail in Chapter 7.

FIGURE 4.2 *Form in a Melodic Line*



The final goal of a melodic line is commonly the tonic note of the key, as shown in Figure 4.2. The same is true in harmony: The ultimate goal of a series of chords is almost invariably the tonic triad. It is this feeling of reaching a goal, the tonic, that establishes aurally a sense of key in a composition. The pitch name of this tonic tone is also the name of the key. In listening to the Bach example (Figure 4.1), we recognize the sound of the final melody note and the final bass note as being tonic. By looking at the score and seeing that both notes are G, we know that G represents finality and, therefore, that the music is in the key of G.

Harmony at the Cadence (Major Keys)

In harmony, a cadence is usually found as the last two chords of a formal structure.[3] Most commonly, the chords dominant, V or V^7, and tonic constitute the cadence (review page 27 for roman numeral symbols). Looking at the final cadence of Figure 4.3, we see that the final two chords, the cadence, make use of the triads V and I (D F♯ A and G B D). In Figure 4.1, also in G major, the cadence is V^7–I (D F♯ A C–G B D). The two cadences are shown side-by-side for comparison in Figure 4.4.

[3] Cadences in the music of any historical era or geographical location fulfull the same function as those described here. For a few examples of cadences from music of other times and places, see the article "The Universality of the Cadence," on page 82

CD FIGURE 4.3

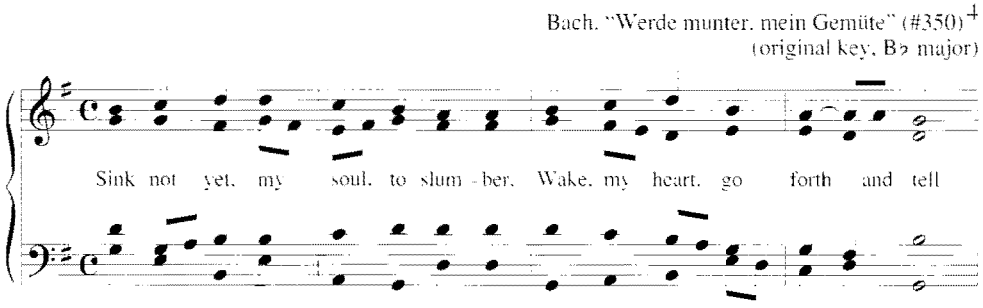
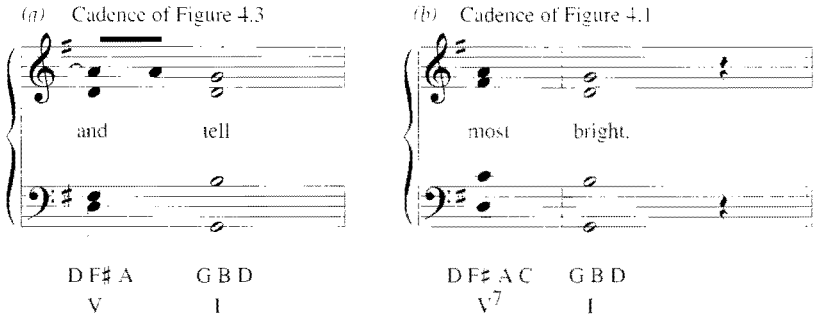


FIGURE 4.4 *Comparison of Cadences*

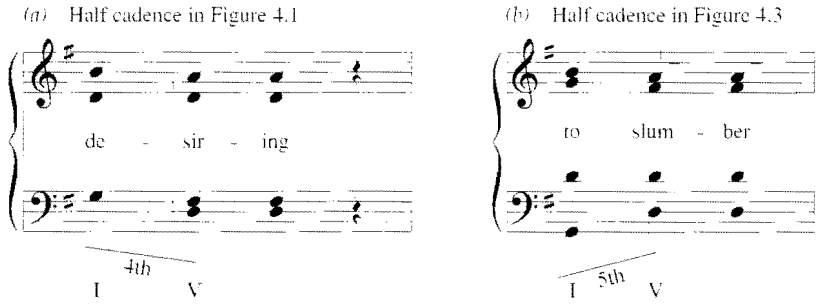


Both cadences in Figure 4.4 are called *authentic* cadences, a term describing a cadence with a root movement from dominant to tonic. The presence or absence of a seventh in the chord is not relevant. It might seem that we should study the easier chord, V, before V^7. But since V^7 is used far more frequently than V, we need to consider both.

When a cadence ends on any chord other than the tonic triad, it is called a *half cadence*. Figure 4.5 shows the half cadences, I–V, from the music of Figures 4.1 and 4.3.

†The number is that of the chorale in the collected editions of chorales of J. S. Bach, such as *The 371 Chorales of Johann Sebastian Bach*, edited, with the original instrumental obbligatos and with English texts, by Frank D. Mainous and Robert W. Ottman (New York: Holt, Rinehart & Winston, 1966). Excerpts from these chorales will be used extensively in this text.

FIGURE 4.5 *Half Cadences*



Is there a difference in these half cadences? Look again at the two half cadences in Figure 4.5. Both are I–V, but the root movement in the first is G down to D, a perfect fourth, whereas in the other the root movement is up a perfect fifth, but still G to D. Here is an example of the *inversion* of intervals as discussed on page 24. Since each interval is the inversion of the other, there is no change in the harmonic structure, so the two cadences are analyzed identically.

Root relationship by perfect fifth, as illustrated in cadential harmony, is probably the most important element delineating the character of tonal harmony. Chord movements based on roots a fifth apart are more common than others, and the most common key relationships are based on this interval, as in the circle of fifths (page 13).

As a diversion, we wish to point out that there is a strong similarity other than in cadences between Figures 4.1 and 4.3. Look at these figures carefully; sing or listen to both. Can you see or hear the similarity? They use the same melody![1] In devising the melody of "Jesu, Joy of Man's Desiring" from the chorale tune of Figure 4.3, what changes did Bach make? Sing or play the melody of each again and it should be obvious.

Spelling Tonic and Dominant Chords (Major Keys)

Further study of cadences will be easier if you are sure that you can spell the I, V, and V^7 chords quickly and accurately in any key. Here are two ways to do this:

1. For any diatonic chord, the chord number is the same as the scale step upon which it is built. From that letter name, spell in thirds by skipping over every other note of the scale. In these examples, the letter names skipped are in parentheses.

C major: I = C (d) E (f) G = C E G
B major: V = F♯ (g♯) A♯ (b) C♯ = F♯ A♯ C♯
V^7 = F♯ (g♯) A♯ (b) C♯ (d♯) E = F♯ A♯ C♯ E♯

[1]This melody was originally a hymn tune written by Johann Schop in 1642. Bach's harmonization of this melody is one of five to be found in *The 371 Chorales*; the others are 95, 121, 233, and 365.

2. Any major triad, diatonic or altered, can easily be spelled by using the following groups. Since there are but seven letter names, there are only seven possible triad spellings without accidentals. Three of these are already major, three are minor, and one is diminished; the triads can be grouped accordingly.

Group I *(major)*			Group II *(minor)*			Group III *(diminished)*		
C	E	G	D	F	A	B	D	F
F	A	C	E	G	B			
G	B	D	A	C	E			
-	-	-	-	↑	-	-	↑	↑

Group I. Triads in Group I will always be major when each member carries no accidental or when each carries the same accidental, as indicated by the symbol - - -.

C	E	G,	C♯	E♯	G♯,	C𝄪	E𝄪	G𝄪,	C♭	E♭	G♭,	C𝄫	E𝄫	G𝄫
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group II. Triads in Group II will be major when the third carries an accidental one half step higher than the root and the fifth (- ↑ -).

A	C♯	E,	A♯	C𝄪	E♯,	A♭	C	E♭,	A𝄫	C♭	E𝄫
-	↑	-	-	↑	-	-	↑	-	-	↑	-

Group III. This single triad on the pitch name B is major when the third and the fifth carry an accidental one half step higher than the root (- ↑ ↑).

B	D♯	F♯,	B♯	D𝄪	F𝄪,	B♭	D	F,	B𝄫	D♭	F♭
-	↑	↑	-	↑	↑	-	↑	↑	-	↑	↑

This system is especially helpful when spelling a triad from its third or its fifth. For example, how would you spell a major triad whose third is F𝄪?

1. If F𝄪 is 3, the basic triad is D F A.
2. D F A is in Group II, - ↑ -, in which the third carries an accidental one half step higher than the root or the fifth.
3. The accidental 𝄪 is a half step higher than the accidental ♯; therefore, the root and the fifth are D♯ and A♯. The complete triad is D♯ F𝄪 A♯.

ASSIGNMENT 4.1 *(a)* Spell major triads when the given name is the root.

From Group I: F, F♯, F♭; G, G♯, G♭

From Group II: D, D♯, D♭; E, E♯, E♭

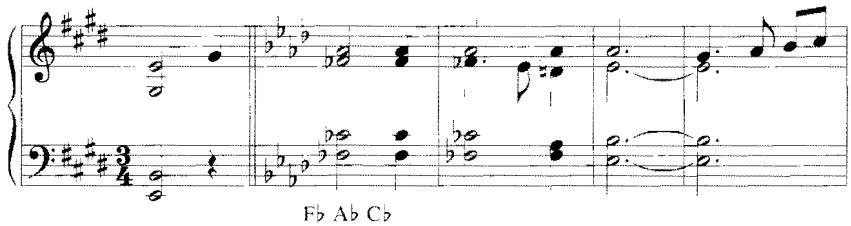
ARTICLE #4

The "Difficult" Triad Spellings

When spelling triads, you may feel that some are too complex to be useful. As your knowledge of harmony expands, you will find more and more of these triads in the music you study. Here are two examples: (1) F♭ A♭ C♭, the enharmonic of E G♯ B and used as the triad built on ♭$\hat{6}$ (F♭) in the key of A♭ major; and (2) D♯ F𝄪 A♯, used as the dominant triad in G♯ minor.

EXAMPLE 1

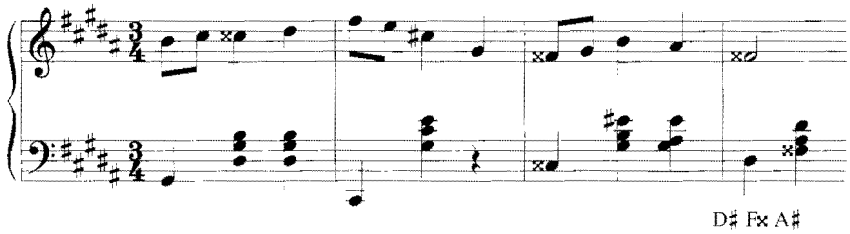
Schubert, *Moment Musical*, D. 780, No. 6



F♭ A♭ C♭

EXAMPLE 2

Chopin, Mazurka, Op. 33, No. 4



D♯ F𝄪 A♯

(b) Spell major triads when the given name is the third.

G♯, B, F♯, B♭, D, F𝄪, C♯, D♭, B, A♯

(c) Spell major triads when the given name is the fifth.

C, B, F♯, A♭, F, G♯, B♭, A♭, E♯, G♭

In Appendix E: Answers to the entire assignment are given.
In the Workbook: Do Assignment 4.1a–c. Answers are given.

ASSIGNMENT 4.2 Spell the I, the V, and the V^7 in each major key. Start with C major and work through the circle of fifths (review page 13) as begun for you below. In V^7, the seventh is $\hat{4}$. In C major, $\hat{4}$ is F. Adding F to G B D produces the V^7, G B D F.

	I	V	V^7
C:	C E G	G B D	G B D F
G:	G B D	D F♯ A	D F♯ A C
D:	D F♯ A	A C♯ E	A C♯ E G

In the Workbook: Do Assignment 4.2. Answers are given.

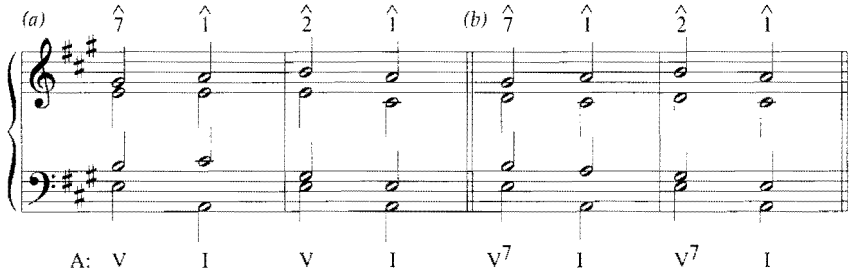
Cadences Incorporating Dominant Harmony

Perfect Authentic (PA) These are the characteristics of the perfect authentic cadence:

1. The progression is V–I or V^7–I, each chord with its root in the bass.
2. In the tonic triad (I), $\hat{1}$ is found in both soprano and bass.
3. The soprano line is usually $\hat{7}$–$\hat{1}$ or $\hat{2}$–$\hat{1}$.

The cadences of Figure 4.6*a* are perfect authentic, V–I, soprano lines $\hat{7}$–$\hat{1}$ and $\hat{2}$–$\hat{1}$. The cadences of 4.6*b* are the same except for the use of V^7. Review Figures 4.1 and 4.3; both show perfect authentic final cadences.

FIGURE 4.6 *Perfect Authentic Cadences*

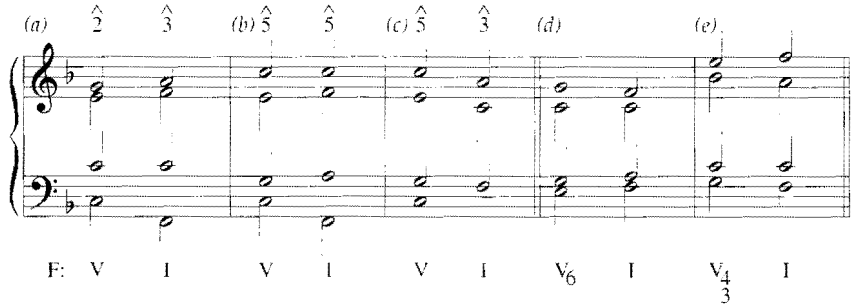


Imperfect Authentic (IA) These are the characteristics of the imperfect authentic cadence:

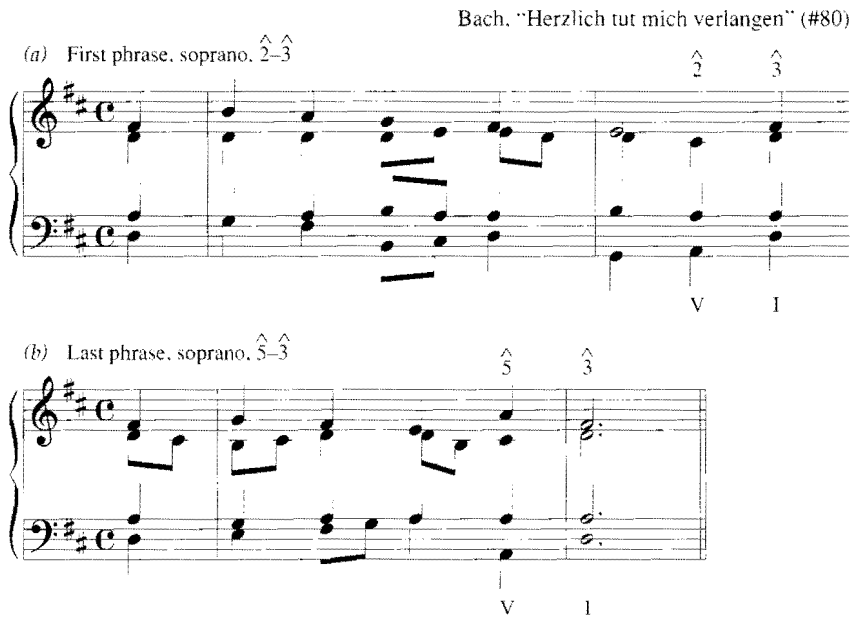
1. The progression V–I or V^7–I deviates in some way from a perfect authentic cadence; for example,
   a. The soprano note in the final tonic triad is $\hat{3}$ or $\hat{5}$.
   b. One or both chords are in inversion (review "Inversion of Chords," page 24).
2. The soprano line is usually $\hat{2}$–$\hat{3}$, $\hat{5}$–$\hat{5}$, or $\hat{5}$ down to $\hat{3}$ (Figure 4.7).

Figure 4.8, the first and last phrases of a chorale, shows two different imperfect authentic cadences.

FIGURE 4.7 *Imperfect Authentic Cadences*

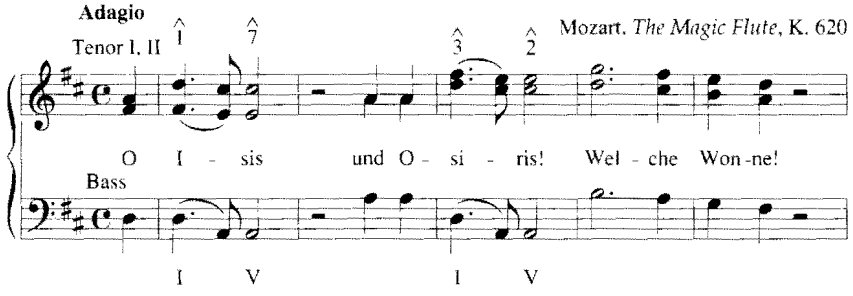


CD FIGURE 4.8



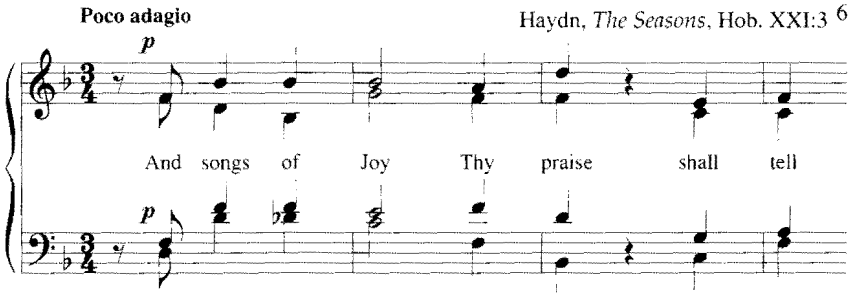
Half Cadence (HC) Any cadence ending on a chord other than the tonic triad is a half cadence, the most common being I–V. (Note that this cadence is *not* called an "authentic half" cadence.) The cadences of Figure 4.5 are half cadences. There are several soprano movements: $\hat{1}$–$\hat{7}$, $\hat{1}$–$\hat{2}$, $\hat{3}$–$\hat{2}$, $\hat{5}$–$\hat{5}$, and by various skips. Figure 4.9 illustrates two half cadences, each closing a two-measure idea.

CD FIGURE 4.9



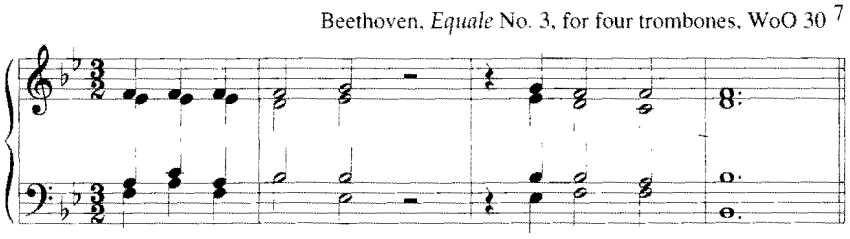
ASSIGNMENT 4.3 Describe the cadence in each of these excerpts, naming the key and the cadence (PA, IA, HC) and indicating the scale steps of the melodic line. For Figure 4.8*b*, the answer is: Key D ; Cadence IA ; Melody line $\hat{5}$–$\hat{3}$.

CD (1)



Key _____ Cadence _____ Melody line _____

(2)



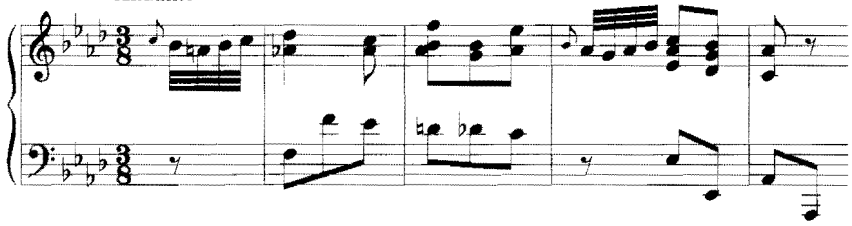
Key _____ Cadence _____ Melody line _____

[6] Hob.: abbreviation for Anthony von Hoboken, who in 1957 catalogued Haydn's works.
[7] WoO: abbreviation for "Work without opus number."

CD (3)

Andante

Beethoven, Sonata for Piano, Op. 26

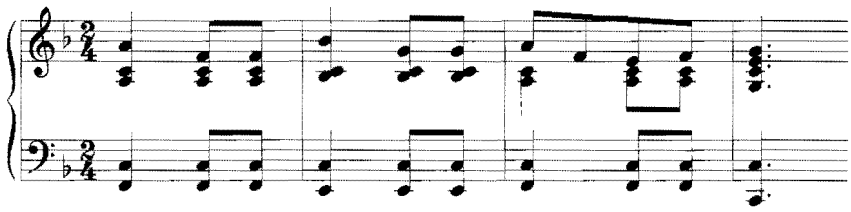


Key _____ Cadence _____ Melody line _____

(4)

Etwas geschwind

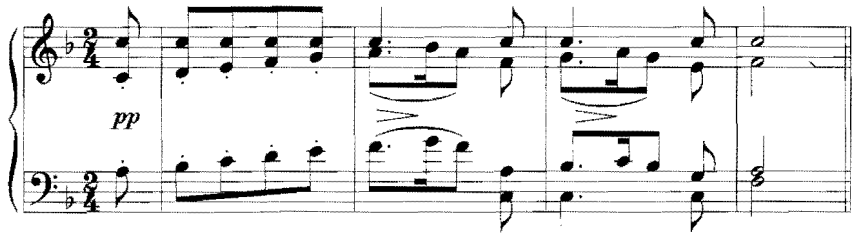
Schubert, *Lachen und Weinen*, D. 777 [8]



Key _____ Cadence _____ Melody line _____

CD (5) Where is the melody line in this excerpt? Describe the movement of the soprano line during the four measures. Which line do you think you should use when describing the cadence? (There is no right or wrong answer. In analysis, we will encounter many similar situations for which alternative explanations are possible.)

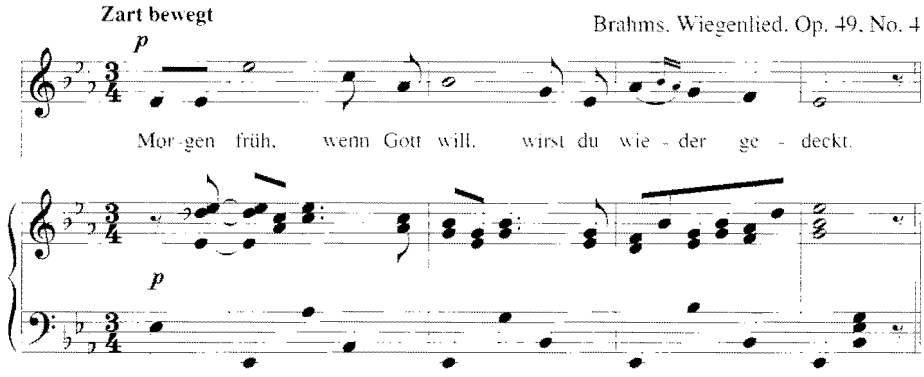
Schubert, *Lachen und Weinen*, D. 777



Key _____ Cadence _____ Melody line _____

[8]D.: abbreviation for Otto Deutsch, who in 1951 catalogued Schubert's works.

CD *(6) This familiar song by Brahms has two melody lines. Describe the cadence* for each.



Vocal melody: Key _____ Cadence _____ Melody line _____

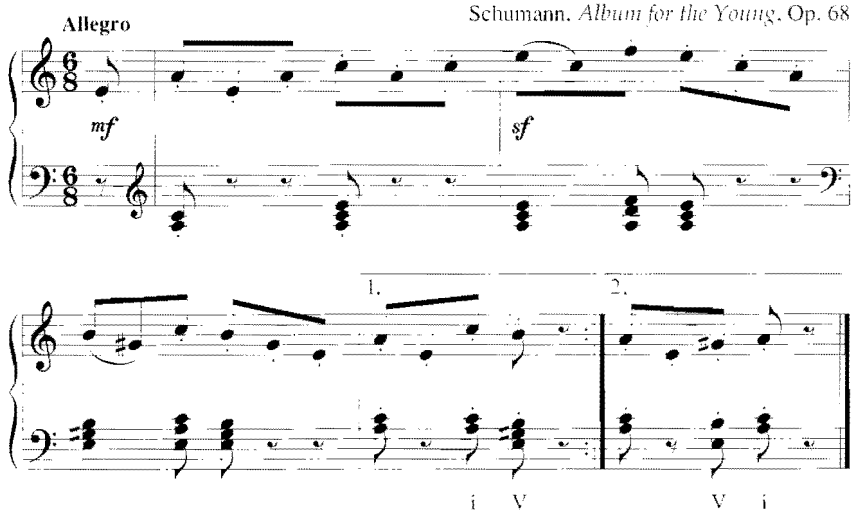
Piano melody: Key _____ Cadence _____ Melody line _____

In Appendix E: Answers to the entire assignment are given.

The Cadence in Minor Keys

Authentic cadences and the half cadence in a minor key are similar to those in a major key. The tonic triad is usually minor (i), whereas the dominant triad is usually major (V), requiring an accidental to provide a leading tone for the key. In Figure 4.10, V–i in A minor is spelled E G♯ B–A C E. Can you name the two cadences and explain the formal structure?

CD FIGURE 4.10



Spelling Tonic and Dominant Triads (Minor Keys)

You should be able to spell quickly and accurately the cadence chords in minor keys.

1. In the tonic (i) triad, the third is lowered in relation to the spelling of the major triad. Whereas I in C major is C E G, i in C minor is C E♭ G. Where there is no parallel major key, spell a major triad above the tonic tone and then lower the third a half step. Example: In G♯ minor, a major triad above the tonic is G♯ B♯ D♯; therefore, the tonic minor is G♯ B D♯.

   The tonic triad is also easily spelled by locating $\hat{1}$, $\hat{3}$, and $\hat{5}$ in the scale of the key. In G♯ minor, $\hat{1}$, $\hat{3}$, and $\hat{5}$ are G♯, B, and D♯.

2. In all major and minor keys, V and V^7 are major triads and major–minor seventh chords, respectively. In minor, the third of the chord is ♯$\hat{7}$, raised in relation to the key signature to provide a leading tone.

ASSIGNMENT 4.4 Spell these minor triads when

a. the root is given: A, B♭, B, C♯, F♯

b. the third is given: G, E♭, B♭, A♭, B

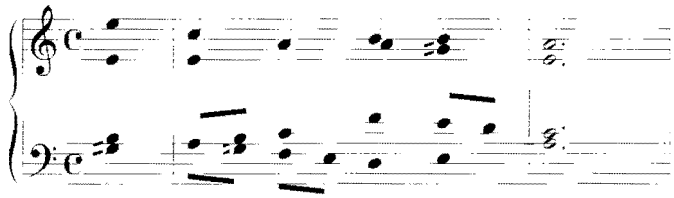
c. the fifth is given: F♯, G♯, D, B♭, A♯

In Appendix E: Answers to the entire assignment are given.
In the Workbook: Do Assignment 4.4. Answers are given.

ASSIGNMENT 4.5 Locate, identify, and describe the cadences in each of these examples. Follow the same procedure as in Assignment 4.3.

CD (1)

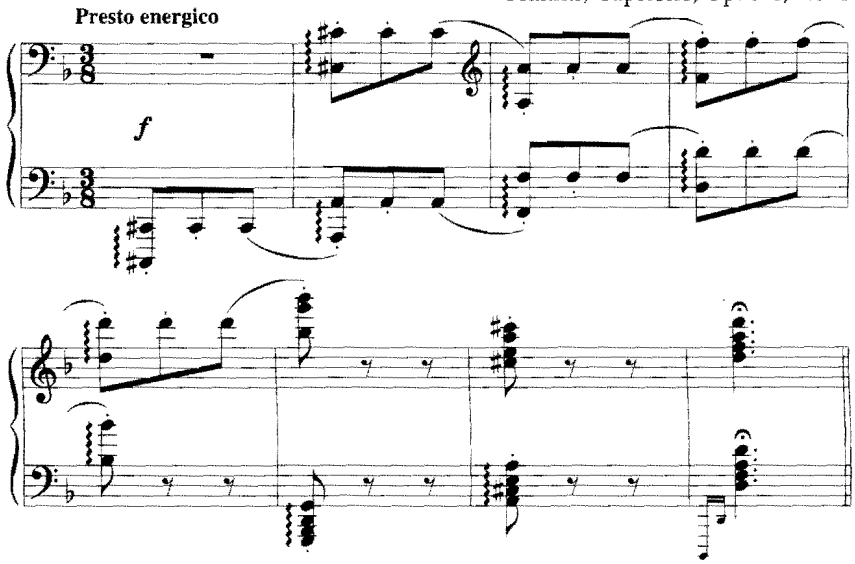
Bach, "Helft mir Gotts güte Preisen" (#23)



Key _____ Cadence _____ Melody line _____

(2)

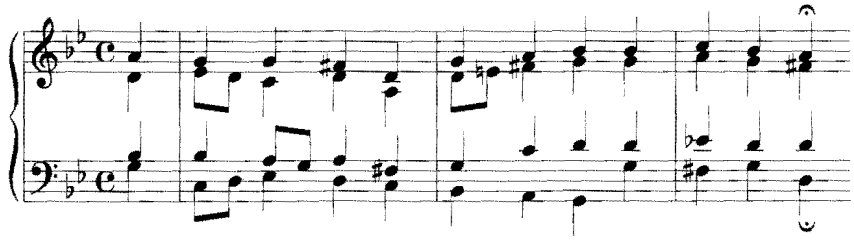
Brahms, Capriccio, Op. 116, No. 1



Key _____ Cadence _____ Melody line _____

(3)

Bach, "Herzliebster Jesu, was hast du verbrochen" (#59)



Key _____ Cadence _____ Melody line _____

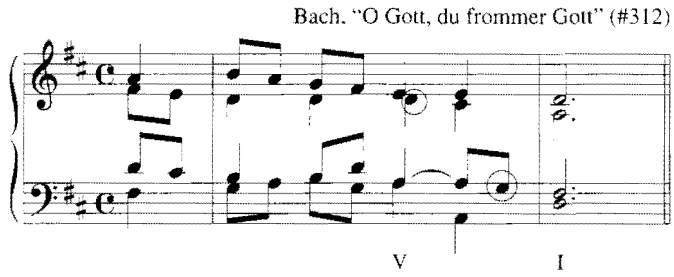
In Appendix E: Answers to the entire assignment are given.

Cadences Incorporating Dissonances

Music does not consist solely of triads and seventh chords. Tones other than chord tones are so frequent that it is necessary to investigate them to understand even simple music scores. These tones are dissonances (as defined on page 27) that sound simultaneously with a chord structure, and are called *nonharmonic tones.* For the present, it will be sufficient to simply recognize the presence of nonharmonic tones. Study of their nomenclature and use will follow in Chapters 11 and 12.

In the cadence of Figure 4.11, the alto D is not part of the A C♯ E triad, nor is the G in the tenor. But note that the G is the seventh of A C♯ E G. When the seventh is found this way, moving down by step from the root, it is called a *passing seventh.* You should be able to find more nonharmonic tones in the triads preceding the cadence of this example.

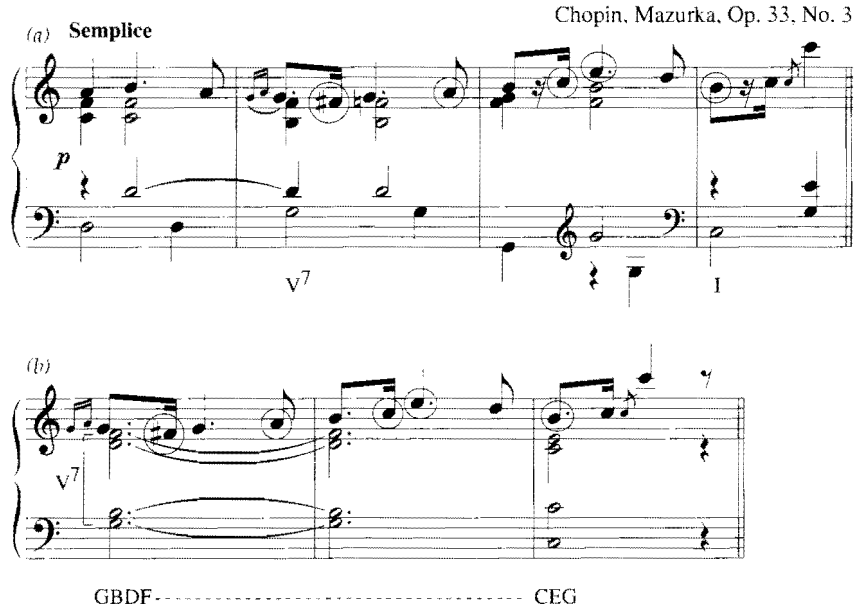
CD FIGURE 4.11



More complex is the cadence in Figure 4.12*a*, showing the V^7 triad extended for two measures, during which there are four nonharmonic tones, as well as one more in the tonic triad. In *b*, the texture is simplified to show the nonharmonic tones more clearly.

Note that the first circled note, F♯, is a *chromatic* nonharmonic tone, meaning that the tone is not part of the scale of the key in which it is found (F♯ is not a member of the C major scale). The remaining nonharmonic tones are *diatonic.*

CD FIGURE 4.12



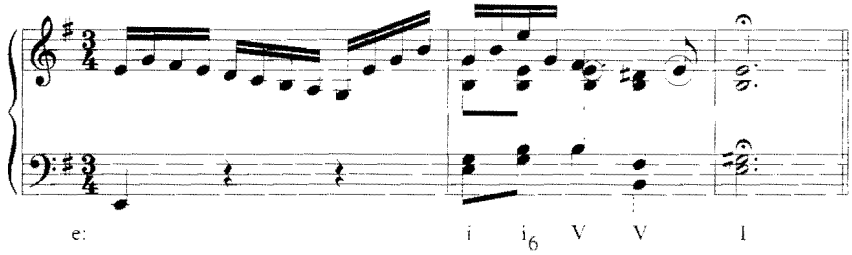
Other Cadences: The Picardy Third and the "Empty Fifth"

The next two examples show not only nonharmonic tones in the cadence, but also two other features found in some minor cadences, especially in music written from about 1600 to 1750.

In the first (Figure 4.13), the final tonic chord in E minor is the major triad E G♯ B. This final major triad in a minor key is known as a *Picardy third* (or *tierce de Picardie*), for reasons unknown. Notice that the uppercase roman numeral "I" is used.

CD FIGURE 4.13 *The Picardy Third*

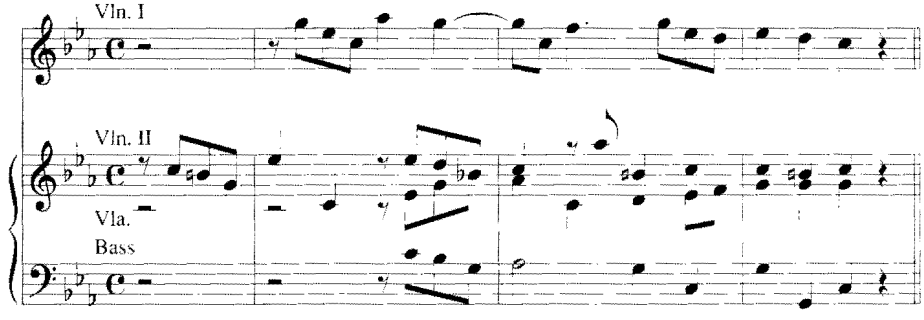
Bach, Cantata No. 4, "Christ lag in Todesbanden"



The "empty fifth" is shown as the final tonic chord in Figure 4.14. Without a third, it is neither major nor minor. We still use "i" to identify the structure because it was used almost exclusively in minor. Use of both this structure and the Picardy third dates from an earlier time when a major triad or an empty fifth was considered more consonant and therefore more suitable as a final cadence in a minor key.

FIGURE 4.14 *The "Empty Fifth"*

Torelli, Concerto for Violin, Op. 8, No. 8



ASSIGNMENT 4.6 Name each cadence (PA, IA, HC) in each excerpt.

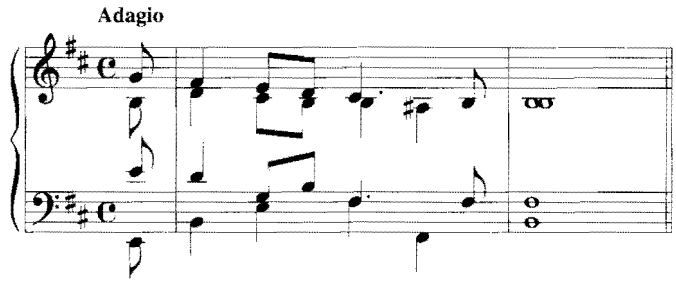
(1)–(3): Circle only those nonharmonic tones included with the cadence.

(4)–(6): Circle all nonharmonic tones in the entire excerpt (each excerpt includes only tonic and dominant harmony).

In any of the above, look for a V^7 cadence with the soprano line 4–3.

CD (1)

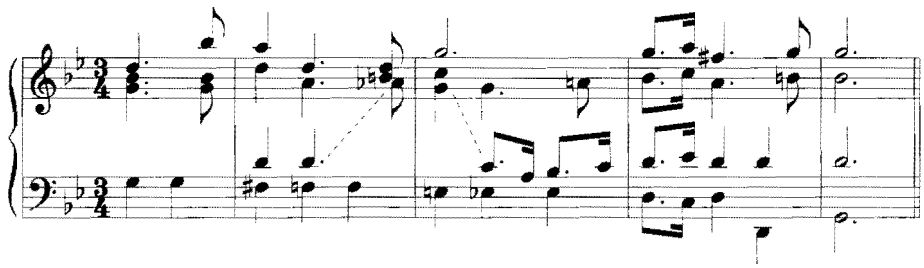
Handel, Concerto Grosso in B Minor, Op. 6, No. 12



Key _____ Cadence _____

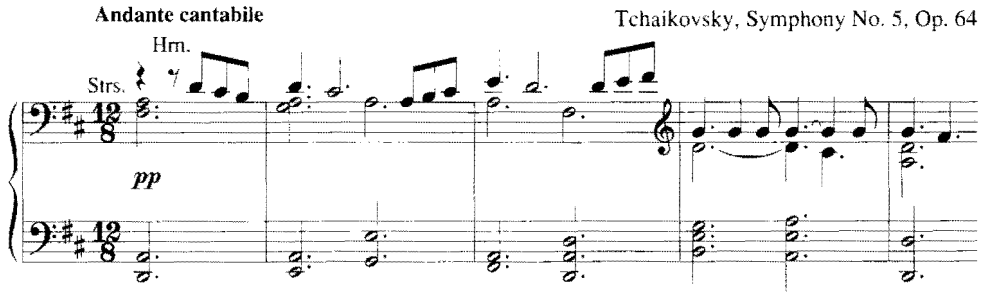
CD (2)

Bach, Cantanta No. 78, "Jesu, der du meine Seele"



Key _____ Cadence _____

CD (3)

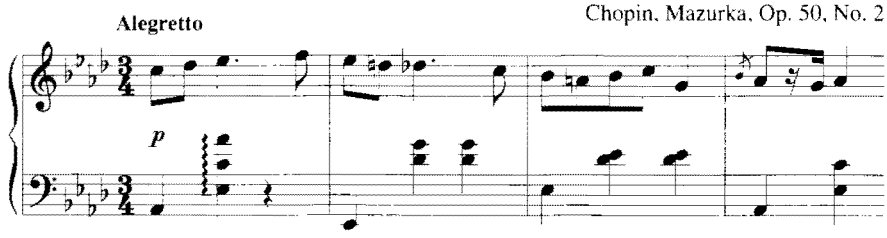


Tchaikovsky, Symphony No. 5, Op. 64

Key _____ Cadence _____

(4)

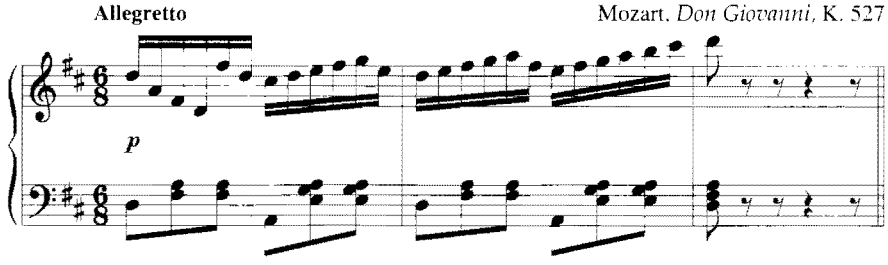
Chopin, Mazurka, Op. 50, No. 2



Key _____ Cadence _____

(5)

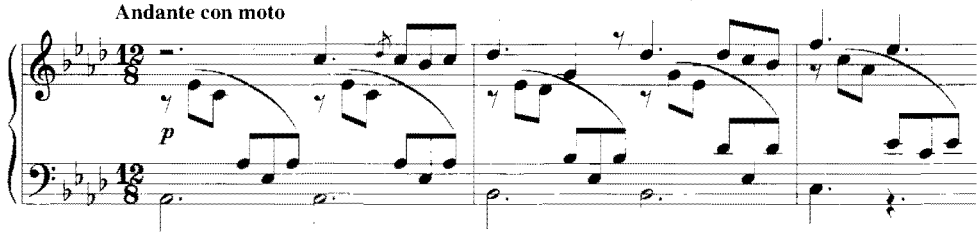
Mozart, *Don Giovanni*, K. 527



Key _____ Cadence _____

(6)

Mendelssohn, *Songs Without Words*, Op. 53, No. 1



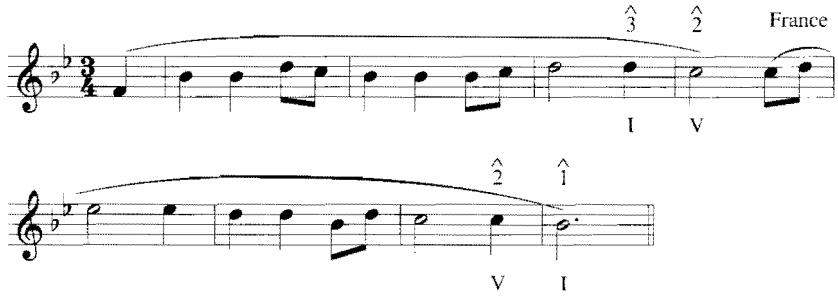
Key _____ Cadence _____

In Appendix E: Answers to (1)–(3) are given.

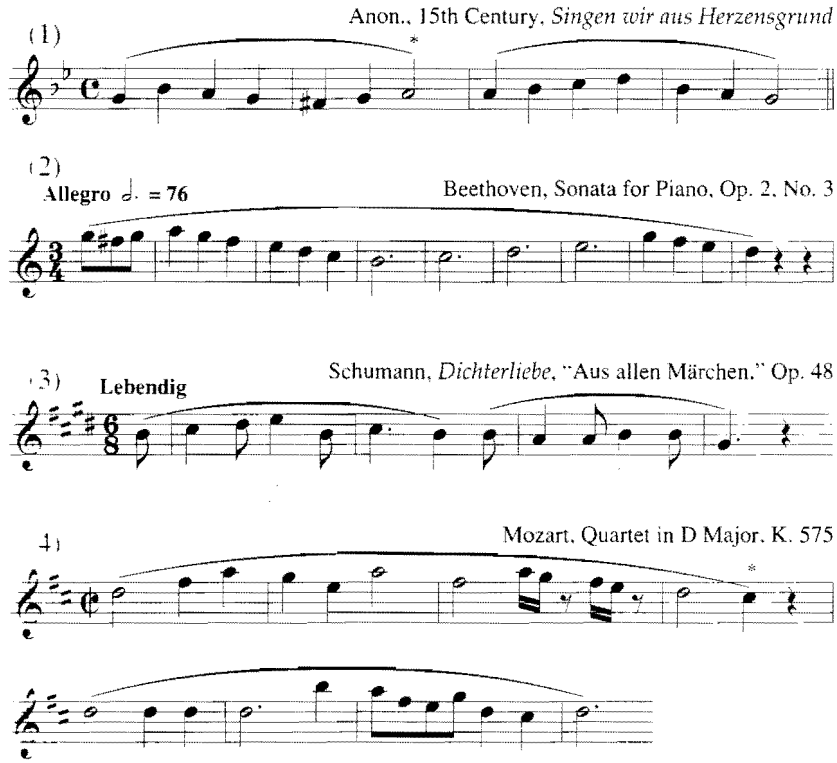
Cadences in a Melodic Line

Cadences for one voice can usually be identified by the scale-step numbers of the melody at the point of the cadence. Figure 4.15, in B♭ major, shows two cadences: $\hat{3}$–$\hat{2}$ (D–C) implies I (B♭ D F)–V (F A C), whereas the final cadence, $\hat{2}$–$\hat{1}$ (C–B♭), implies V–I.

FIGURE 4.15



ASSIGNMENT 4.7 Analyze the final cadence in each example as in Figure 4.15. Also analyze those interior cadences located by the asterisk.



Appendix E: Answers to the entire assignment are given.

Spelling Intervals from Major Triads

In Chapter 2, we learned to compute sizes and spellings of intervals, first by finding the major and perfect intervals above the tonic note, then by adjusting these by half-step manipulations to find other intervals. If you have now learned to spell major

triads quickly and accurately, it will be even easier, in this optional method, to recognize and spell perfect, major, and minor intervals, especially those difficult ones with 𝄪's and 𝄫's.

Each major (or minor) triad includes the six consonant intervals, each made up of two notes of the triad. In Figure 4.16, 1 ↑ 3 means root up to third in the triad (not scale-step numbers). 1 ↑ 3 also implies 3 ↓ 1, and so forth.

FIGURE 4.16 *Intervals in a Major Triad*

1 ↑ 5 P5	1 ↑ 3 M3	3 ↑ 1 m6
5 ↑ 1 P4	3 ↑ 5 m3	5 ↑ 3 M6

Here are sample problems:

"easy": P5 below D = ?
P5 is 5 ↓ 1
If D is 5,
its triad = G B D
5 ↓ 1 = D ↓ G

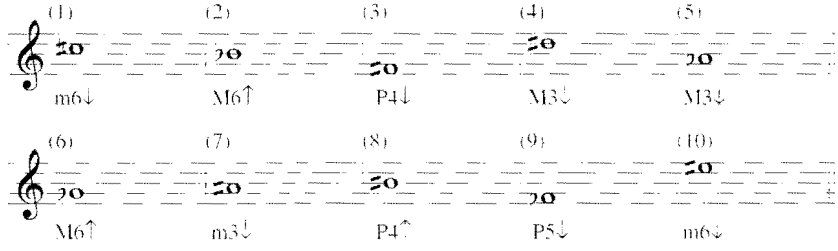
"difficult": M6 below C𝄪 = ?
M6 is 3 ↓ 5
If C𝄪 is 3,
its triad = A𝄫 C𝄪 E𝄫
3 ↓ 5 = C𝄪 ↓ E𝄫

ASSIGNMENT 4.8 *Spelling intervals.* Following the steps just given, name the second note of these intervals:

(1) m3 above F𝄫
(2) M6 below G
(3) P4 above A𝄬
(4) m6 above G𝄪
(5) M3 below B𝄬
(6) P5 below G𝄬

In Appendix E: Answers to the entire assignment are given.
In the Workbook: Do Assignment 4.8. Answers are given.

ASSIGNMENT 4.9 *Writing intervals.* Place the second note of the given interval on the staff.

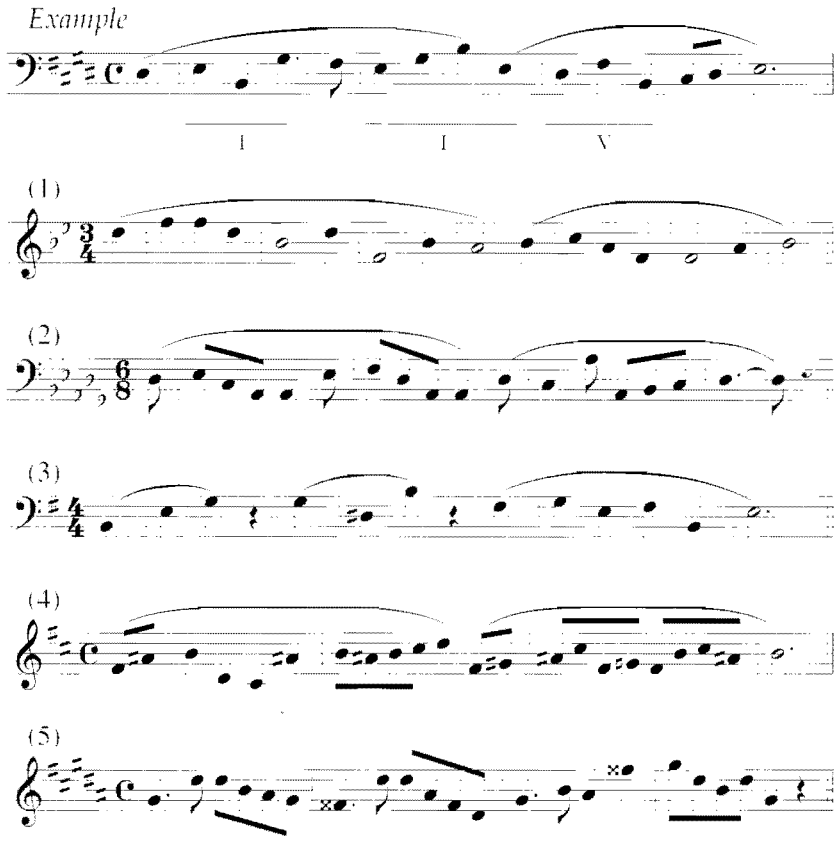


In Appendix E: Answers to the entire assignment are given.
In the Workbook: Do Assignment 4.9 a–b. Answers are given.

Triads Outlined in Melodies

Intervals in a melodic line often outline a triad. The melodies of Assignment 4.10 show more triad intervals than you would normally expect, but all are of typical usage.

ASSIGNMENT 4.10 Bracket any intervals in the I, i, or V chords and identify the triad as shown in the example. Be sure to spell the tonic and dominant triads before looking for the intervals.



Keyboard Harmony

In the study of keyboard harmony, you will learn to play chords and chord progressions as they are presented in each chapter. Playing harmonies, rather than just listening to them, will give you a more intimate acquaintance with their sounds and their relationships, and will help prepare you for practical application of your harmonic knowledge.

No previous keyboard skill is required. You will find your first experience in keyboard harmony easy if you have accomplished these prerequisites:

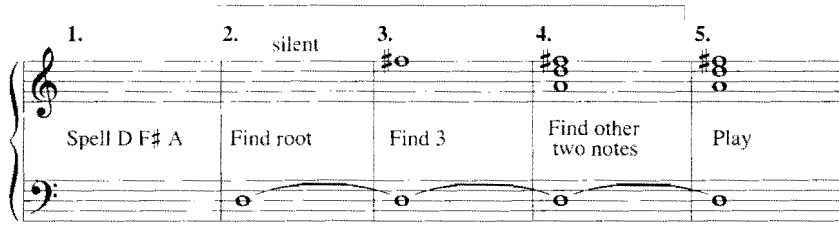
1. You know the names of the keys on the keyboard.
2. You have learned to spell quickly and accurately in all keys the chords presented in each chapter.

To begin the keyboard experience, you are asked to play only a single triad. The five steps below are illustrated in Figure 4.17 using a D major triad with its third in the soprano. Steps 1–4 show you how to find the correct keys before actually playing, so that at step 5 the triad will sound without error. With continued practice, you will soon be able to play any triad without the first four steps.

1. Spell the triad (D F♯ A).
2. Place a left-hand finger on the root of the triad (D). Do not play.
3. Place the little finger of the right hand on 3 (F♯). Do not play.
4. Find the two nearest notes of the triad below F♯ (D and A). Do not play.
5. Play all four notes of the triad simultaneously.

After sufficient practice, use step 5 only.

FIGURE 4.17 *Playing a Single Triad*



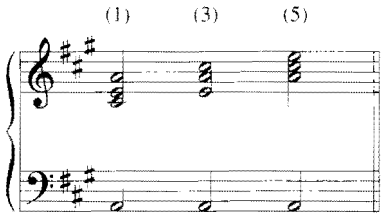
ASSIGNMENT 4.11 *Playing triads at the keyboard.*

(a) Using the five steps of Figure 4.17, play these triads ("C major-5" means the C major triad with its fifth in the soprano):

C major-5	E major-1
F major-1	D♭ major-5
E♭ major-3	B major-3

(b) Play any other triad in any soprano position, as chosen or assigned.

(c) Play successively a given triad in each of its three soprano positions, illustrated on the next page with the A major triad.



Summary

A *cadence* marks the close of a musical idea, temporary or final.

Cadences using the progression V–I or V–i are called *authentic* and may be *perfect* or *imperfect,* depending on their soprano and bass lines. A cadence ending on V (or any other chord) is a *half* cadence.

Form in music is determined by the location and types of cadences.

Cadences may include triads only, or they may contain additional nonharmonic tones.

In the Baroque era, cadences in a minor key often concluded with either a major triad (*Picardy third*) or a triad without a third.

Melody lines often outline triads or seventh chords, especially those chords on the dominant and the tonic.

The relationship of root movement by fifth in the authentic cadence represents the most important and frequent root movement in the period of music under study.

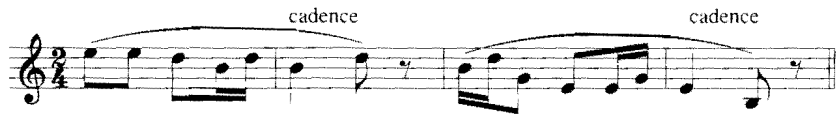
ARTICLE #5

The Universality of the Cadence

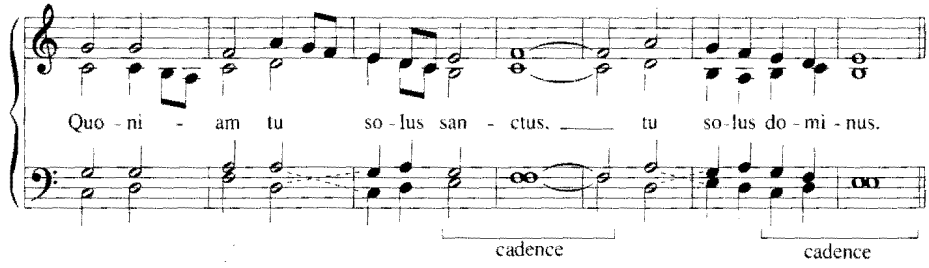
The use of cadences is a typical feature of all music, regardless of historical period or geographical area. There must always be places in any piece of music where the melody or the ensemble reaches a temporary or concluding resting point. How this is accomplished varies widely in differing times and places, as is demonstrated in the few but diverse examples that follow.

In contrast to these examples, most of the cadences of the common practice period reflect some type of tonic–dominant relationship, with V–I as a final cadence used almost exclusively.

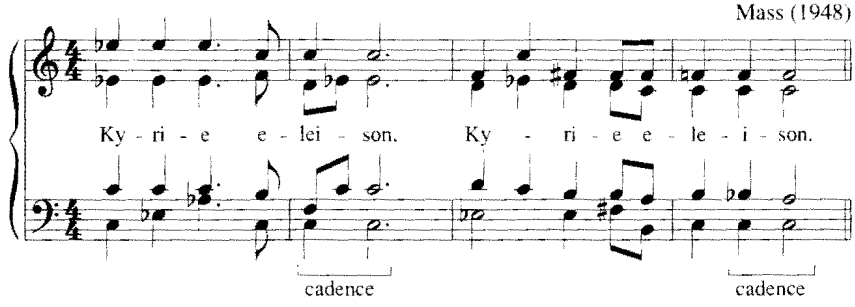
South African Folk Song



Guillaume de Machaut (ca. 1300–ca. 1370),
La Messe de Notre Dame



Igor Stravinsky (1882–1971),
Mass (1948)



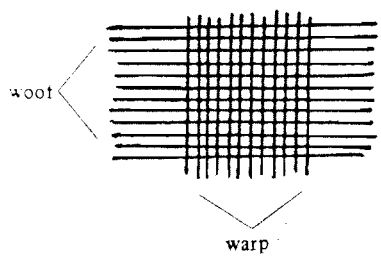
5

Tonic and Dominant II

part-writing

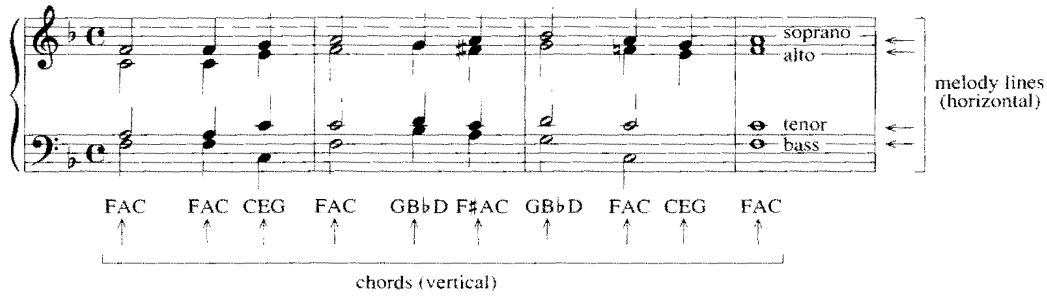
Part-writing, the procedure for connecting a series of chords, requires the skill of thinking in two musical directions at once. You might compare it to the art of weaving, in which the finished fabric is the result of combining vertical and horizontal threads ("warp" and "woof").

FIGURE 5.1



Looking at the simple hymn in Figure 5.2, we see the same type of interaction: The music is both a series of triads *and* a sounding of four melodic lines (voice lines)—soprano, alto, tenor, and bass. Each triad is identified by its spelling, describing the *vertical* structure of the hymn. At the same time, the four voice lines describe the music's *horizontal* structure. The tune in the soprano (highest voice) is obviously a melody, but the alto, tenor, and bass lines are also melody lines. If you sing the notes of the alto line (treble clef with stems downward), you are singing a melodic line. The same is true of the tenor and bass lines.

CD FIGURE 5.2

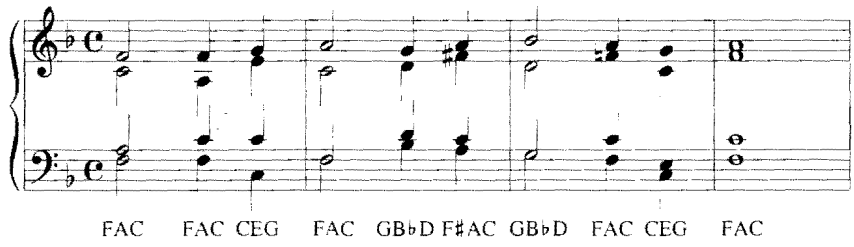


Achieving a good melodic line in each voice line[1] during a succession of chords is the goal of part-writing. Part-writing principles describe

1. how to distribute the various members of the chord among the number of voices in the composition (four voices in Figure 5.2, three in Figure 4.9); and
2. how to move each note in a given voice from chord to chord.

Placing individual notes of a given chord in one voice part or another at random can hardly be expected to produce good voice lines. If we were to rewrite Figure 5.2 using the same melody, bass line, and chords but filling in the alto and tenor voices at random, a version of the hymn such as that in Figure 5.3 might result.

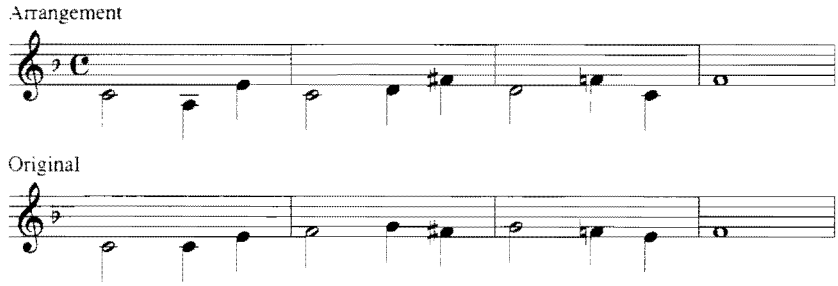
FIGURE 5.3



As this "arrangement" is played at the piano, try to sing the alto line. It is difficult because it is a poor melodic line, with numerous skips and with the leading tone and the altered tone resolving awkwardly. In Figure 5.4, compare the alto line of the arrangement with that of the original, noting how much easier it is to sing the original. The same comparison can be made with the two tenor lines.

[1]The term *voice line* commonly refers to a melodic line in either vocal or instrumental music.

FIGURE 5.4



Conventional Procedures

This and succeeding chapters will present procedures for part-writing. There are many ways to progress from one chord to the next while achieving the goal of good melodic lines. A number of these procedures have been used so consistently by composers that they can be considered conventional. But other procedures are also useful, especially when they produce more interesting musical results. Conventional procedures will be presented first, but study of alternative procedures and the advantages of their use will be considered as your writing skill develops.

In most cases, conventional procedures are introduced by examples in four-part chorale style. Students may wonder why such a restriction is employed, especially those whose major interest is other than vocal music. Actually, the same basic principles of harmonic writing exist in both the vocal and the instrumental music of the common practice period, but four-part vocal writing provides the easiest introduction to harmonic writing. Other applications will be introduced as harmonic studies become more advanced.

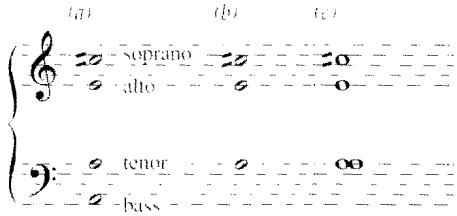
All the conventional procedures presented in this and the following chapters will be found together in Appendix A. You will find this appendix a convenient reference point to locate quickly the conventional procedure for any part-writing situation. We recommend that you take advantage of this compilation to review old procedures as you are learning new ones.

Writing a Single Triad

For the first part-writing project, we will place on the staff a single triad with its root in the bass. Although this is an easy project, it serves to introduce several procedures useful in future part-writing activities.

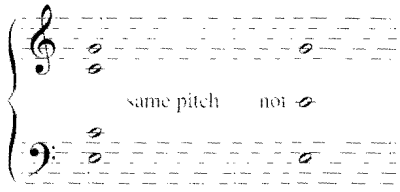
Our triad will be written in four voices: soprano, alto, tenor, and bass, conforming to the four ranges of the human voice. When the treble and bass staves are used, the soprano and alto voices appear on the treble staff, and the tenor and bass voices appear on the bass staff. Observe the stem directions: soprano, stem up; alto, stem down; tenor, stem up; bass, stem down (Figure 5.5*a*). When two voices on the same staff are the same note, the note carries both stem up and stem down (Figure 5.5*b*), or if the note is a whole note, the two whole notes are interlocked (Figure 5.5*c*).

FIGURE 5.5



However, when the two identical pitches are the alto and tenor voices, each must remain on its own staff (Figure 5.6).

FIGURE 5.6



When part-writing a single triad, you must take four factors into consideration: voice range, doubling, triad position, and distance between voices.

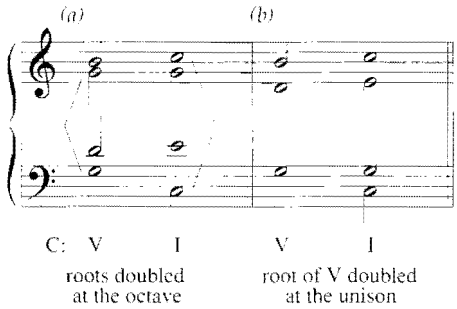
Voice Range Each of the four voices should, as a rule, be written in the normal singing range of that voice.

FIGURE 5.7

Voices ordinarily should be kept within the ranges outlined by the whole notes in Figure 5.7. Pitches outside these ranges are possible but should be used only sparingly and within the limits of the black notes.

Doubling Since four notes will be used, one note of the triad must be doubled; that is, two voices will have to use the same letter name, either in unison or in an octave relationship. A general rule for doubling in most triads is to double that tone which is strongest and most stable in the key. These tones are the scale steps tonic, dominant, and subdominant. In tonic and dominant triads, the root is ordinarily doubled (Figure 5.8).

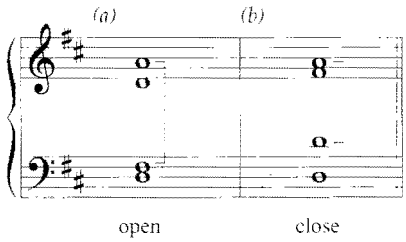
FIGURE 5.8



Other doublings are not necessarily wrong. There are circumstances, usually melodic, in which doubling the third or the fifth of the triad is desirable, as will be shown later. However, doublings should not be chosen haphazardly. If there is no particular reason to double the third or the fifth in a major triad, doubling the root is preferable.

Triad Position Triads may appear in either of two positions, *open* or *close*. In open position,[2] the distance between the soprano and the tenor is an octave or more; in close position, the distance between the soprano and the tenor is less than an octave. In either position, any interval may appear between tenor and bass.

FIGURE 5.9

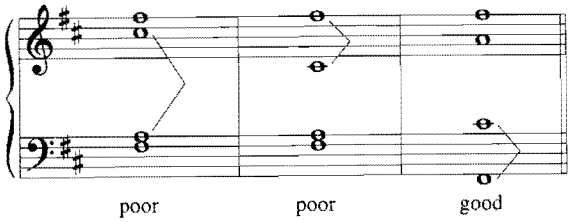


Note also that in open position, another note of the triad could be inserted between the tenor and the alto or the alto and the soprano, whereas in close position, the three upper voices are as close together as possible.

Distance between Voices The distance between any two adjacent voices (for example, soprano and alto) usually does not exceed an octave, except that an interval larger than an octave may appear between the bass and tenor voices (Figure 5.10).

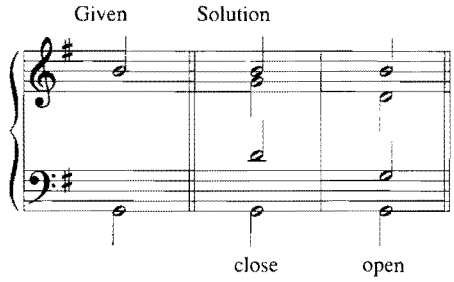
[2]The terms *open structure* and *close structure* are commonly used synonymously with *open position* and *close position*.

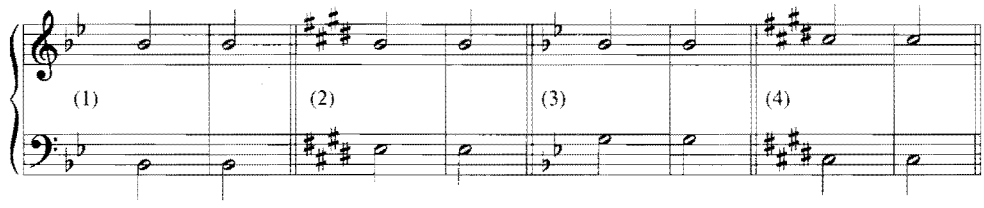
FIGURE 5.10



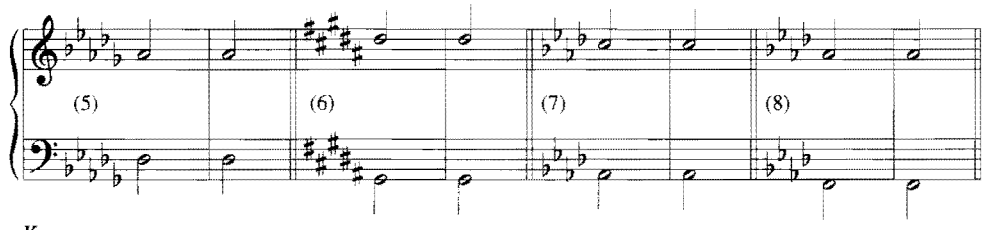
Crossed voices should be avoided at present. The tenor should not be placed above the alto, the alto above the soprano, and so forth.

ASSIGNMENT 5.1 Fill in the inner voices of each triad in both close and open position, in that order. At present, use two roots, one third, and one fifth, and observe instructions for range and distance between voices. Assume each triad to be tonic and name the key, indicating M or m. Here is an example:





Key: ____ ____ ____ ____



Key: ____ ____ ____ ____

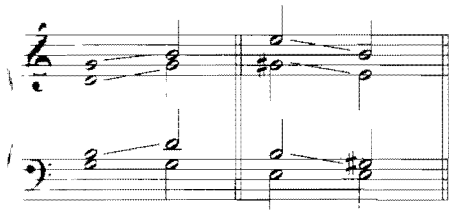
In the Workbook: Do Assignment 5.1a. Answers are given.

Connection of Repeated Triads

When you are writing repeated triads with a change in the soprano tone, the only decision you must make is whether to write the two triads in the same position or to change position in the second chord.

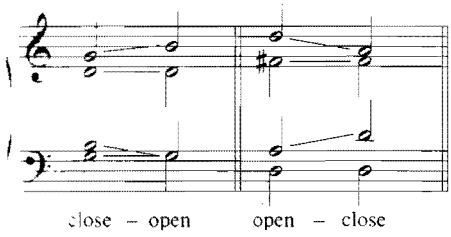
Maintaining the same position is accomplished by moving the three upper voices in similar motion.

FIGURE 5.11



When the second chord changes position, two voices, the bass and one other, remain stationary while the other two voices exchange tones.

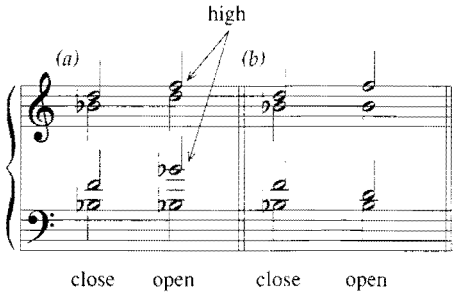
FIGURE 5.12



Change of position is usually necessary in three situations:

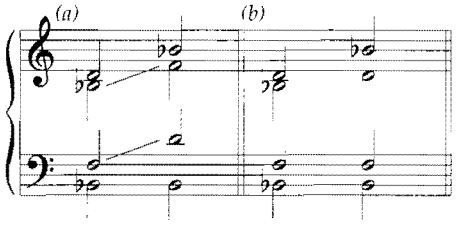
1. When an upper voice moves out of its usual range. In Figure 5.13, the notes are too high for the alto and tenor voices. Changing position puts these voices in a better range.

FIGURE 5.13



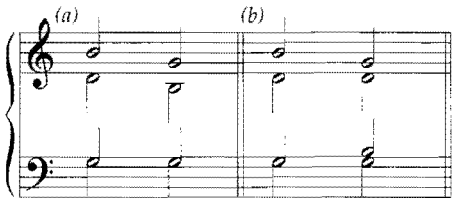
2. When there are large intervals in inner voices (Figure 5.14). Change of position produces more desirable small intervals or held notes.

FIGURE 5.14



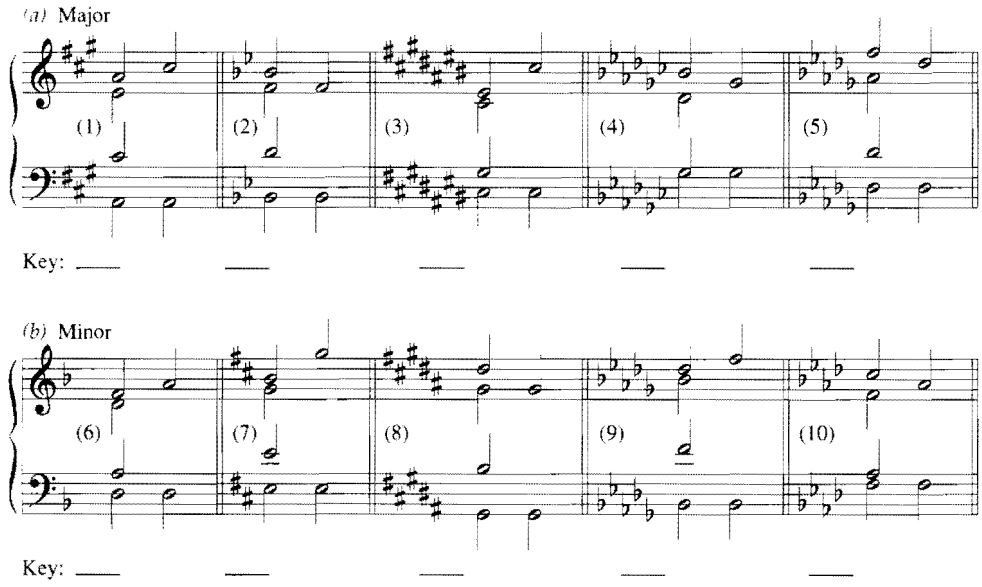
3. When the second triad contains no fifth, as in Figure 5.15. Changing from open to close position restores the usual distribution of voices. However, we will encounter acceptable exceptions later in our studies.

FIGURE 5.15



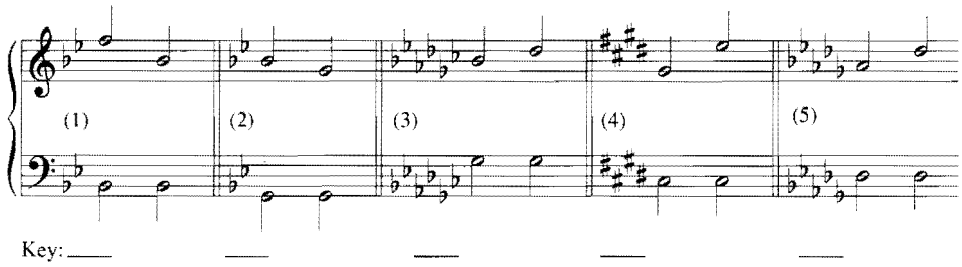
In the Workbook: Do Assignment 5A a, c, *and* d. *Answers are given.*
Do Assignment 5B. Answers are given.

ASSIGNMENT 5.2 *Writing repeated triads.* The first triad of each pair is complete. For each, decide whether the position of the first triad needs to be changed or whether the same position may be maintained. Place the name of the key below each example. In some examples, either way will be satisfactory.



In Appendix E: Answers to (1)–(3) are given.
In the Workbook: Do Assignment 5.2a. Answers are given.

ASSIGNMENT 5.3 *Writing repeated triads.* Only the soprano and the bass of the two triads are given. Fill in the alto and tenor voices. Name the key of each, indicating M or m.



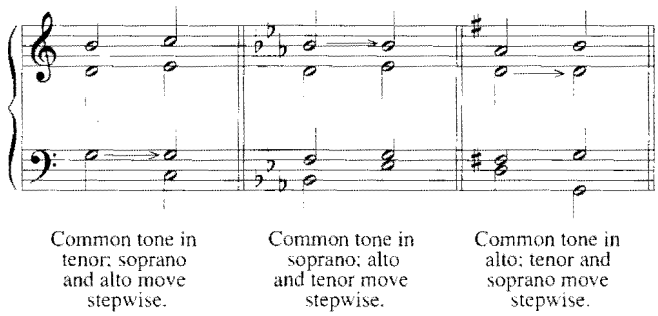
Writing the Authentic Cadence

In the various forms of the authentic cadence, the roots of the dominant and tonic chords are always separated by the interval of a fifth, or its inversion, the fourth. Because root movement by fourth is always implied in speaking of root movement by fifth, only the term *root movement by fifth* is necessary to convey both meanings. The following procedures are useful in connecting any two triads whose roots *in the bass* are a fifth apart; here they are applied to the writing of the authentic cadence.

Of the several ways of connecting the dominant and tonic triads, two are so commonly used that we will term them conventional. They can be applied in both major and minor keys.

First Procedure The first procedure is based on the assumption that if any two chords have a note (or notes) in common, it is best to carry that tone in the same voice into the next chord. G B D and C E G have a common tone, G. Holding G in the same voice allows the other two voices to move by step, the smoothest possible movement.

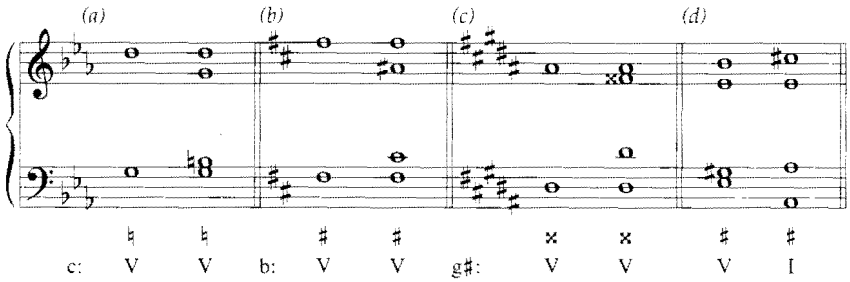
FIGURE 5.16



In a minor key, the third of V is $\sharp\hat{7}$ (g: V = D F♯ A). To indicate this in a part-writing exercise, we use a figured bass symbol (review page 31), a ♯, ♮, or × below the staff, indicating that the third above the bass note is to be raised one half step (Figure 5.17*a–c*).

The Picardy third can be indicated in the same way (Figure 5.17*d*).

FIGURE 5.17



Examples of this first procedure from music compositions can be seen in cadences from earlier examples: the perfect authentic cadence in Assignment 4.3 (1), page 68; the imperfect authentic cadence in Figure 4.8*a*, page 67); and the half cadence in Figure 4.3, measure 2, page 62.

Second Procedure What if the common tone cannot be held? This predicament, as illustrated in Figure 5.18*a* in which I is left without a third, calls for another procedure: Move the three upper voices in the same direction (similar motion) to the nearest tones of the next triad. Note that when the soprano descends, the leading tone also descends to make the following triad complete (Figure 5.18*b* and *d* and Figure 5.19).

FIGURE 5.18

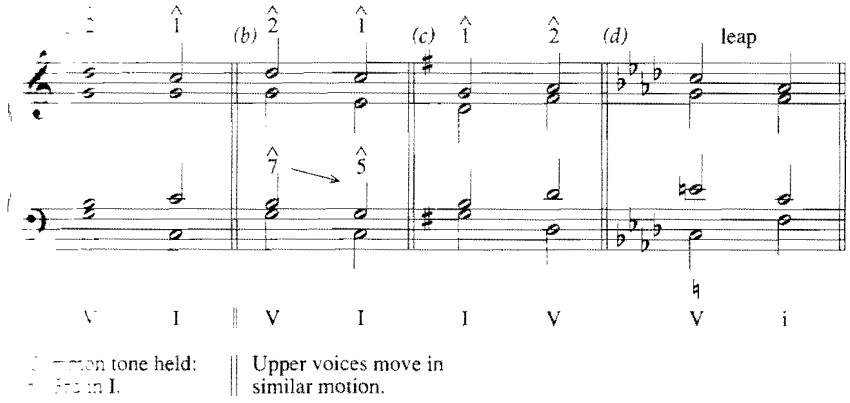
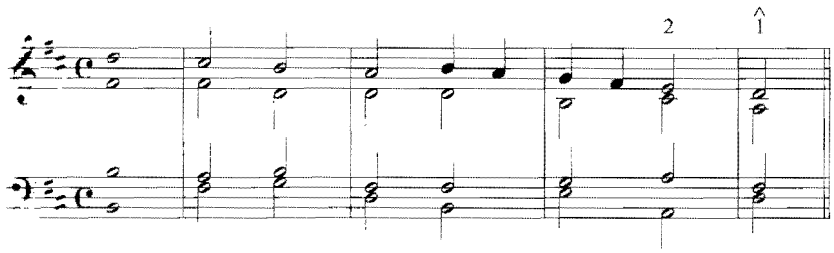
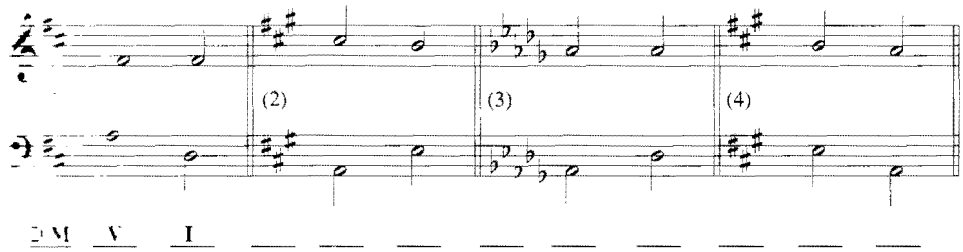


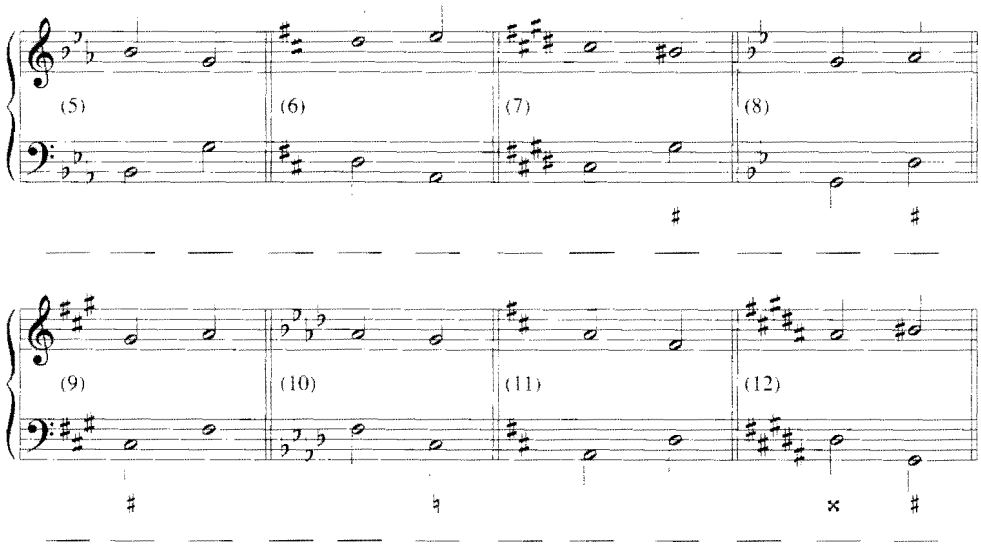
FIGURE 5.19

Martin Luther, "Ein' feste Burg"



ASSIGNMENT 5.4 *Writing authentic cadences.* Fill in alto and tenor voices, using open or close position as appropriate (some can be written either way). Examples of two procedures are included. Use the first procedure unless the soprano line moves 2–1, or by leap. In the three lines under each example, write the name of the key (major or minor) and the roman numeral for each triad.



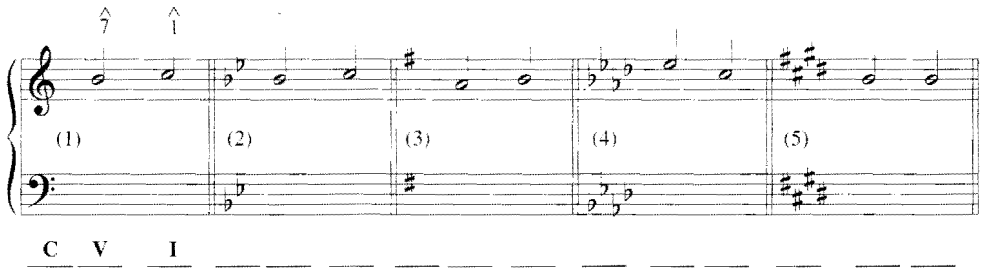


In Appendix E: Answers to (1)–(3) are given.
In the Workbook: Do Assignment 5.4a. Answers are given.

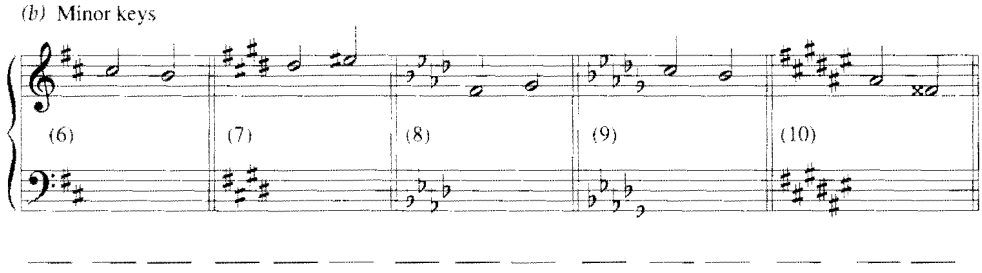
ASSIGNMENT 5.5 *Writing authentic cadences with only the soprano given.* Follow these steps:

1. Identify the key.
2. Write the scale-step numbers above each soprano line—for example, $\hat{2}$–$\hat{3}$.
3. In the three lines under each example, write the name of the key and the roman numeral for each triad.
4. Write first the bass line, then the inner voices.

(a) Major keys



(b) Minor keys



Alternative Procedures (1) In a final cadence, the leading tone in V may rise in any circumstance. The result is often an incomplete triad, three roots and one third (Figures 5.20 and 5.21).

(2) In any place in a phrase, the third of V may skip by the interval P4 to the third of I, or the reverse; the remaining voice is stationary. This skip usually appears in the soprano or tenor voice. Each triad includes all notes of the triad. The procedure is an effective way to change from open to close position or vice versa (Figure 5.22).

FIGURE 5.20

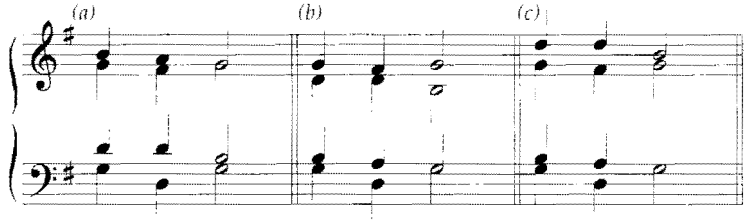


FIGURE 5.21

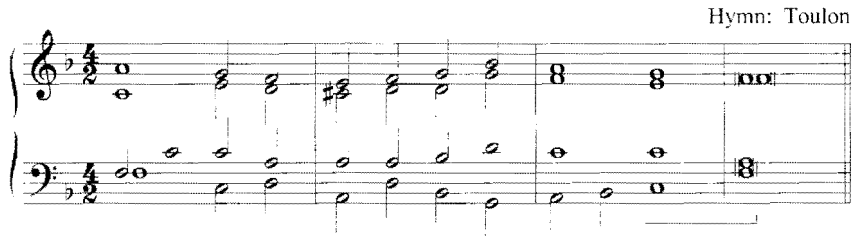
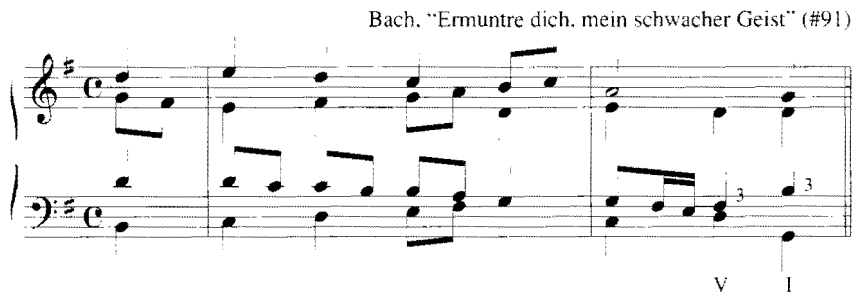
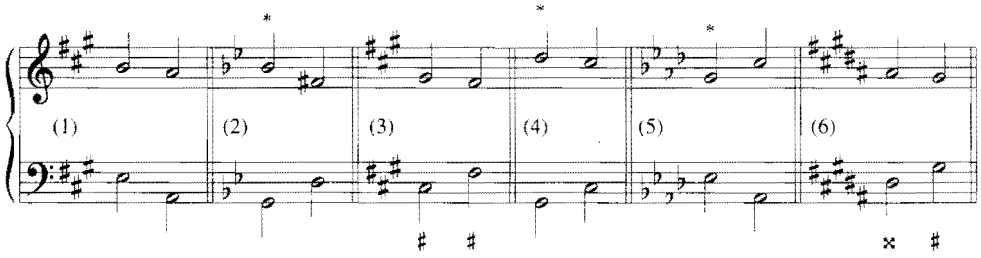


FIGURE 5.22



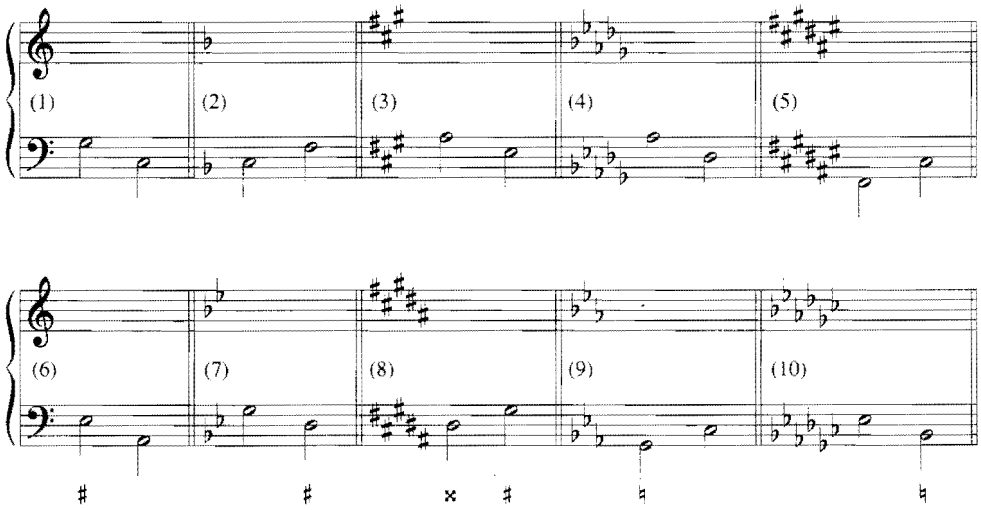
ASSIGNMENT 5.6 *Writing authentic cadences using the two alternative procedures just described.* In the examples indicated by an asterisk(*), use the "third-to-third" skip as in Figure 5.22. In all others, triple the root in the final tonic triad. Add a passing seventh in the V triad if you wish. (Review Figure 4.13 and preceding comment.)



In the Workbook: Answers to the entire assignment are given.

ASSIGNMENT 5.7 *Writing the cadence, bass line only given.* Your choice of a soprano note will determine which part-writing procedure to follow. Demonstrate at least one each of these:

1. The common tone
2. Similar motion in the three upper voices
3. The tripled root in I (i)
4. The "third-to-third" cadence of Figure 5.22

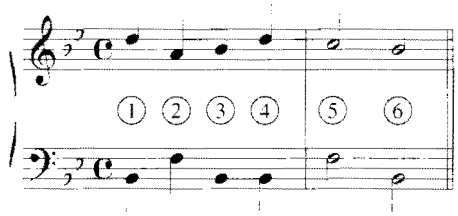


In the Workbook: Answers to the entire assignment are given.

Writing in Phrase Lengths

The part-writing procedures for cadences can be used just as effectively in a phrase-length series of tonic and dominant triads. Figure 5.23 shows such a phrase; Figure 5.24 shows the solution.

FIGURE 5.23 *Extended Part-Writing Problem*



Here is how it can be done:

First triad: Better to start in open position to avoid high tenor note.

Triads 1–2: Here is the "third-to-third" movement, this time in the soprano. Part-writing is the same as in the cadence of Figure 5.22.

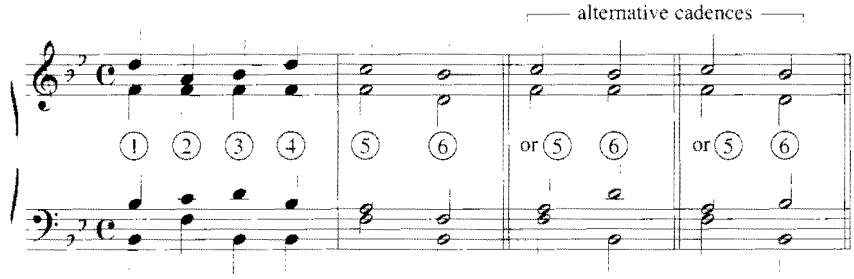
Triads 2–3: Easy common-tone progression.

Triads 3–4: Close to open, or open to close? The range of the tenor voice is the main consideration.

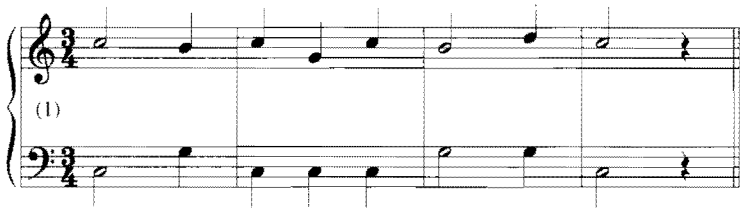
Triads 4–5: Easy common-tone progression again.

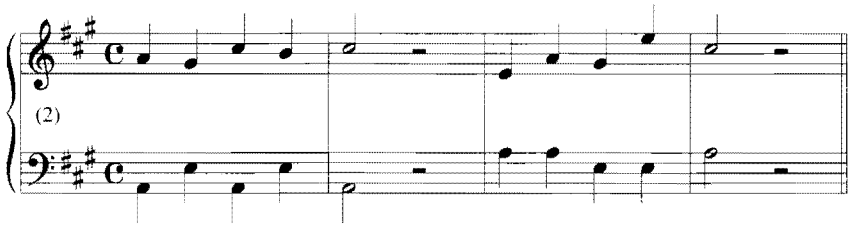
Triads 5–6: Use any of three different cadences. All are shown in Figure 5.24.

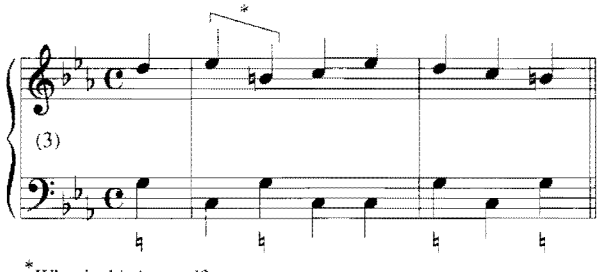
FIGURE 5.24 *Solution of Figure 5.23*



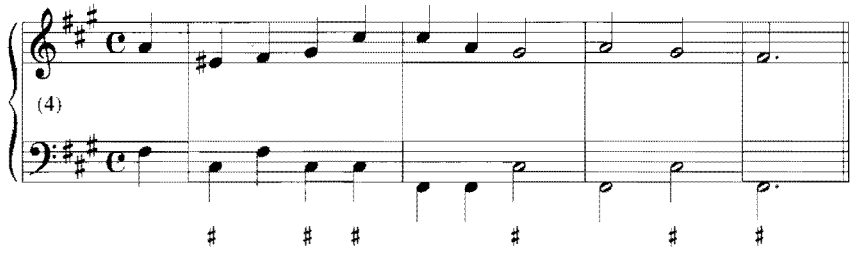
ASSIGNMENT 5.8 *Writing extended exercises.* Place triad numbers below the staff.







*What is this interval?



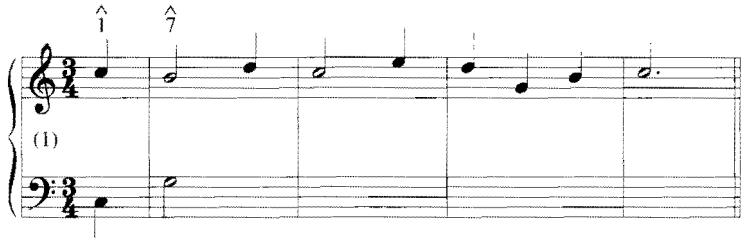
In Appendix E: The answer to (1) is given.

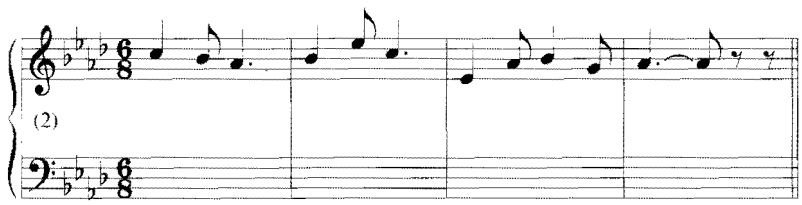
Harmonizing a Melody

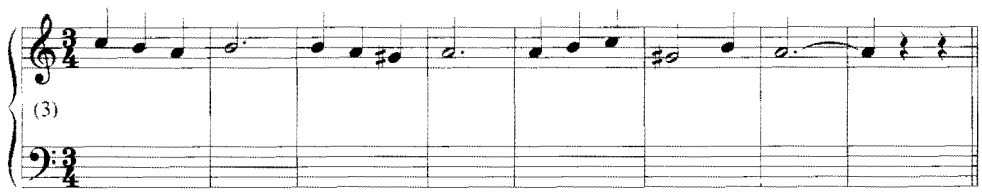
Here are a few melodies, each note of which can be harmonized with a tonic or dominant triad. Any two successive notes will suggest either a repeated triad or one of the V–I or I–V progressions. (For example, $\hat{7} - \hat{1}$ anywhere in the melody is harmonized the same as the perfect authentic $\hat{7} - \hat{1}$ cadence.)

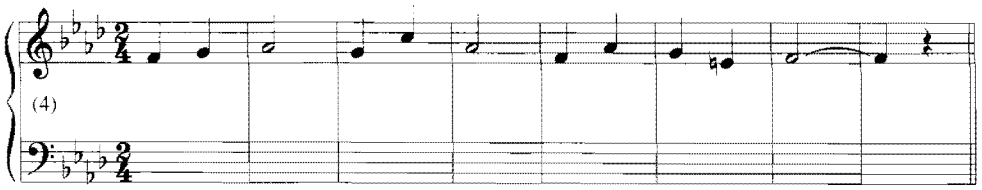
1. Determine the scale-step numbers. In Assignment 5.9 (1), the first two notes (C–B) are $\hat{1}$–$\hat{7}$ in C, the same as the half cadence $\hat{1}$–$\hat{7}$, harmonized as I–V.
2. Place the root of the triad in the bass clef exactly below the soprano note. In (1) of Assignment 5.9, the first two bass notes are C (for C E G) and G (for G B D).
3. Write triad numbers below the staff.
4. Fill in the inner voices, just as in previous exercises.

ASSIGNMENT 5.9 *Melody harmonization.*







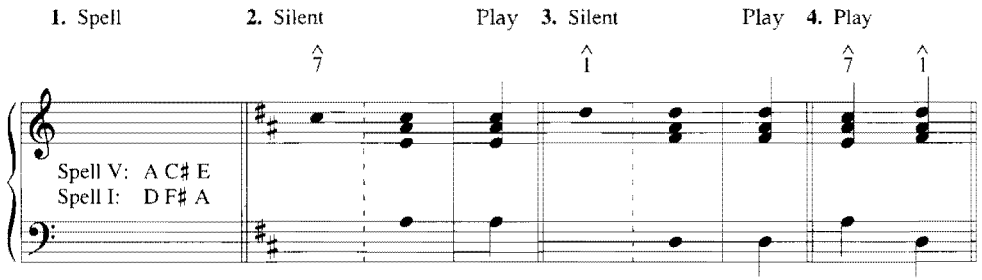


Keyboard Harmony

Authentic Cadences You have already played single triads at the keyboard. To play a cadence, simply play two triads in succession, the choice of triads and position determined by the type of cadence and the soprano line. For example, play a perfect authentic cadence in D major, soprano line $\hat{7}$–$\hat{1}$.

1. Spell the dominant and tonic triads.
2. Locate $\hat{7}$ of D major (C♯) on the piano; locate lower notes of the V triad (right hand, A, E; left hand, A). Play the triad.
3. Locate $\hat{1}$ of D major (D) on the piano; locate lower notes of the I triad. Play the triad.
4. Play the V–I progression.

FIGURE 5.25



When close position is used in the right hand, part-writing procedures will always be acceptable, and at the same time the cadence can easily be played. Playing two notes in each hand, open position, is also acceptable but is slightly more difficult.

ASSIGNMENT 5.10 *Playing cadences.* In practicing the following cadences, use the circle of fifths, starting at any key and progressing around the circle until you arrive at the starting key. In minor keys, consider each I as i and each $\hat{7}$ as ♯$\hat{7}$.

(a) Play the perfect authentic cadences:

Major:	$\hat{2}$ $\hat{1}$	$\hat{7}$ $\hat{1}$
	V – I	V – I

(b) Play the imperfect authentic cadences:

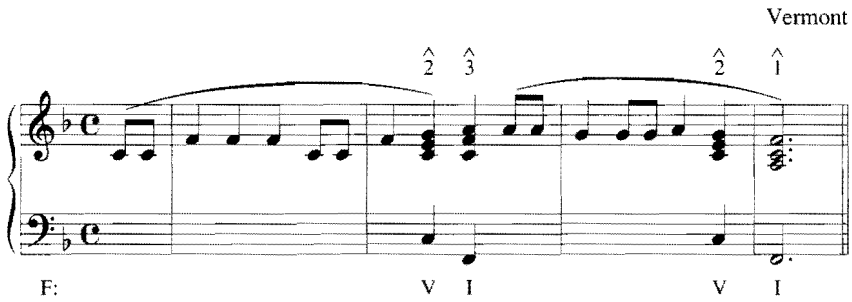
Major:	$\hat{2}\ \hat{3}$	$\hat{5}\ \hat{5}$	$\hat{5}\ \hat{3}$
	V – I	V – I	V – I

(c) Play the half cadences:

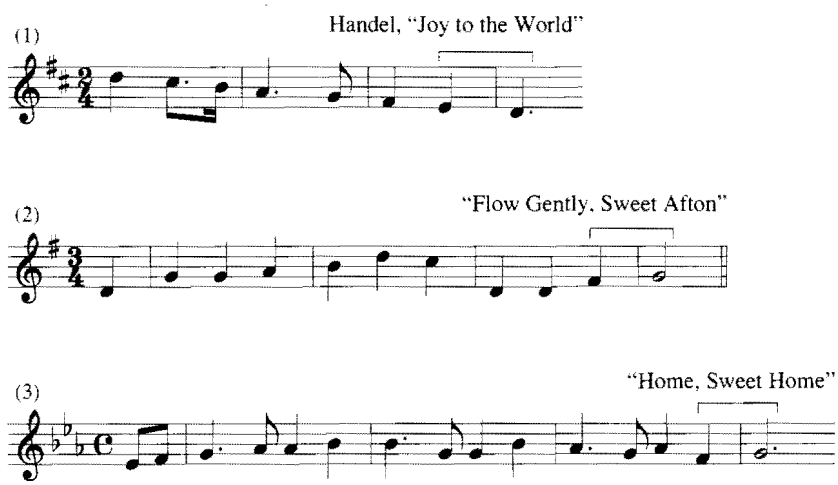
Major:	$\hat{1}\ \hat{7}$	$\hat{1}\ \hat{2}$	$\hat{3}\ \hat{2}$	$\hat{5}\ \hat{5}$
	I – V	I – V	I – V	I – V

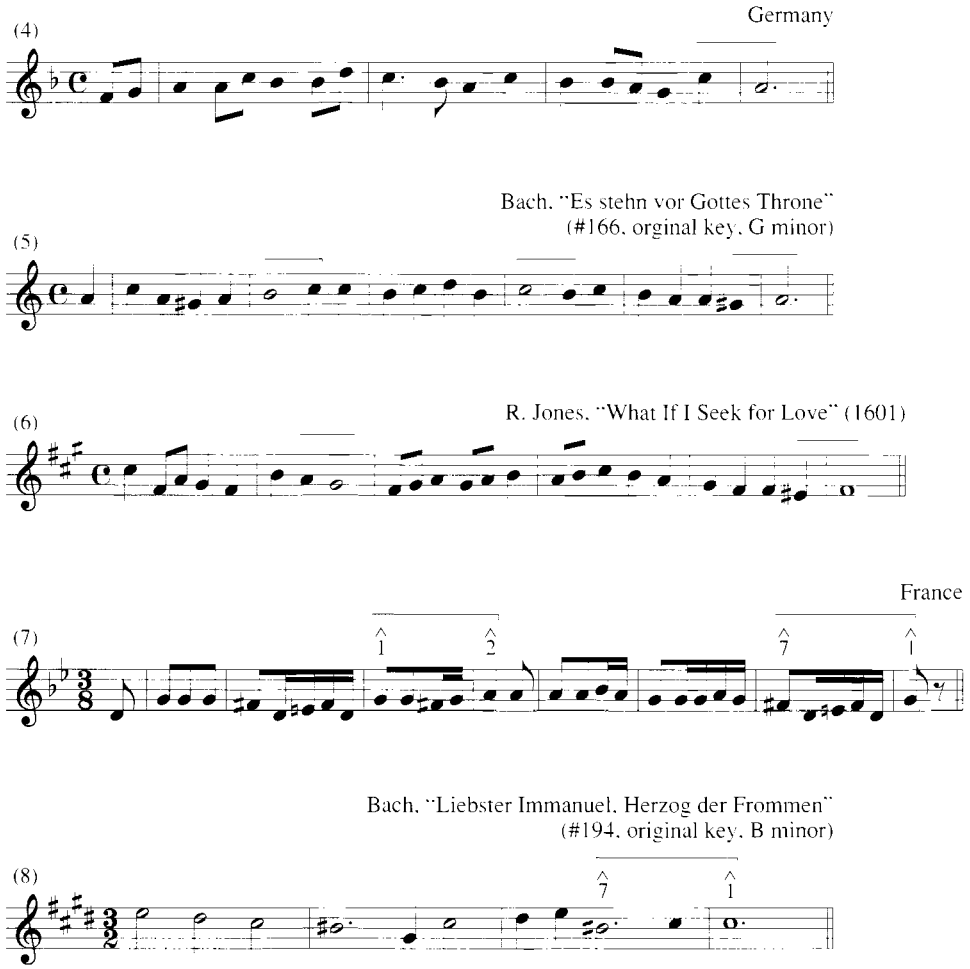
Harmonizing Melodic Cadences As a first step in learning to harmonize an entire melody, we will learn to harmonize melodic cadences with harmonic authentic cadences. In Figure 5.26, we see two motives from a folk song with the melodic cadences $\hat{2}$–$\hat{3}$ and $\hat{2}$–$\hat{1}$. These can be harmonized with an imperfect authentic cadence and a perfect authentic cadence, respectively.

FIGURE 5.26



ASSIGNMENT 5.11 Play these tunes (phrases from chorales and from well-known melodies) and supply a harmonic cadence at the point of the melodic cadence, as in Figure 5.26.



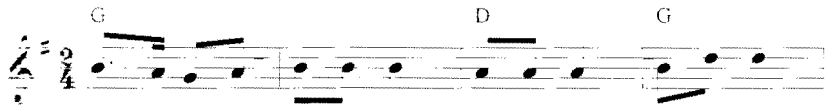


Melody Harmonization Using Lead Sheet Symbols

Music literature contains a vast amount of melodic material that can be harmonized using only I and V. Before asking you to choose *and* play a complete harmonization, we will ease you into this skill through the use of the *lead sheet* or *fake sheet.* This type of melodic presentation is found in most of the current series of public-school music textbooks. "Fake books" are well known in the popular music field; in these the performer improvises upon the given tune and its accompanying letter-name symbols.

In the simple nursery tune in Figure 5.27, the letter name of the root of each chord is used instead of the chord number. (You could have quickly figured out this harmonization, but the tune illustrates the point clearly.)

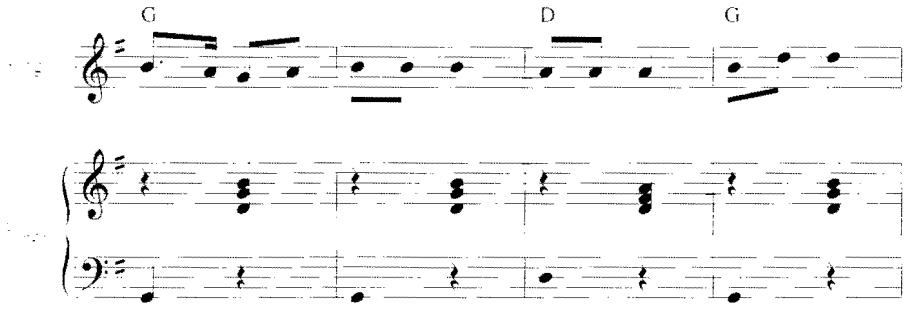
FIGURE 5.27 *Lead Sheet Symbols*



Of the many possible modes of performing a lead sheet, the following two are the simplest and at the same time yield musical results.

Playing an Accompaniment Only When someone else performs the tune, or when singing or whistle the tune yourself, use a simple "oom-pah" style: Play the root in the left hand on the strong beat and play the triad in the right hand on the weak beat (the second and third beats in triple meter).

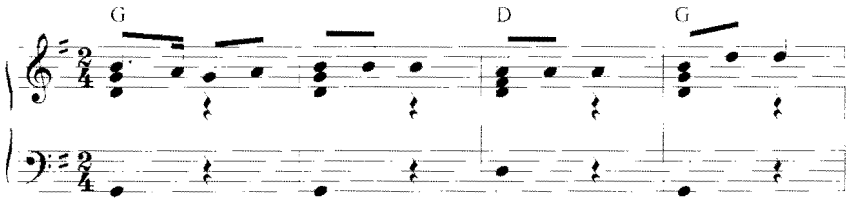
FIGURE 5.28



After the first triad is played, triads that follow should be connected by using the part-writing procedures already learned. Note that in going from measure 2 to measure 3 (I to V), the common tone was held.

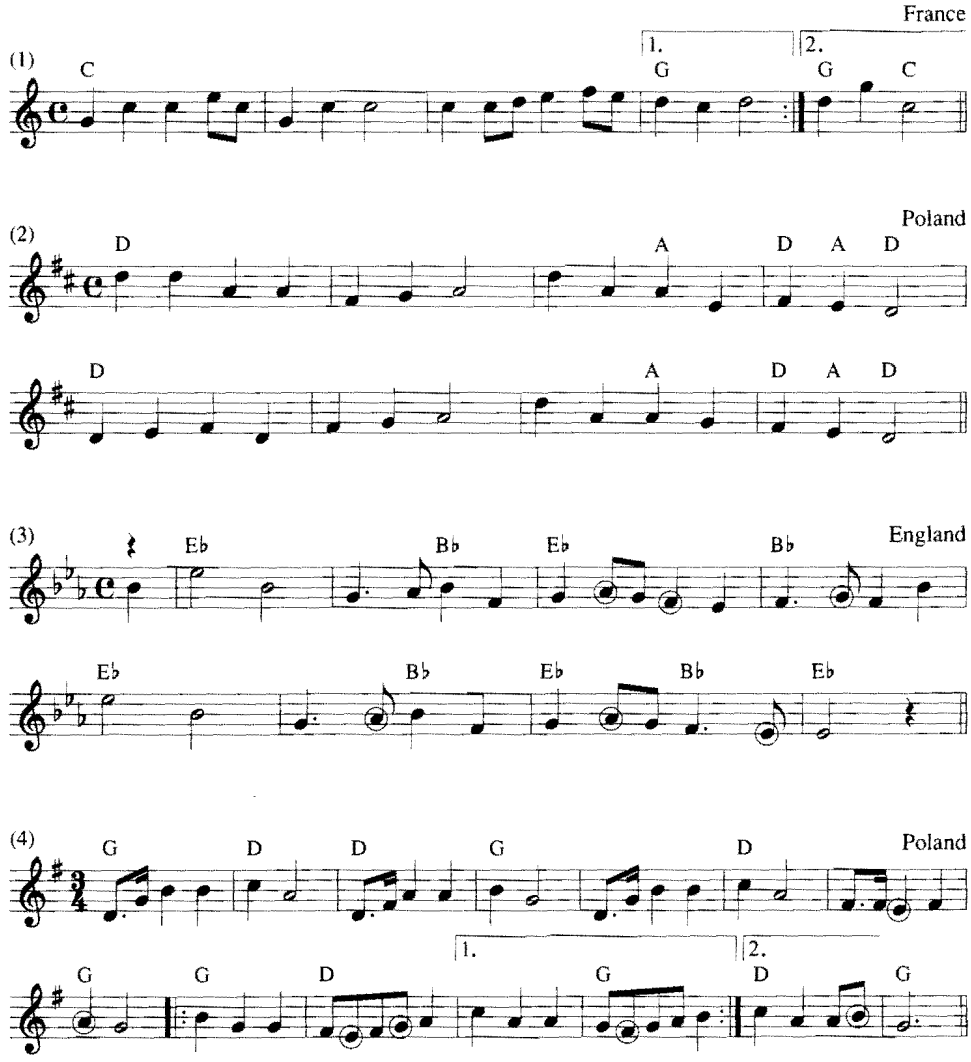
Playing Melody and Accompaniment Together Play the given chord on the downbeat, three notes in the right hand and one in the left hand, with the melody note being the highest note in the chord. Play a chord again (1) after a bar line (measures 1–2) or (2) at the point a new chord is required (measure 3). See "Note" on page 105.

FIGURE 5.29

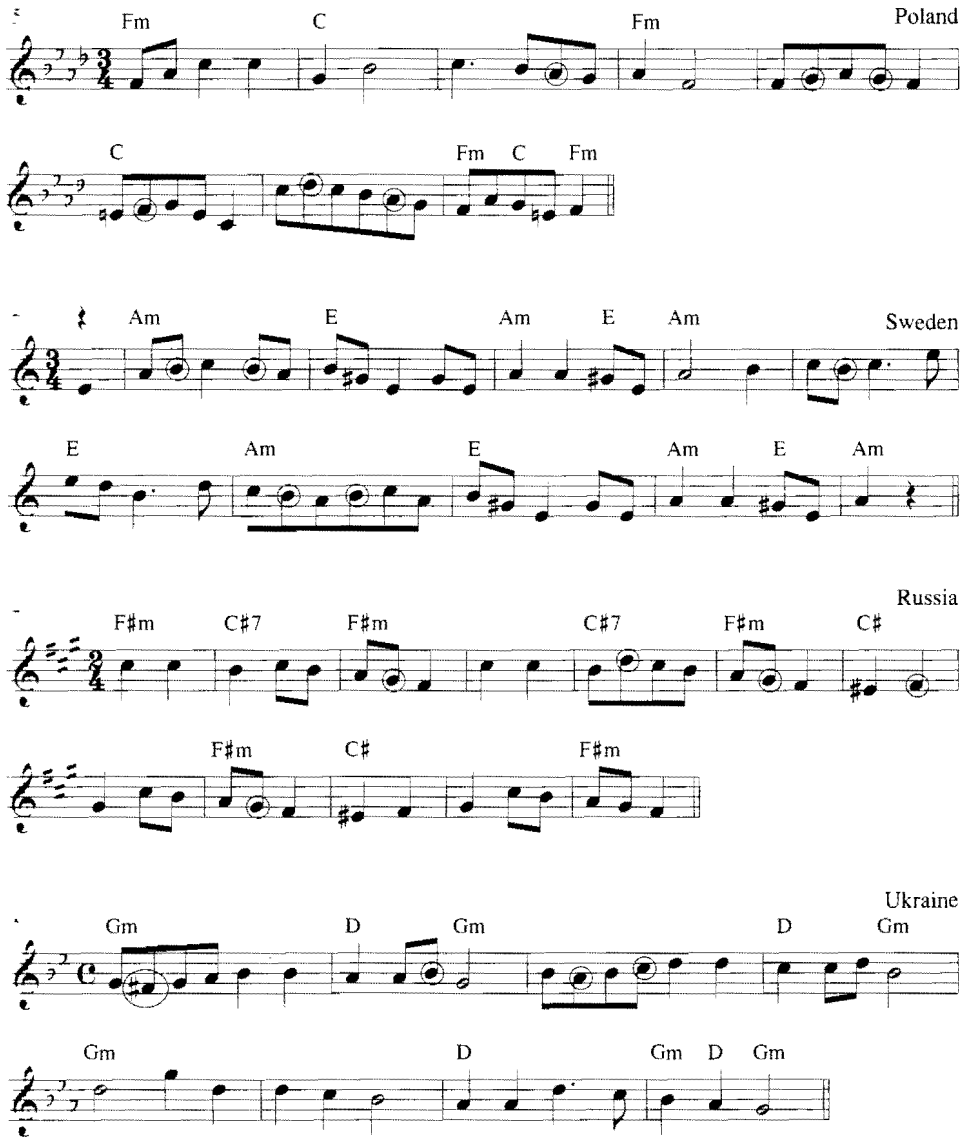


Practicing from lead sheets such as this will improve your keyboard facility, and careful observation of what you are doing will bring you insights into the reasons for harmonic choices and nonharmonic usages.

ASSIGNMENT 5.12 *Playing a harmonization from a lead sheet.* Circled notes are nonharmonic tones (review page 72).

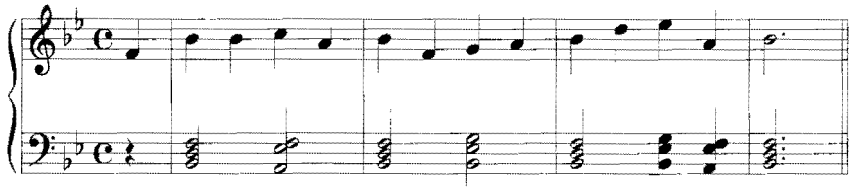


For a minor triad, "m" is added. Fm = F A♭ C.



Note: Playing chord progressions in melody harmonization is often taught the "easy" way, playing block triads with a minimum of finger movement in the left hand, leaving the right hand free to play the melody. This method works well enough in the study of tonic, dominant, and subdominant chords but becomes awkward and difficult in using the remaining harmonies. In addition, the left-hand sound is inferior and unprofessional: Musical voice leading is impossible, parallel octaves are frequent, and the sound of a cluster of notes in the bass range is usually harsh and unpleasant, as in this example.

FIGURE 5.30



Students needing instruction in playing chords only for nonprofessional purposes are referred to *Rudiments of Music*, third edition (Prentice Hall, 1995), Chapters 21 and 23, for a complete presentation of this method.

Summary

Part-writing is the art of achieving good melodic lines when connecting a series of chords.

Procedures used consistently by composers are said to be conventional, though these do not restrict the use of other ways of connecting chords.

These factors must be considered when writing a single triad: *voice range, doubling, triad position,* and *distance between voices.*

In *close position,* the three upper notes of a triad are as close together as possible. In *open position,* there is more than an octave between the soprano and tenor voices.

When a triad is repeated with a different soprano note, the position of the triad may change or remain the same, depending upon the musical context.

Conventional procedures for connecting the tonic and dominant triads are (1) hold the common tone and move the other voices stepwise, and (2) when the common tone cannot be held, move the three upper voices in similar motion.

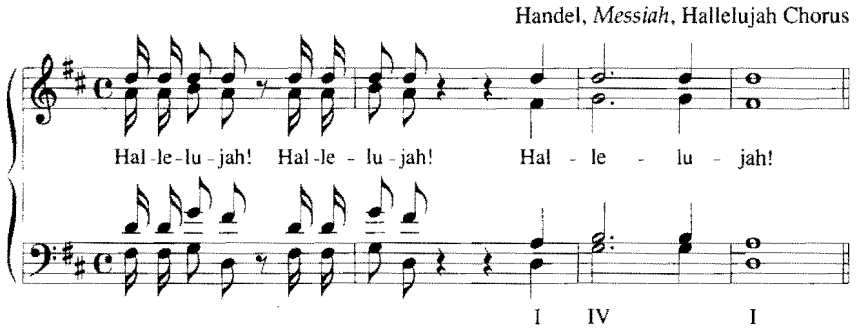
Other procedures to connect these two triads apply in special situations.

6

The Subdominant Triad

Upon completion of Chapter 5, either of Chapters 7 and 8, or both, may, if desired, be studied before or concurrently with this chapter.

FIGURE 6.1

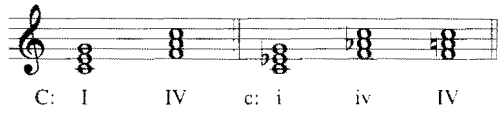


Who with any interest in music at all is not acquainted with this glorious conclusion to the Hallelujah Chorus? Most of the work's many "hallelujahs" are set to the progression I–IV–I, ending with the stately plagal (IV–I) cadence above.

Spelling the Subdominant Triad

The subdominant triad has its root on the fourth (subdominant) scale step of the key. In a major key, the triad is a major triad. In a minor key, the subdominant triad is usually minor, but when melodic considerations require the use of the raised sixth scale step, it is major. (Use of the major subdominant triad in a minor key will be studied in Chapter 10.)

FIGURE 6.2



ASSIGNMENT 6.1 Spell the subdominant triad in each major key.

In the Workbook: Answers to the entire assignment are given.

ASSIGNMENT 6.2 *(a)* Spell the minor subdominant triad in each minor key.
(b) Spell the major subdominant triad in each minor key.

In the Workbook: Answers to the entire assignment are given.

Plagal Cadences

Like the dominant triad, the subdominant triad can occur during the course of the phrase and also as part of a cadential progression. Cadences using the subdominant and the tonic triads are known as *plagal cadences* and may be found in the same forms as authentic cadences. The plagal cadences are these:

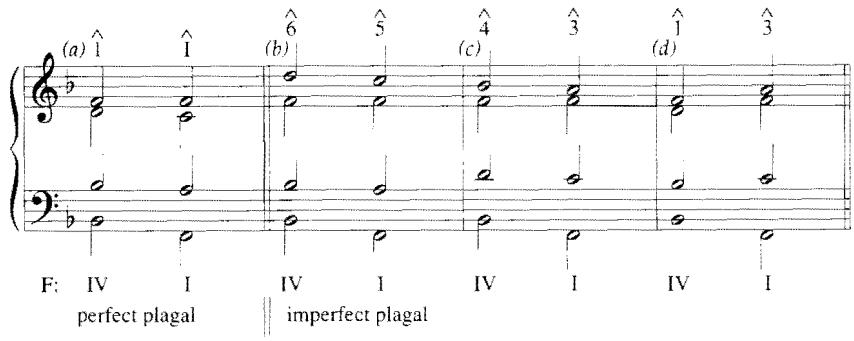
Perfect Plagal (PP) The progression IV–I or iv–i in which the subdominant triad has its root in the bass and the final tonic triad has its root in both bass and soprano (Figure 6.3*a;* see also Figures 6.1 and 6.4).

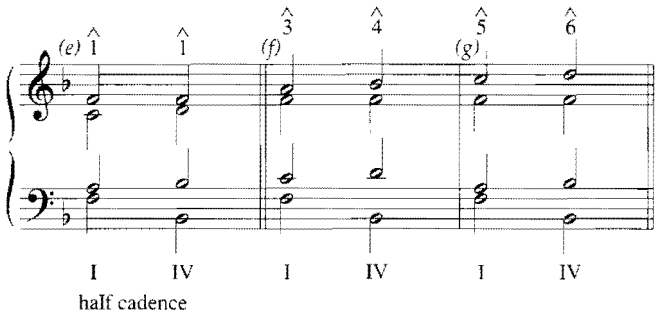
Imperfect Plagal (IP) The progression IV–I or iv–i in which the final tonic triad is found with its third or its fifth in the soprano. The commonly used soprano lines are $\hat{6}$–$\hat{5}$, $\hat{4}$–$\hat{3}$, and $\hat{1}$ up to $\hat{3}$ (Figure 6.3*b–d*).

Half Cadence (H) A little-used cadence, the progression I–IV or i–iv (Figure 6.3*e–g;* see also Figure 6.5).

If we replace the key signature of F major, one flat, with four flats, Figure 6.3 displays the same cadences in F minor.

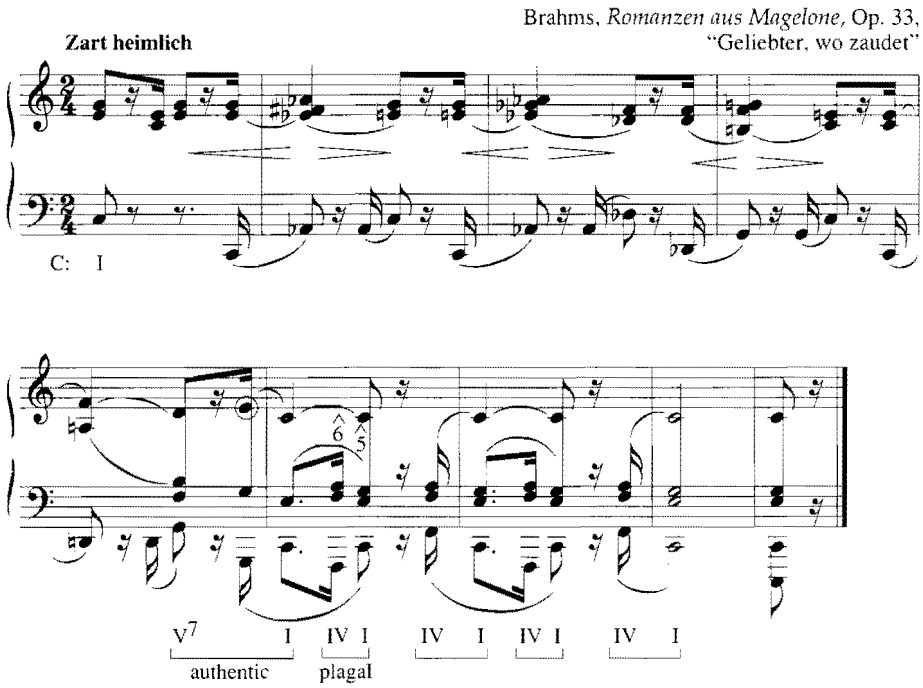
FIGURE 6.3 *Plagal Cadences*





Actually, plagal cadences are infrequent in music composition, usually following a V–I progression.[1] Figure 6.4 shows an extended perfect plagal cadence (soprano $\hat{6}$–$\hat{5}$) following V–I at the close of a *lied* (song) by Brahms.

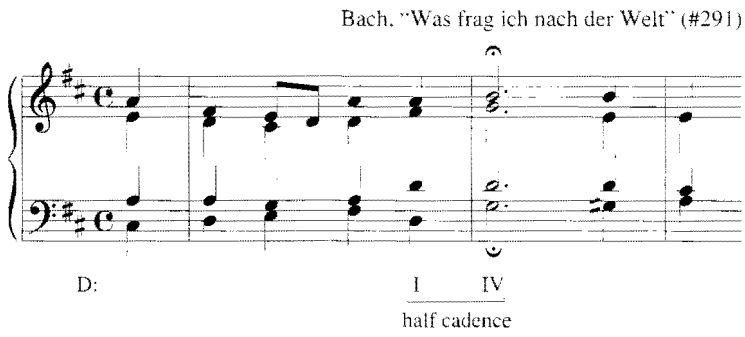
FIGURE 6.4



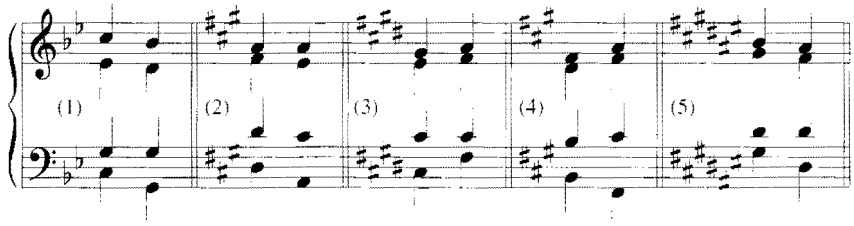
[1]A plagal cadence to the text "Amen" frequently concludes a hymn tune in the music of many religious denominations.

The uncommon half cadence may occur at the end of a phrase within the composition, as shown in Figure 6.5. You may also recall a similar cadence from the first phrase of "Auld Lang Syne" (". . . and never brought to mind?").

CD FIGURE 6.5 *Half Cadence, I–IV*



ASSIGNMENT 6.3 *Identifying plagal cadences.* For each cadence, name (1) the key (major or minor), (2) the cadence (PP, IP, or H), and (3) the scale steps in the soprano. For the cadence of Figure 6.1, the answers would be D, PP, $\hat{1}$–$\hat{1}$



In Appendix E: Answers to the entire assignment are given.

IV or iv in Other Progressions

The subdominant triad may progress freely to or from the tonic or the dominant, with the exception of V–IV, which is infrequently used. When the authentic cadence is preceded by IV or iv, the progression IV–V–I or iv–V–i is often known as a *full cadence*, shown in major in Figure 6.6 and in minor in Figure 6.7. (Do you remember the special name for the major cadential tonic triad in a minor key?)

FIGURE 6.6

Hymn: Toulon (Old 124th)

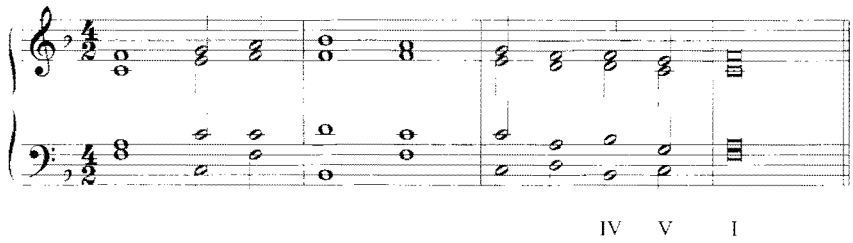
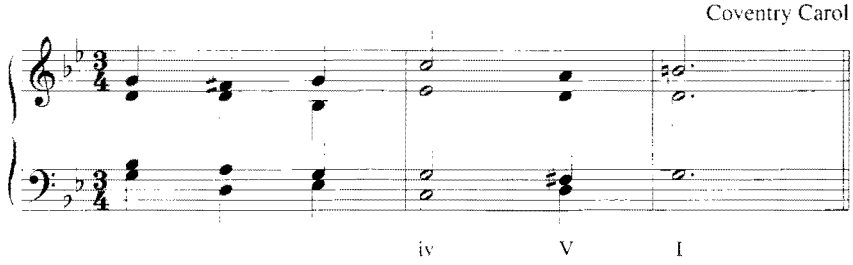


FIGURE 6.7

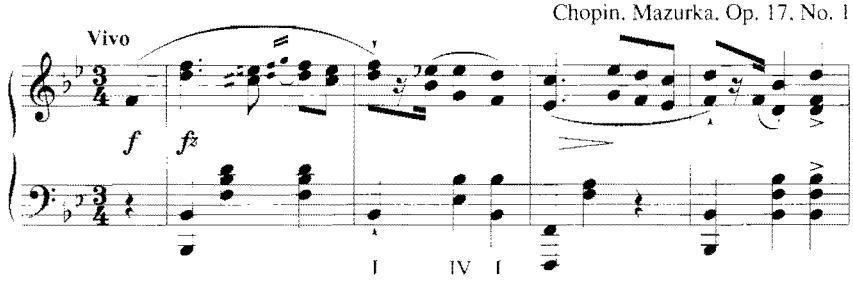
Coventry Carol



Any progression involving the subdominant triad can be used within the phrase, as in Figure 6.8, IV–I.

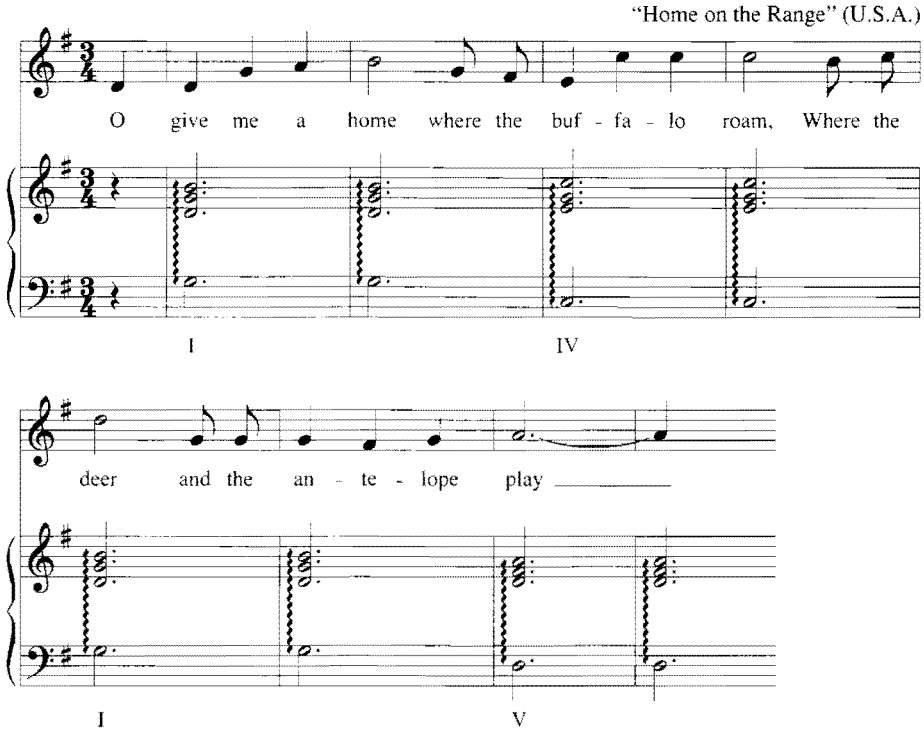
FIGURE 6.8

Chopin, Mazurka, Op. 17, No. 1



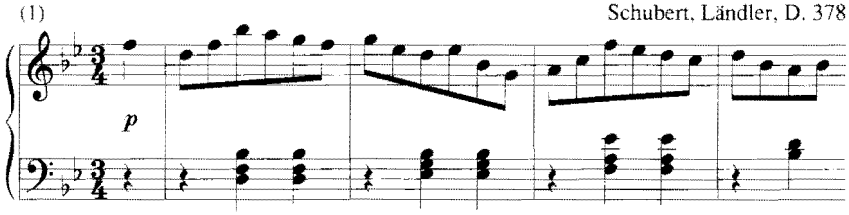
The tonic, dominant, and subdominant chords are widely used as the principal "guitar chords," especially for strumming along with a simple folk tune or with many of the country and western tunes of popular music.

CD FIGURE 6.9



ASSIGNMENT 6.4 *Harmonic analysis.* Analyze these excerpts using roman numeral symbols. Circle all nonharmonic tones.

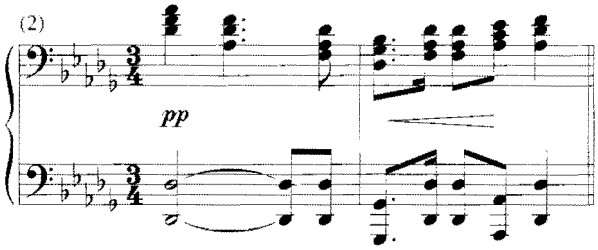
(1) Schubert, Ländler, D. 378



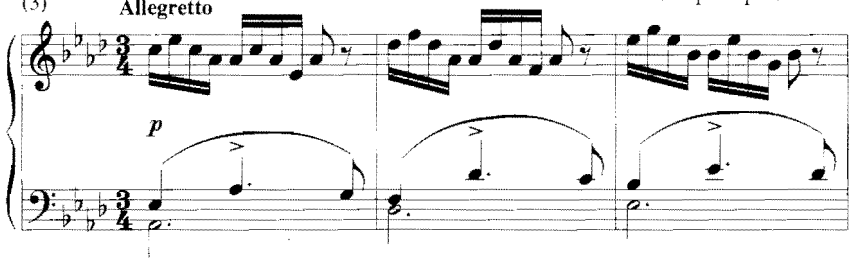
Wagner, *Das Rheingold,* Prelude to Scene 2

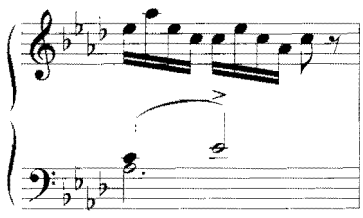
Ruhiges Zeitmass

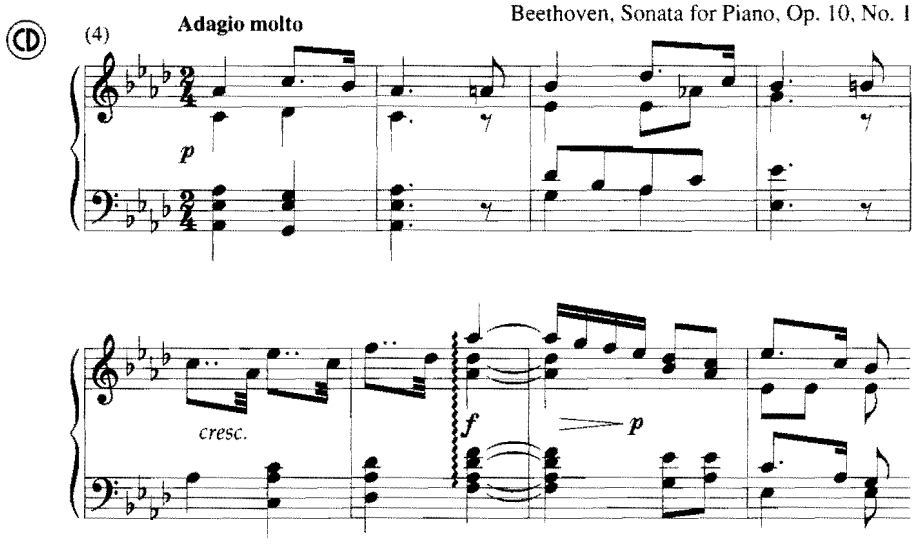
(2)

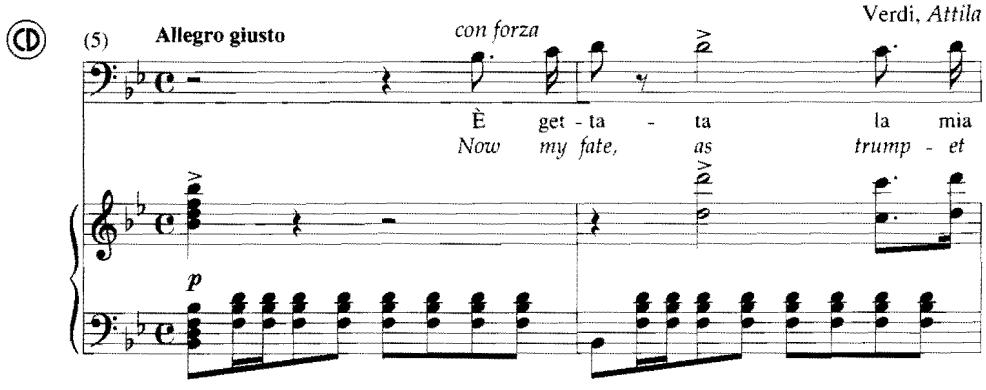


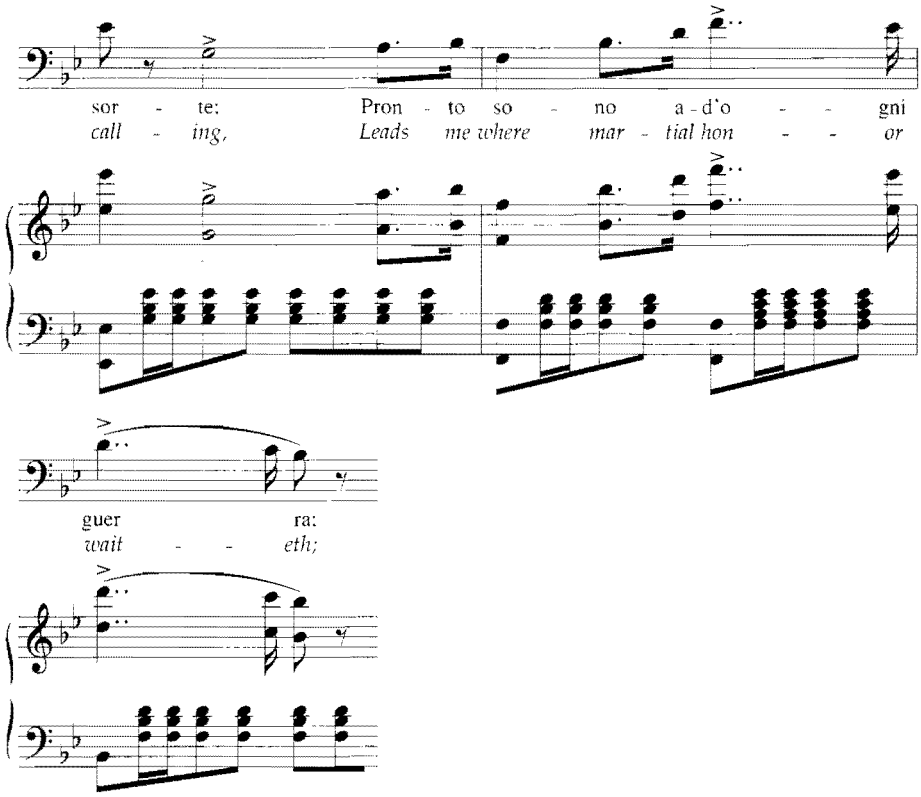
(3) **Allegretto** Schubert, Impromptu, D. 899






(4)
Adagio molto
Beethoven, Sonata for Piano, Op. 10, No. 1
p
cresc.
f
p


(5)
Allegro giusto
Verdi, *Attila*
con forza
È get - ta - ta la mia
Now my fate, as trump - et
p

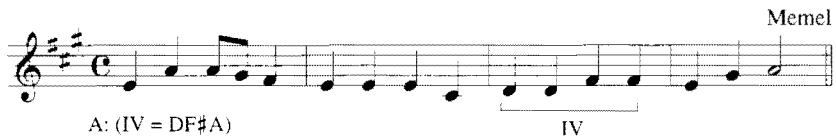


› *Appendix E: The answer to (1) is given.*

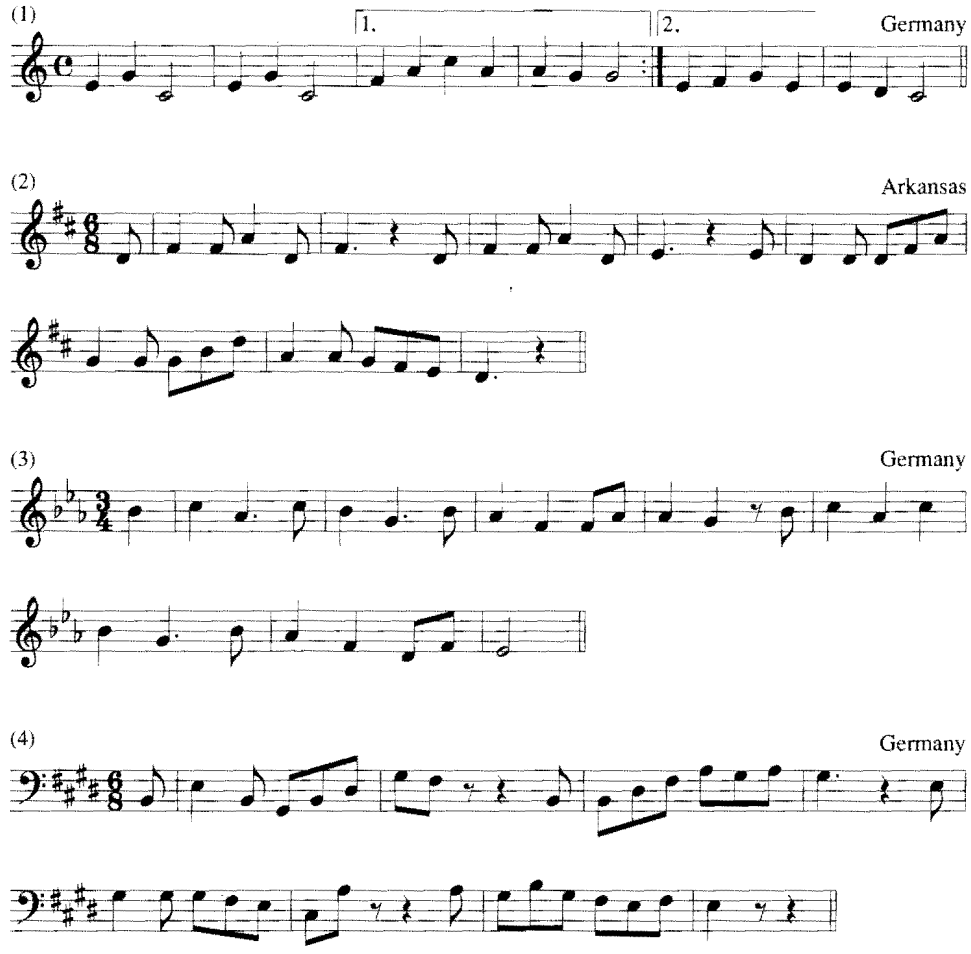
The Subdominant Triad in Melodic Writing

Intervals from the subdominant triad can be used effectively in melodic writing, although they are used less frequently than intervals from tonic and dominant triads.

FIGURE 6.10



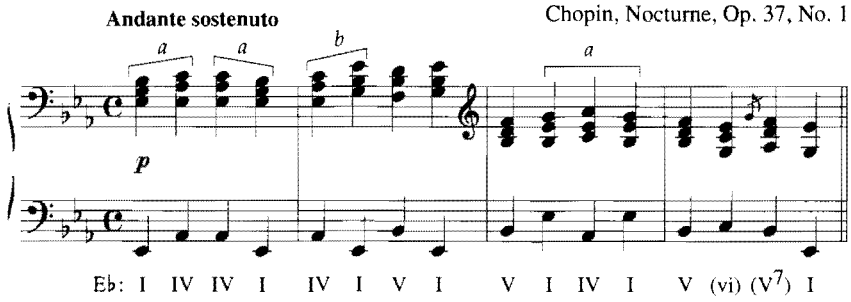
ASSIGNMENT 6.5 Locate and bracket intervals from the subdominant triad in these melodies, as in Figure 6.10.



Writing the Progression IV–I or iv–i

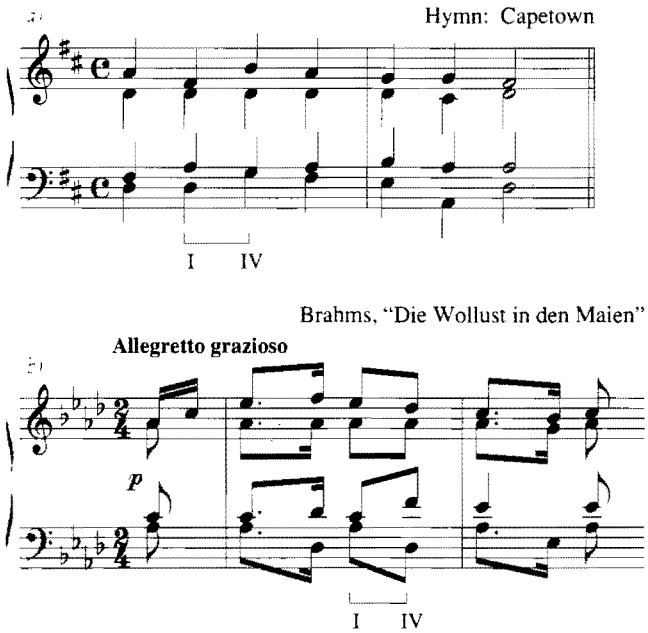
Since the roots of the IV and I triads are a fifth (fourth) apart, the part-writing procedures are the same as for V–I. In Figure 6.11, each pair marked *a* has a common tone; the pair marked *b* has none. Review these part-writing procedures as shown in Figure 6.3 and in Assignment 6.3.

FIGURE 6.11

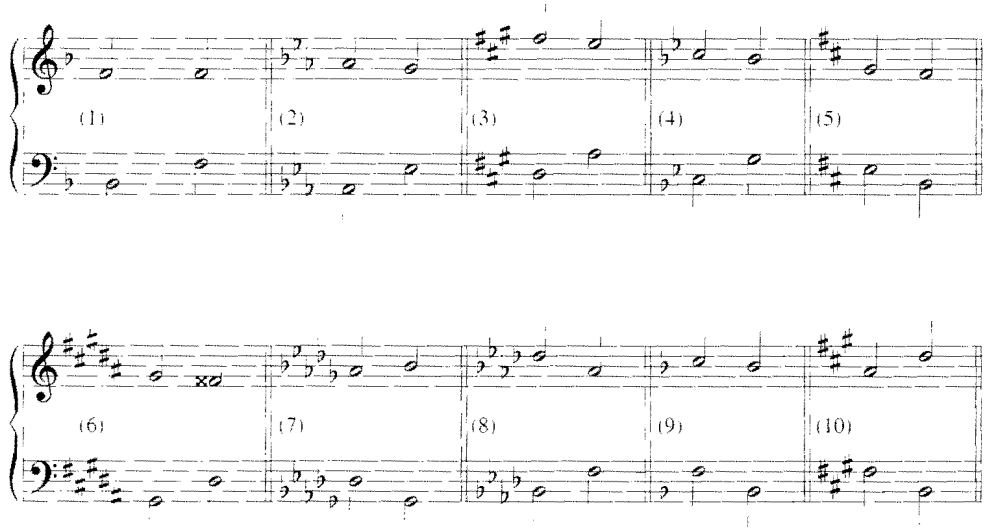


The "third-to-third" skip is not infrequent. Note the change of position in each I–IV progression when the skip is used: close to open in *a* and open to close in *b*.

FIGURE 6.12



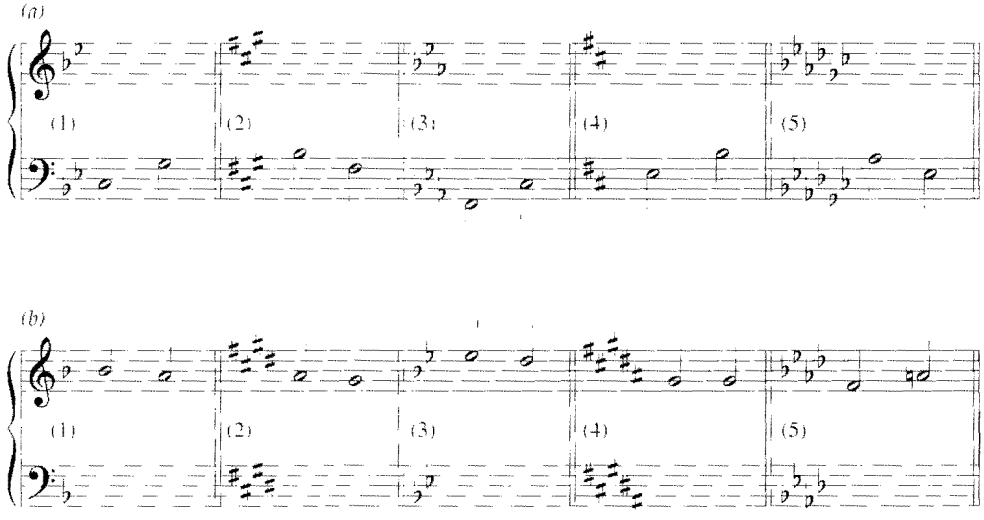
ASSIGNMENT 6.6 Write plagal cadences, (1)–(7), and progressions using the "third-to-third" skip, (8)–(10). Identify the cadences as PP, IP, or H. Place chord numbers below the staff.



ASSIGNMENT 6.7 Write plagal cadences when

(a) only the bass line is given. Include two PP cadences and one each of the IP cadences shown in Figure 6.3.

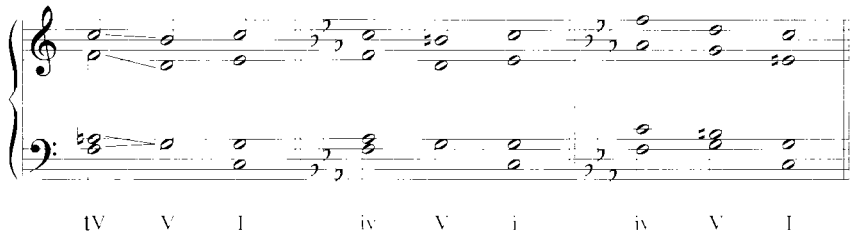
(b) only the soprano line is given. Be sure that each bass note is the root of a triad.



Writing the Progression IV–V (iv–V)

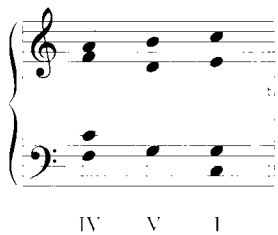
When the roots of two triads are a second apart, as in IV–V, no common tone is available. In the conventional procedure, each of the three upper voices moves to its nearest triad tone in contrary motion to the bass, as in Figure 6.13. Also review Figures 6.6 and 6.7

FIGURE 6.13



Did you notice in the preceding figures that the soprano note of IV (iv) always descends? The soprano may, of course, ascend; but in that case, the chord following is almost always vii°, a procedure to be studied in Chapter 10. There is one exception, very little used and available only for a IV (major) triad with its third in the soprano, as shown in Figure 6.14. The aural effect of parallel fifths is present, even though absent in the notation.

FIGURE 6.14



Parallel Fifths and Octaves; the Melodic Augmented Second

The heading of this section lists three weaknesses in part-writing that students almost always find frustrating. Since they can easily occur in the writing of triads with roots a second apart, they are first mentioned here, but they can occur in almost any part-writing problem. These are the three, shown in Figure 6.15:

1. Parallel perfect fifths
2. Parallel octaves
3. The melodic augmented second

FIGURE 6.15

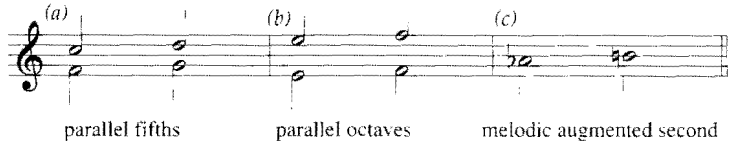
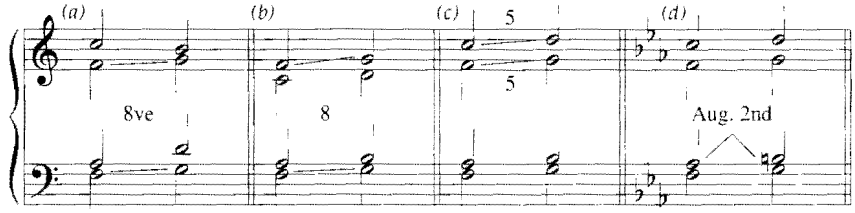


Figure 6.16 shows how easy it is to produce these errors when not using conventional procedures.

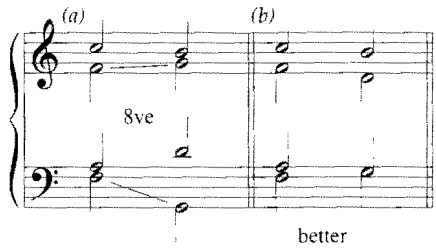
FIGURE 6.16



(Be sure to read Article #6, "The Three Demons of Part-Writing," in this chapter. Included is a discussion of why these procedures are objectionable.)

Any attempt to avoid parallel octaves by changing the direction of one of the two notes involved does not produce successful results. In Figure 6.17*a*, an attempt was made to avoid an octave by moving the bass down a minor seventh instead of up a major second. These are still parallel octaves, but they are called, in seemingly contradictory language, *parallel octaves by contrary motion*. There are, in our illustration, two F's going to two G's in the same pair of voices.

FIGURE 6.17



But there is an exception, as there usually is in part-writing! At the final cadence of a composition or at the end of one of its major sections, the soprano and bass commonly display the octave by contrary motion.

FIGURE 6.18

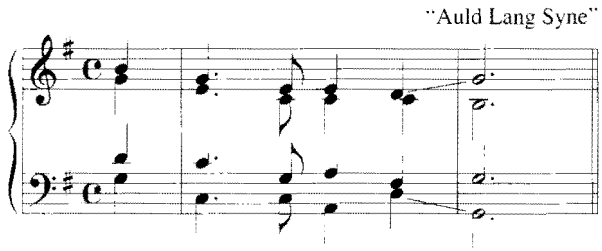
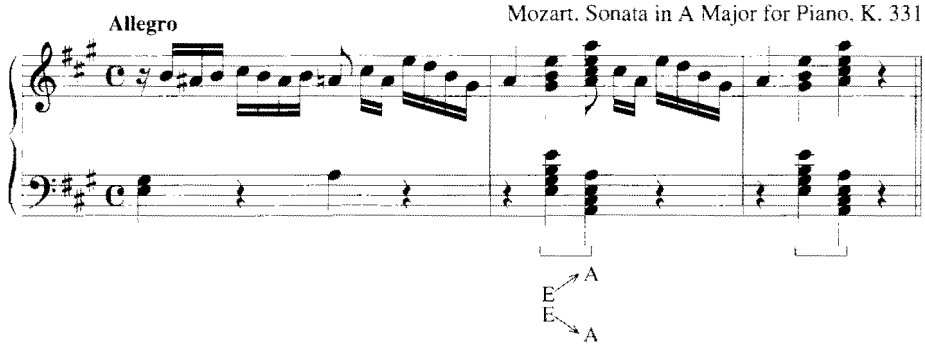
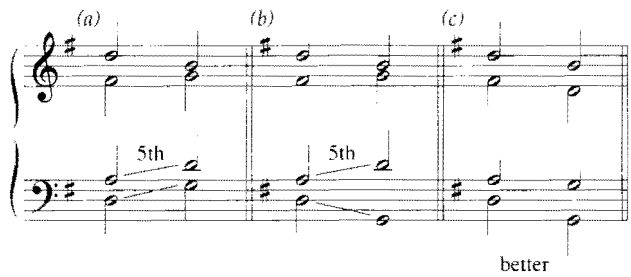


FIGURE 6.19



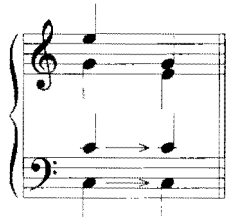
Parallel fifths by contrary motion are likewise to be avoided.

FIGURE 6.20



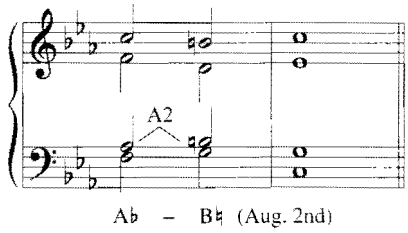
Note, however, that octaves or fifths repeated on the same pitches are *not* considered parallel; the use of these *stationary* octaves or fifths is acceptable.

FIGURE 6.21

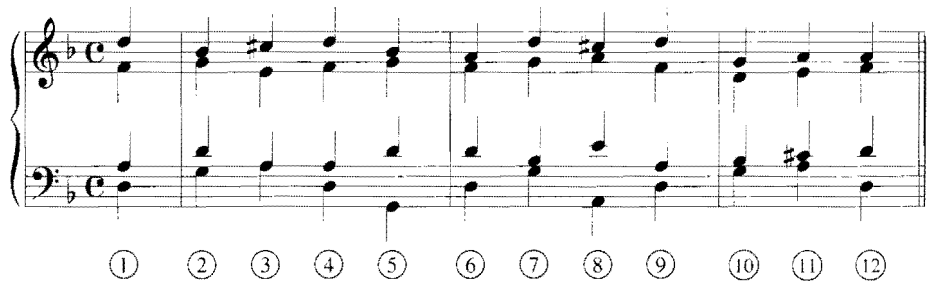


The melodic augmented second occurs in a minor key when one voice line progresses from ♭$\hat{6}$ to ♯$\hat{7}$, as in the tenor line of Figure 6.22. Notice also that the movement of the tenor has produced an unwanted doubled leading tone.

FIGURE 6.22



ASSIGNMENT 6.8 The following harmonization is full of these offending practices. How many can you find? Compare your answers with the list below.



1–2 Fifths, tenor and bass
2–3 Augmented second, soprano
4–5 Fifths by contrary motion, tenor and bass
6–7 Fifths, soprano and bass
7–8 Octaves by contrary motion, alto and bass

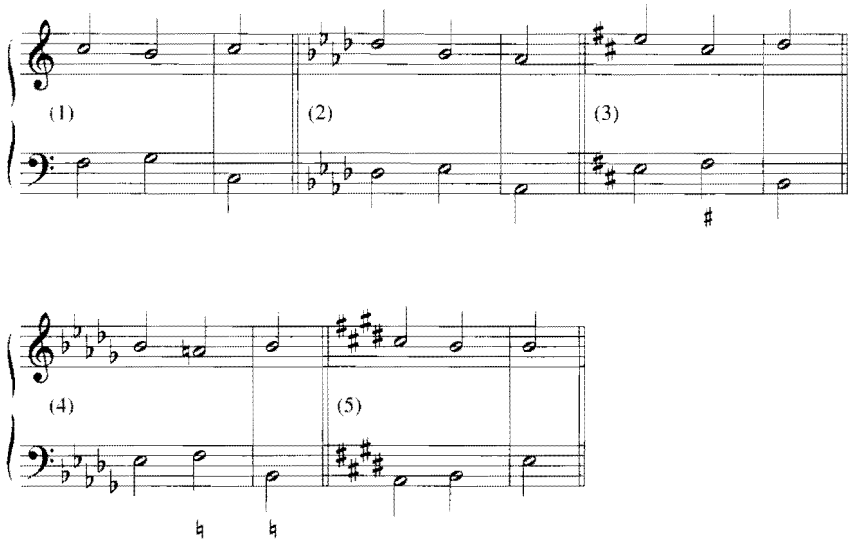
8–9 Fifths by contrary motion, tenor and bass

9–10 Octaves by contrary motion, soprano and bass

10–11 Three! Octaves, fifths, and augmented second

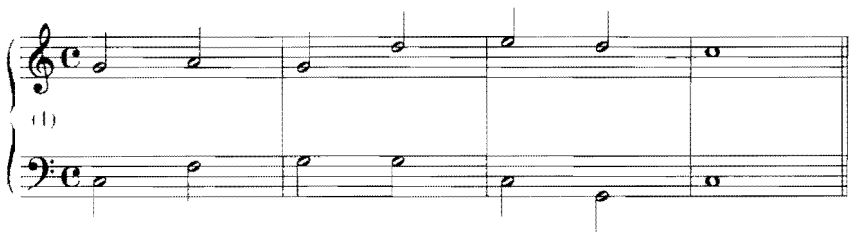
Use of conventional procedures will usually avoid such errors. This is not to say that only conventional procedures should be used. With the study of inversions and nonharmonic tones, we will have the opportunity for much more freedom in part-writing. But still, it is always best to try the conventional ways first.

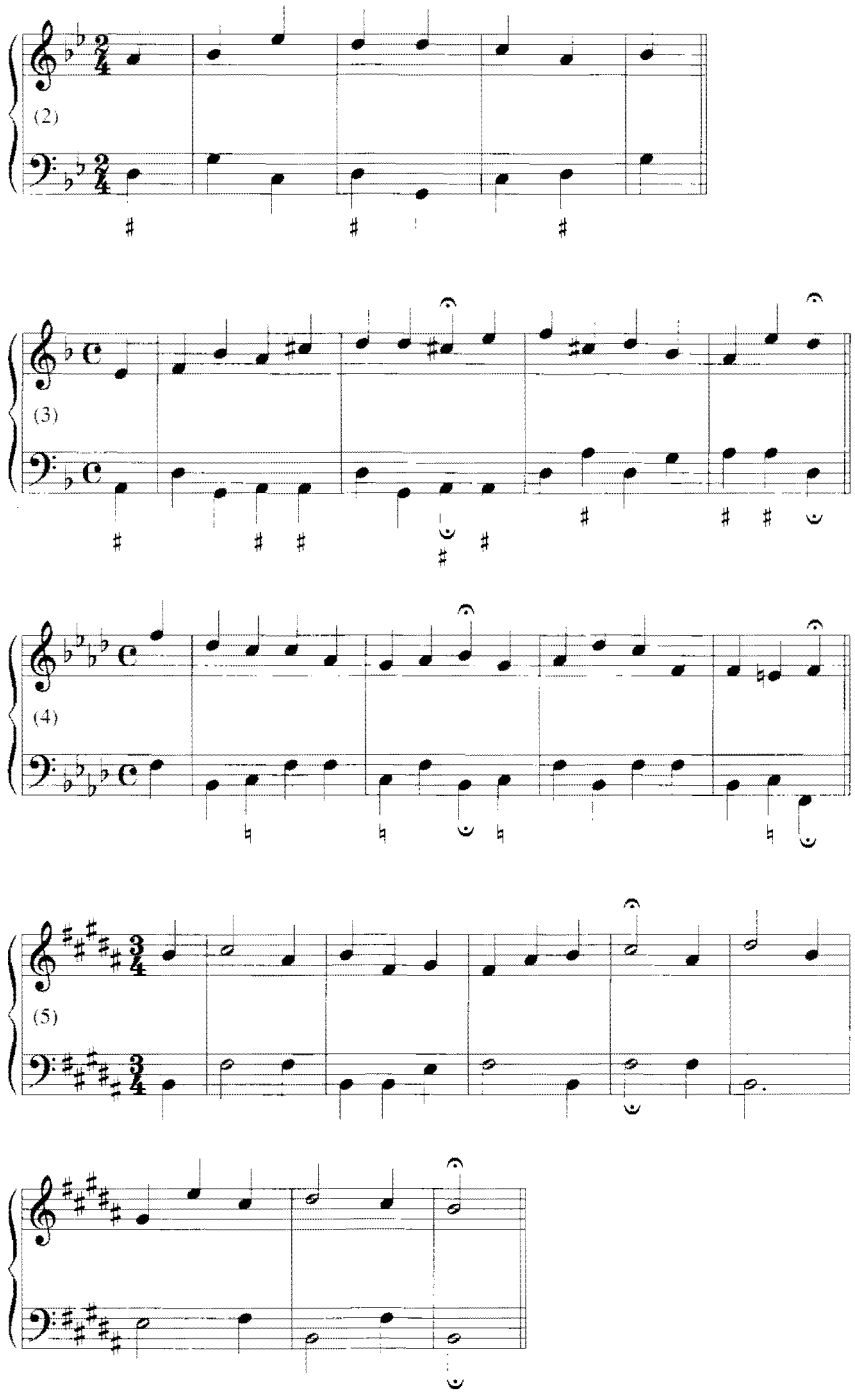
ASSIGNMENT 6.9 Write cadences as found below. Write chord numbers below the staff.



In the Workbook: Answers to the entire assignment are given.

ASSIGNMENT 6.10 Fill in alto and tenor voices using part-writing procedures studied thus far. Make harmonic analysis by placing the correct roman numeral below each bass note.



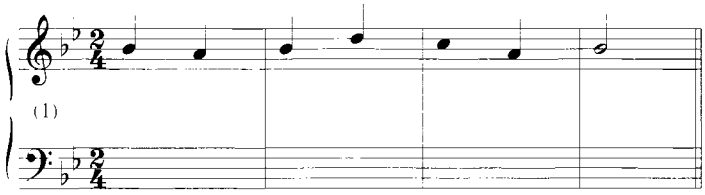


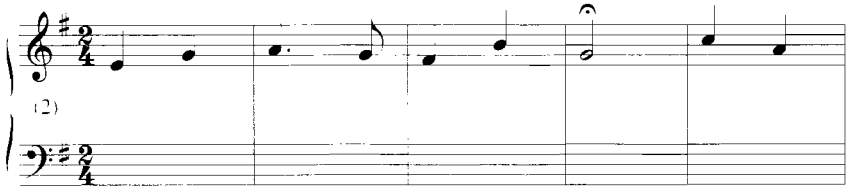
In Appendix E: The answer to (2) is given.

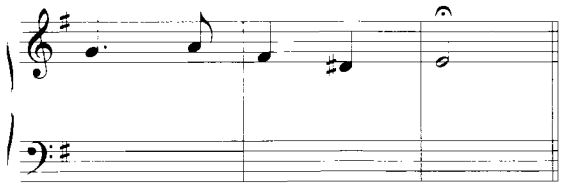
ASSIGNMENT 6.11 Harmonize melodies, supplying the alto, tenor, and bass parts. Follow this procedure:

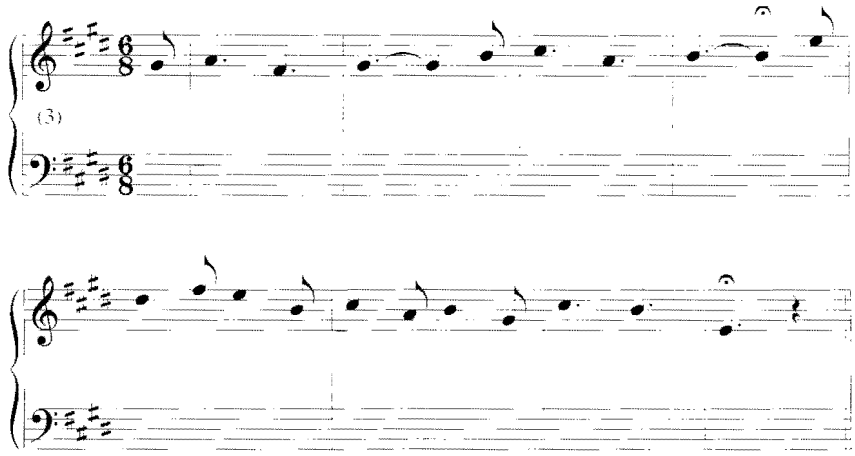
1. Determine the key. Do not only check the key signature, but also sing the melody through, observing the nature of the cadence to determine whether the melody is major or minor.
2. Write in the chord numbers for the cadence below the bass staff.
3. Write in chord numbers leading up to the cadence.
4. Write in the bass line, each note being the root of the chosen chord.
5. Fill in the inner parts.

Melody 1 can be harmonized in both a major key and a minor key. The subdominant triad will not appear in one of these keys.



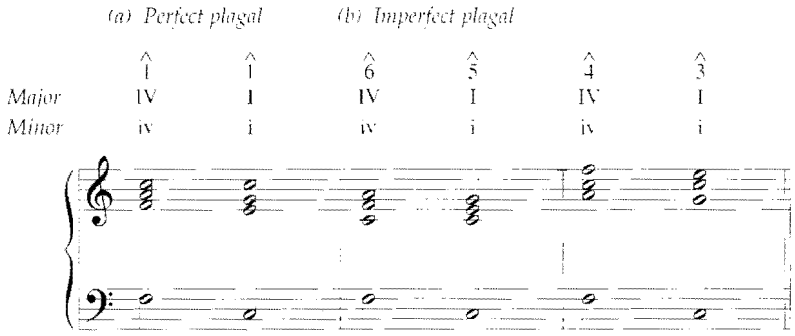






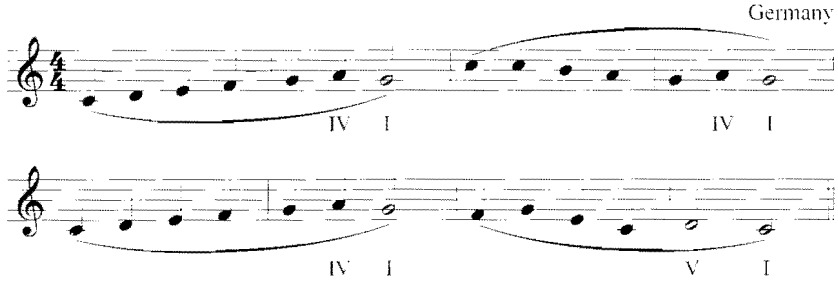
Keyboard Harmony

ASSIGNMENT 6.12 Play plagal cadences at the keyboard. Play them in each major or minor key.

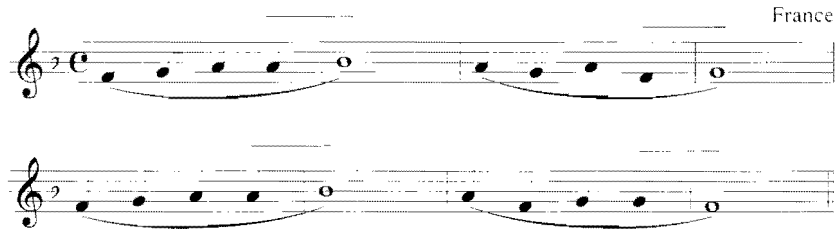


ASSIGNMENT 6.13 *Harmonizing cadences at the piano.* Play these melodies. When you reach a cadence (marked with a bracket), play an authentic or a plagal cadence as appropriate.

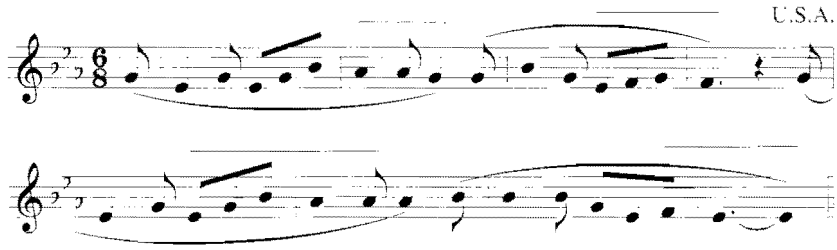
(1)



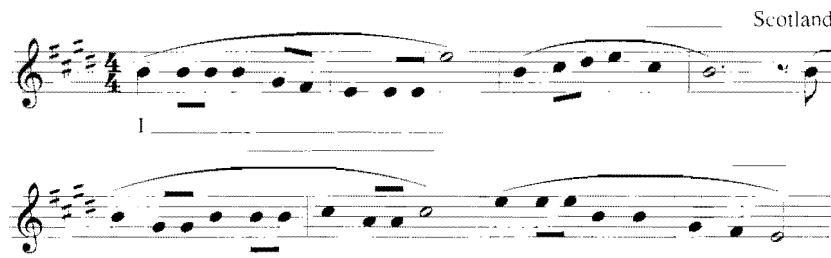
(2)



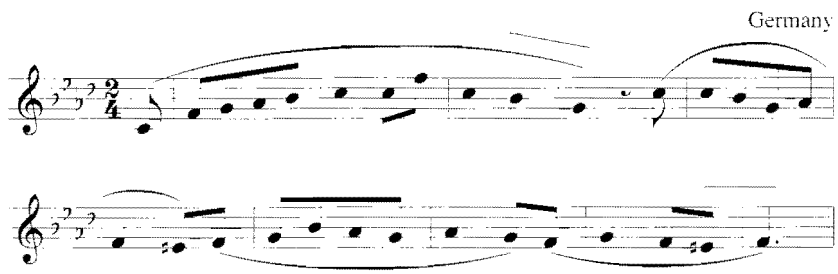
(3)



(4)

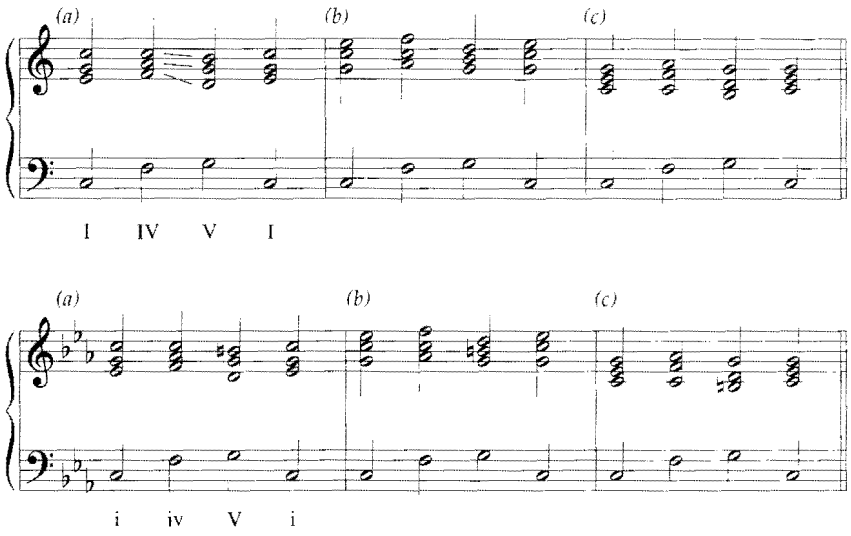


(5) The half cadence iv–V is included here.



The Progression I–IV–V–I

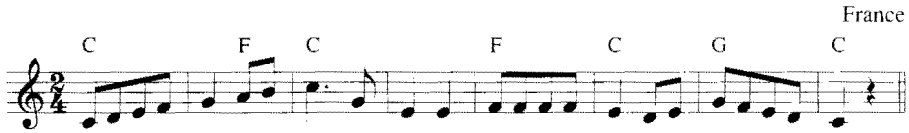
ASSIGNMENT 6.14 Play the progression I–IV–V–I and i–iv–V–i at the keyboard in each of its three soprano positions.



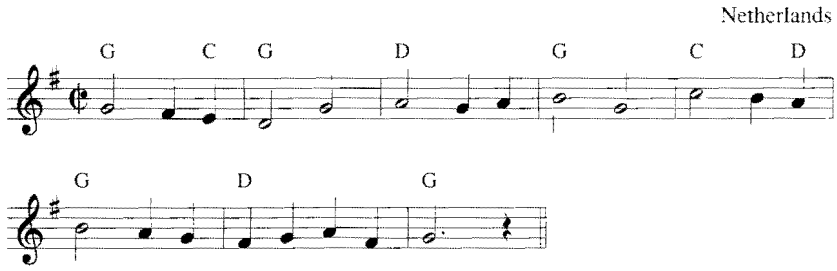
Melodic Harmonization

ASSIGNMENT 6.15 *Harmonizing a melody with lead sheet symbols.* The procedure is the same as that for I and V triads (review "Melody Harmonization Using Lead Sheet Symbols" in Chapter 5, page 102).

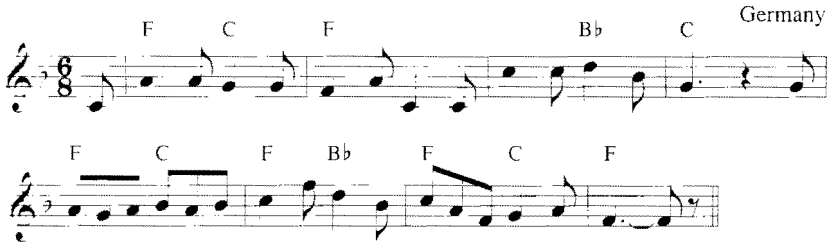
(1)



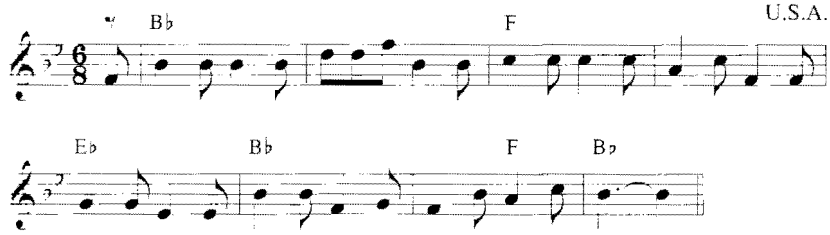
(2)



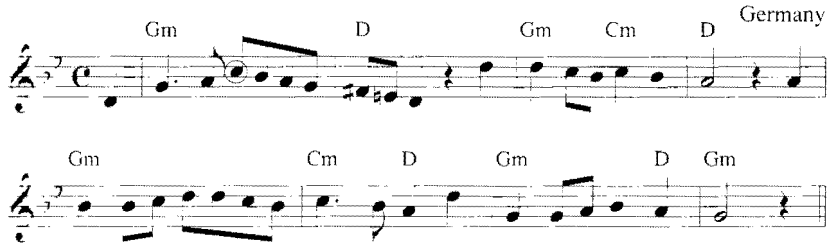
(3)



(4) Note the progression V–IV



(5)



plagal cadence consists of a progression from the subdominant to the tonic triad.

The plagal cadence is found in the same forms as the authentic cadence, although the half cadence is uncommon.

In a minor key, the subdominant triad may be iv or IV, depending upon the use of $\hat{6}$.

More common is the use of the progression IV–V. The IV–V–I progression at the cadence is sometimes called a *full cadence.*

In part-writing from IV to V, the three upper voices generally move down in contrary motion to the ascending bass. An ascending soprano usually requires that IV be followed by vii°.

Certain part-writing difficulties may appear from this point on: the *parallel octave*, the *parallel fifth*, and the *melodic augmented second.*

ARTICLE #6

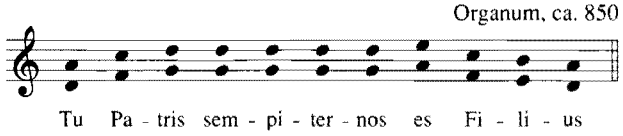
The Three Demons of Part-Writing

Well, not really demons. But many students, exasperated by their frequent and unwanted appearances, are ready to believe in some evil force at work!

There is nothing inherently wrong with parallel fifths, parallel octaves, and melodic augmented seconds. Any sound one can conceive is right if it pleases him or her, just as any sound is right for a particular era or a particular geographical area if it pleases the listeners of that time or place. However, during the period in Western music from about A.D. 1000 to A.D. 1900, these three sounds have generally *not* pleased composers or listeners; consequently, they have not been characteristic elements in the music of the West.

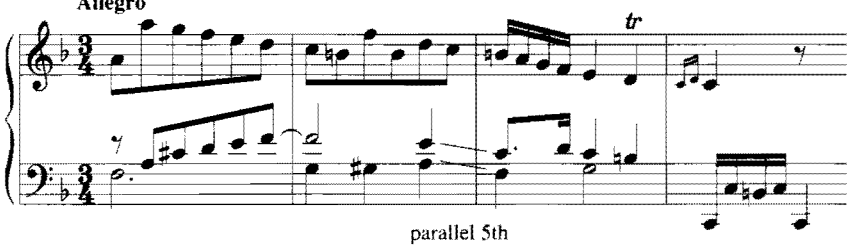
Ironically, the earliest known music for more than one voice line—the simultaneous sounding of a chant melody and the same melody a perfect fifth lower—produced, of course, a series of perfect parallel fifths.

Organum, ca. 850

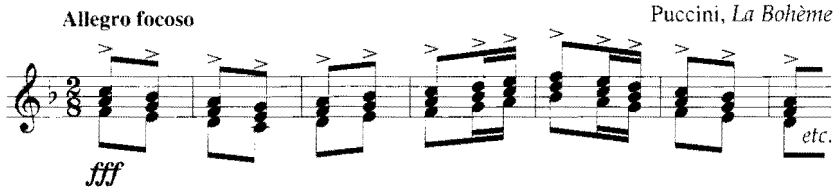


However, the monotony of this harmonic sound was replaced by the more interesting sounds of contrary motion about A.D. 1000, and from that time right up to our own, parallel fifths have been almost nonexistent in Western musical culture. They can be found occasionally, however, as in this excerpt from a Mozart sonata.

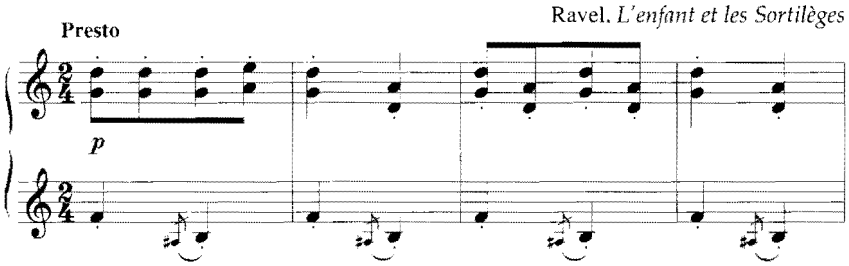
Mozart, Sonata for Piano in F Major, K. 547a



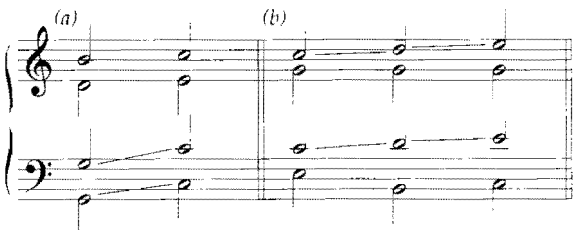
They have also been used to achieve special effects, as in the opening of the second act of *La Bohème,* in which they accompany a scene of general confusion.



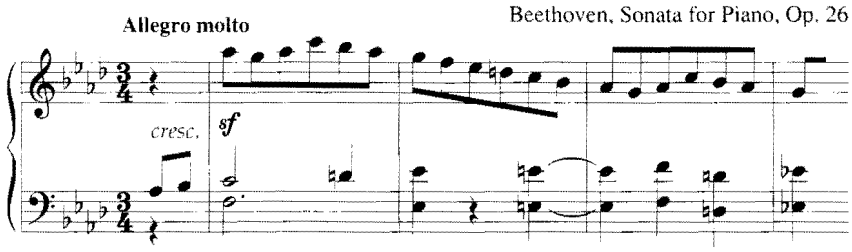
But in the twentieth century, and probably beginning with the music of Debussy (1862–1918), parallel fifths have regained their respectability after nearly a thousand years of neglect and are universally acceptable in contemporary music practice (see the following excerpt from a piece by Ravel).



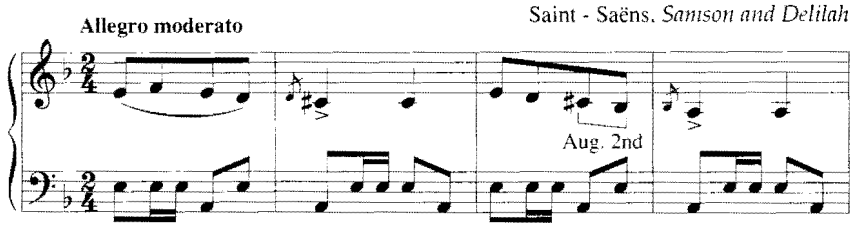
Parallel octaves are of two varieties, one acceptable, the other not. An octave is merely the repetition of a given pitch at another level, higher or lower. When the two notes sound simultaneously, the two sounds represent the same note. When two *different* voice lines move in octaves, then these octaves represent only one moving sound, and the effect is the loss of one voice line. In the example below, the four-voice structure is reduced to three by this parallelism.



Parallel octaves are acceptable when they represent a doubling of a single voice line, called *sonority doubling,* as is common in instrumental and keyboard music. In the following example, the octaves in measures 2–4 are merely a reinforcement of a single melodic line. Beethoven emphasizes this by the single stem on each octave in contrast to measure 1, where tenor and bass are differentiated by upward and downward stems.



The melodic augmented second is a characteristic element in many Near Eastern and oriental scales (review the article "Some Varieties of Melodic Expression," on page 157). The interval is sometimes used in Western music to give a flavor of orientalism.



This interval also has its place in certain limited passages in Western music. These will be discussed later, since they have little relation to the elementary concepts now under discussion.

The Melodic Line I

This text is entitled *Harmony*, yet there is very little music that is only harmonic. Melody, on the other hand, can stand alone, as you know from your own experience when you whistle or sing a tune.

The earliest known music is exclusively melodic, and melody's importance in music composition continues to the present in spite of the many and diverse changes in musical styles over the years. Article #7, "Some Varieties of Melodic Expression," at the end of this chapter illustrates a few of the widely different concepts of melodic writing found during the course of the history of music.

Melodies associated with traditional harmony sound as they do because they represent the interaction of four musical elements: *form, pitch, harmonic implication,* and *rhythm and meter.*

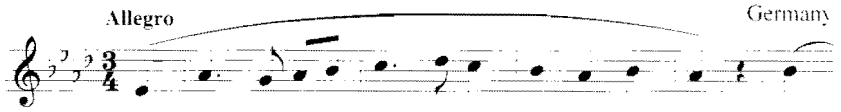
Form

Most music is written in some orderly arrangement. In the music of the West, certain patterns of musical construction have come to be commonly (though not exclusively) used. These patterns are known as musical *forms.*

The term *form* refers to the shape or structure of the object or concept being described. In music, a form usually ends at a cadence point; a form begins either at the beginning of the piece or immediately after a cadence. Since a musical composition usually has more than one cadence, it usually contains a series of forms. These smaller forms, in turn, will often combine to make up a larger kind of form, the nature and description of which is determined by the number of cadences and the nature of the material between cadences.

The Phrase From this general description, we can turn our attention to the smallest of the forms, the *phrase.* In melodic writing, the phrase is a group of notes leading to a cadence. The distance from the first note of a phrase to the cadence may be any number of measures, though usually not more than eight. The four-measure phrase is so commonly used that it may be considered a standard length with which phrases of other lengths may be compared. Figure 7.1 shows such a phrase, ending with a perfect authentic cadence in measure 4. The phrase is marked off with a *phrase mark,* a curved line extending from the first note to the last note of the phrase.

FIGURE 7.1 *Phrase*



A phrase may also consist of two or more distinct units, called *motives*. In Figure 7.2, two two-measure motives combine to make the phrase. The motive is a unit of melody smaller than a phrase, usually identifiable by a pause in the melody, the rhythm, or both. The phrase mark is used to indicate the length of the motive.

FIGURE 7.2 *Phrase Composed of Two Motives*

The Period Two phrases may combine to form a *period*. In the period, the first phrase, called the *antecedent phrase*, usually ends with a half cadence or an imperfect cadence. The second phrase, called the *consequent phrase*, then ends usually with a perfect cadence, though again an imperfect cadence is possible.

Periods may be *parallel* or *contrasting*. A period is parallel when the two phrases are similar in some respect. Often the two phrases are identical except at the cadence points, as in Figure 7.3, but any marked similarity in the two phrases will justify analysis as a parallel period. In Figure 7.4, measure 1, note that the skip of a sixth down is answered in measure 5 by a skip of a sixth up. Other melodic features are similar in the two phrases, and the rhythmic pattern is identical.

When the two phrases lack any specific or general melodic similarity, the period is contrasting, as in Figure 7.5.

FIGURE 7.3 *Parallel Period: Nearly Identical Phrases*

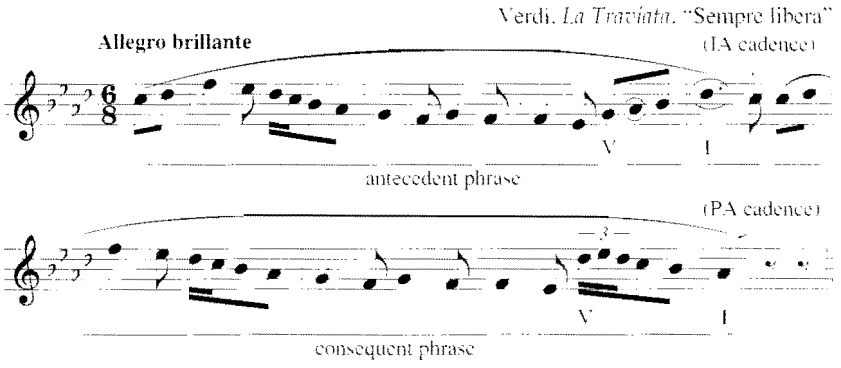


FIGURE 7.4 *Parallel Period: Phrases with Features in Common*

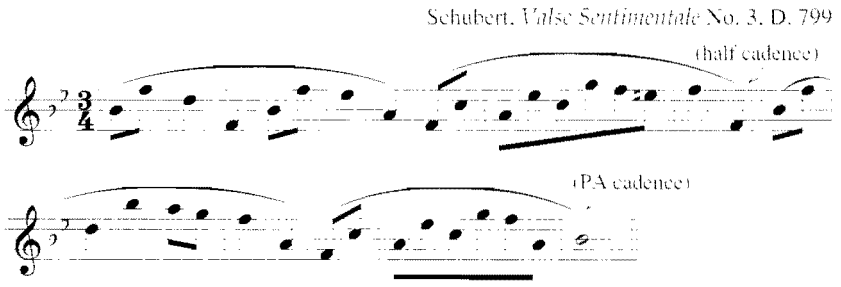
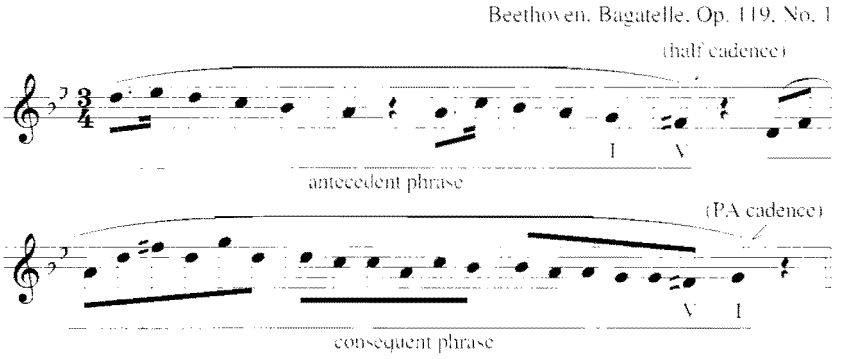
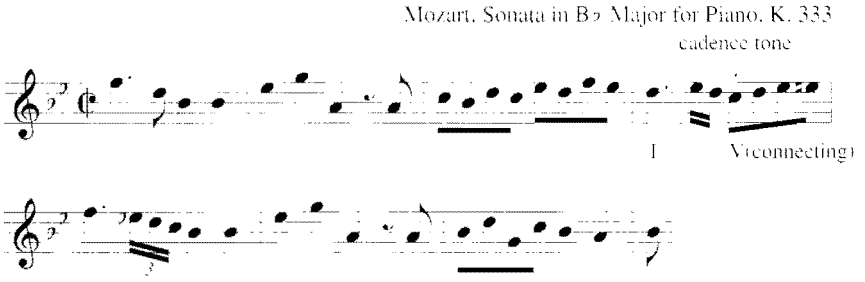


FIGURE 7.5 *Contrasting Period*



Often the close of the antecedent phrase of a period will be connected to the opening of the consequent phrase by one or more decorative pitches. Locating the cadence will help to identify the last note of the antecedent phrase.

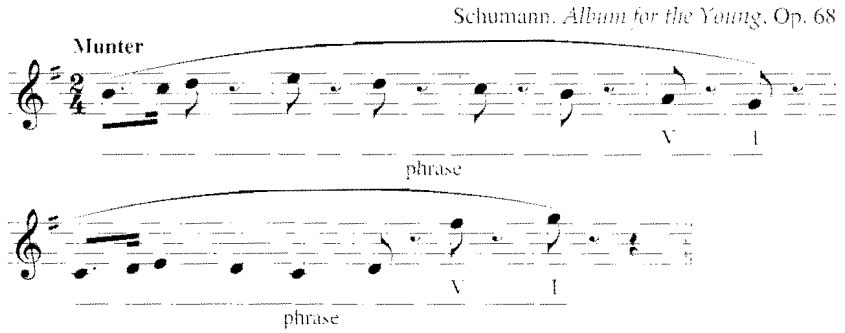
FIGURE 7.6



At times, successive phrases will each end with the tonic note. Since the perfect cadence marks the *end* of a formal pattern, these phrases cannot be combined into a

larger form. Figure 7.7 contains two four-measure phrases, each ending on the tonic note; therefore, this excerpt is not a period, but simply two phrases.

FIGURE 7.7 *Successive Phrases*



Phrases are also classified according to the rhythmic placement of their first and last notes, that is, whether these notes occur on a strong beat or on a weak beat of the measure. There are, of course, four such combinations, the most common of which are those with strong final tones.

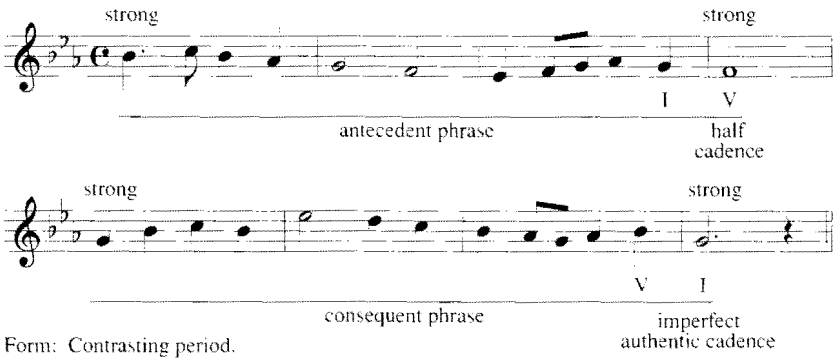
First note	***Final note***	***Example***
strong	strong	Figure 7.7 (second phrase)
weak	strong	Figure 7.1
strong	weak	Figure 7.7 (first phrase)
weak	weak	Figure 7.3 (first phrase)

When two phrases combine to form a period, they commonly display the same beginning and ending characteristics; however, other combinations are not infrequent, as in Figures 7.3 and 7.7

ASSIGNMENT 7.1 *Analyzing form in melodies.* Each of these melodies will be a parallel period, a contrasting period, or two successive phrases. Copy out the melody and indicate *(a)* the location and name of the cadence, using roman numerals V–I or I–V; *(b)* the phrase lengths, by a bracket from the first to the last note of the phrase; *(c)* the nature (strong or weak) of the first and final notes of each phrase; and *(d)* the name of the entire form.

Example

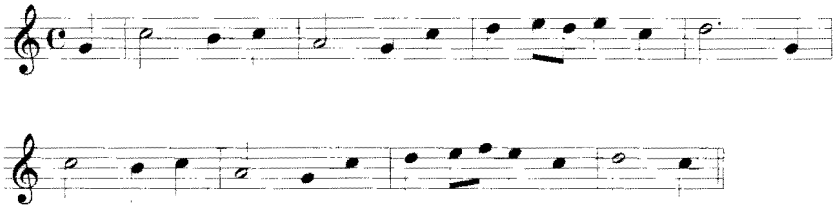
Silcher, "Alle Jahre wieder"



Form: Contrasting period.

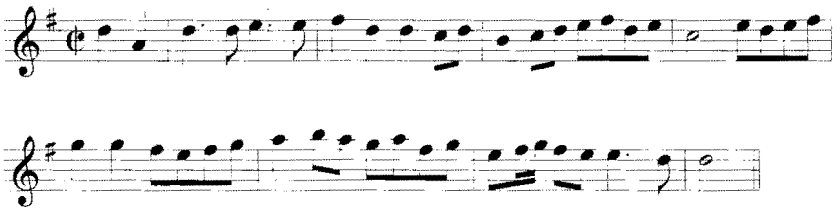
(1)

Brahms, Symphony No. 1, Op. 68



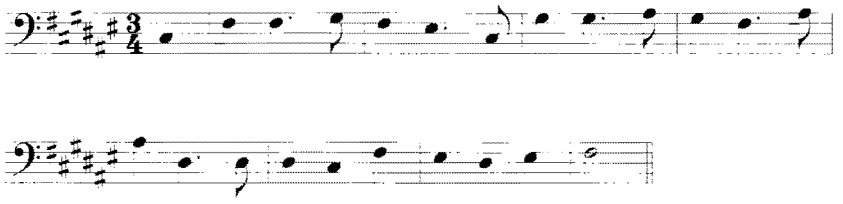
(2)

Elizabeth- Claude Jacquet de la Guerre (1667–1729), *Semelé*



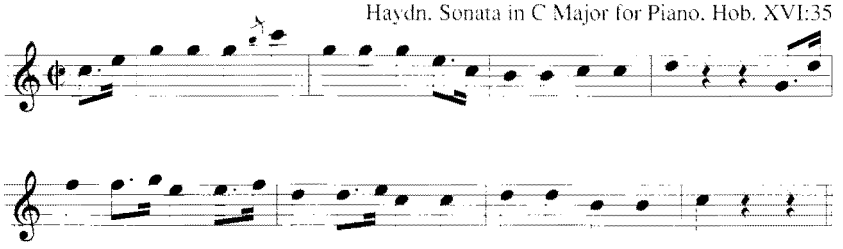
(3)

Spain



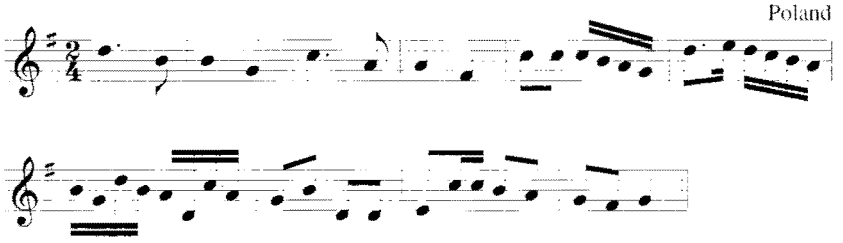
(4)

Haydn. Sonata in C Major for Piano. Hob. XVI:35



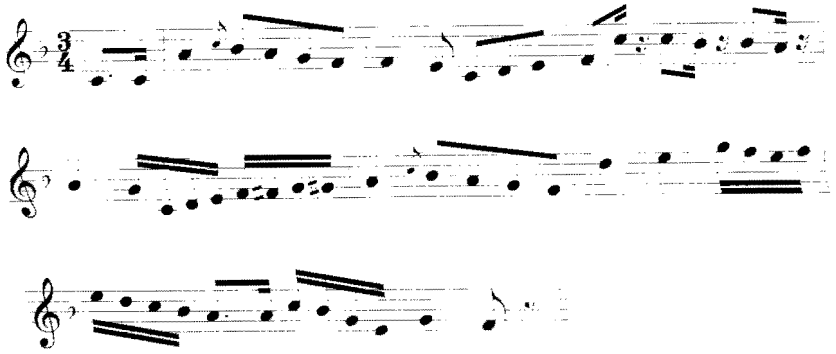
(5)

Poland



(6)

Beethoven, Sonata in F Minor for Piano, Op. 2, No. 1



In Appendix E: Answers to (1), (2), and (5) are given.
In the Workbook: Answers to (1) and (2) are given.

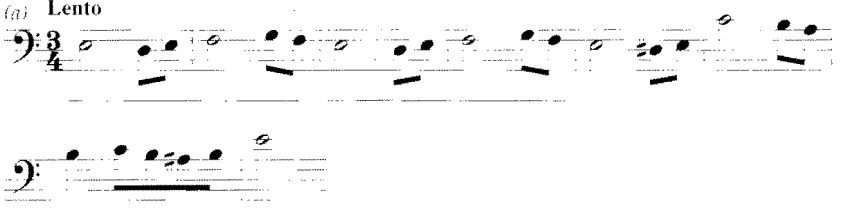
Repetition and Sequence In the parallel period, we have seen the second phrase act in some ways as a representation of the first. This repetition is often almost exact except for the last note or last few notes, as in Figure 7.3.

Repetition within the phrase is just as valuable as within the period, both for preventing too many ideas from being included in the short space of four measures and for emphasizing a good idea once it has been stated. Exact repetition can be effective if not done to the point of monotony. In Figure 7.8*a*, the repetition of measures 1–2 in measures 3–4 is exact, and in *b*, the sense of repetition is not disturbed by the final three notes.

FIGURE 7.8 *Repetition within the Phrase*

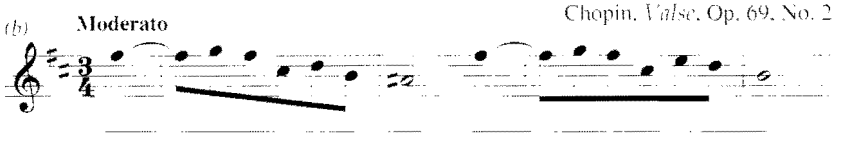
Chopin, *Valse brillante*, Op. 34, No. 2

(*a*) **Lento**



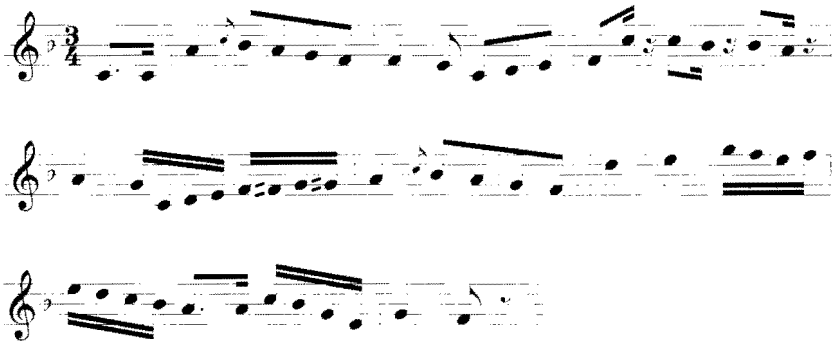
Chopin, *Valse*, Op. 69, No. 2

(*b*) **Moderato**



(6)

Beethoven, Sonata in F Minor for Piano, Op. 2, No. 1



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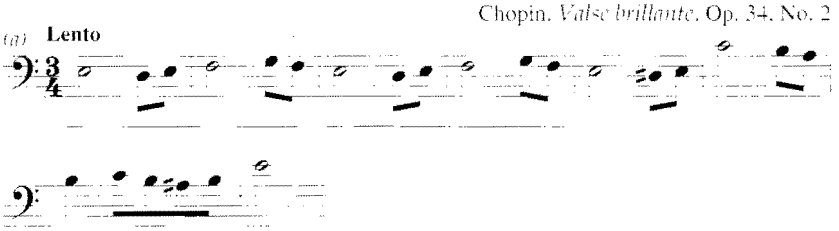
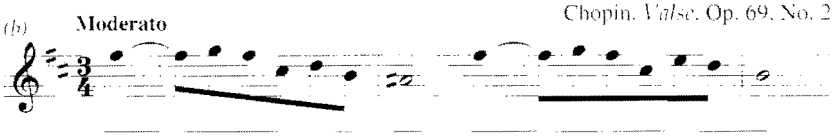


Chopin, *Valse*, Op. 69, No. 2

(*b*) **Moderato**

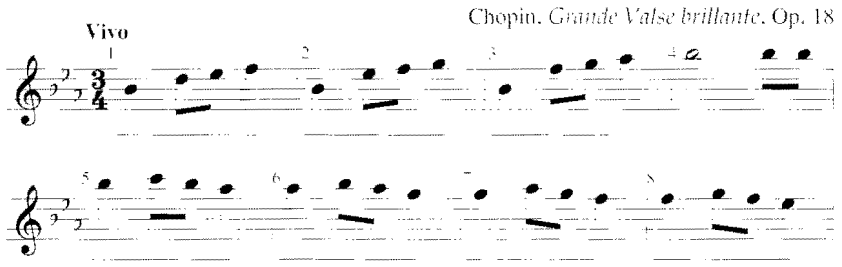


Repetition may be modified by *inversion*. In this process, each note in the repetition of the given melodic figure progresses to the next note by the same interval, but in the opposite direction. Measures 7–8 of Figure 7.9 are the inversion of measures 5–6. (The quality of the interval, whether major or minor, is not considered, only the interval number. Measure 5 shows a major second down, answered in measure 7 by a minor second up.)

FIGURE 7.9 *Melodic Inversion*

Sequence is similar to repetition, except that the repeated material appears at a new pitch level. This device thus allows similarity and variety simultaneously. Consequently, it is one of the most successful and widely used devices in music composition—not only in melody but in rhythm and harmony as well. In Figure 7.10, look first at measure 5. The melodic and rhythmic elements (the two usually go together) of this three-note figure are repeated in each of measures 6–8 as a sequence.

FIGURE 7.10 *Melodic Sequence*



Are measures 1–3 modified repetition or sequence? Either analysis can be justified, since sequence need not be exact. It may be modified to some extent, as long as the aural impression of repetition is clear. In Figure 7.11, the last two measures are a sequence of the previous two measures, although they differ by one note.

FIGURE 7.11 *Modified Sequence*

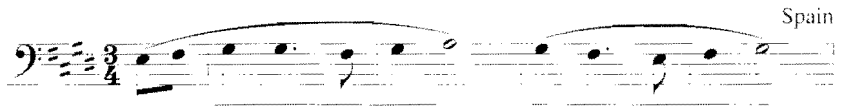
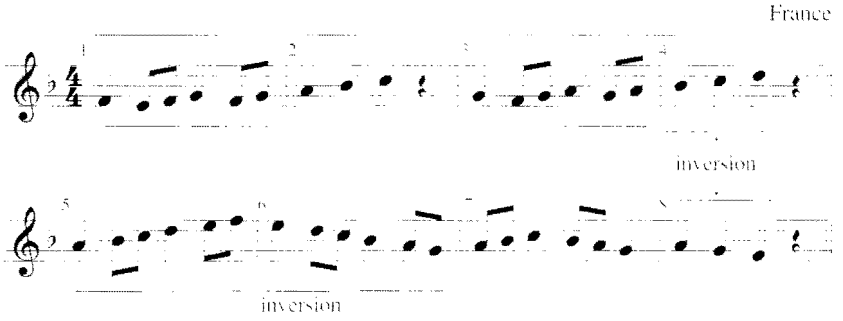


Figure 7.12 contains the following uses of sequence:

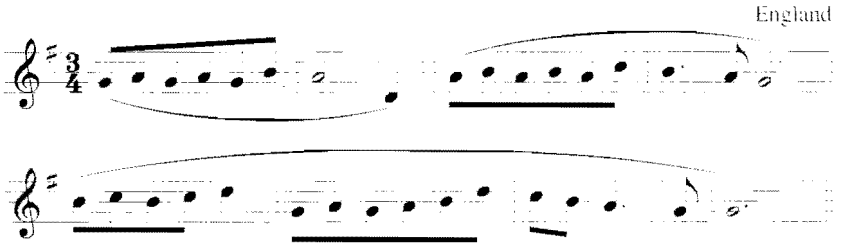
1. There is a three-note sequence in measure 1.
2. Measures 3–4 are a sequence of measures 1–2.
3. Measure 6 is the inversion of measure 5.
4. To conclude this melody, measure 7 features, for contrast, the rhythmic figure in reverse, and measure 8 shows the inversion of the three-note figure located at the end of the antecedent phrase.

FIGURE 7.12

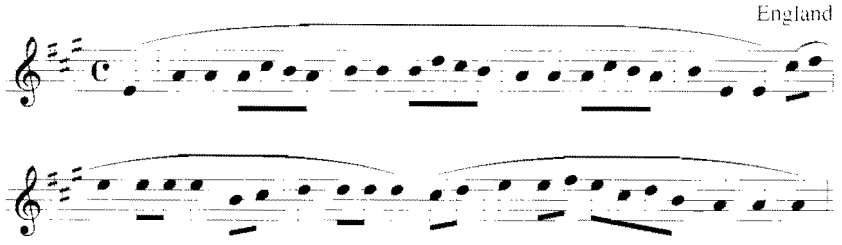


ASSIGNMENT 7.2 Locate and describe examples of repetition and sequence in these melodies, and also in (3) and (4) from Assignment 7.1.

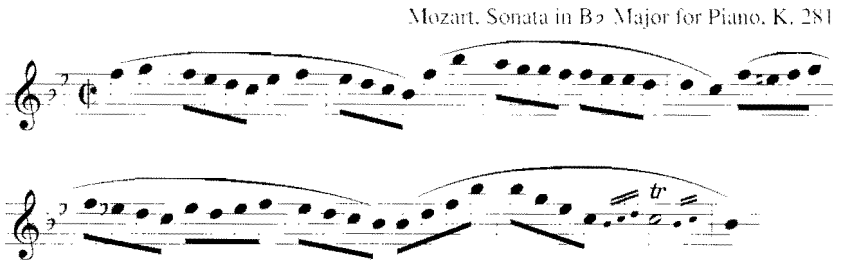
(1)



(2)



(3)

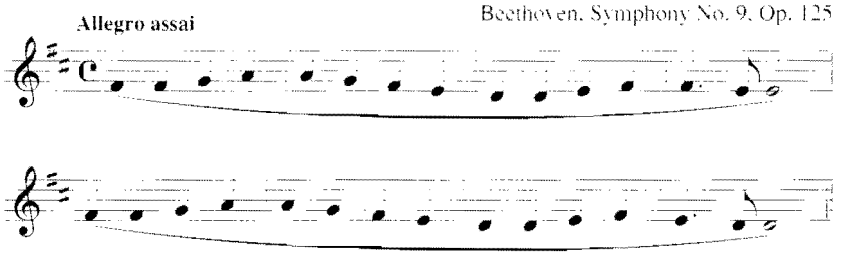


In Appendix E: The answer to (1) is given.
In the Workbook: The answer to (1) is given.

Pitch

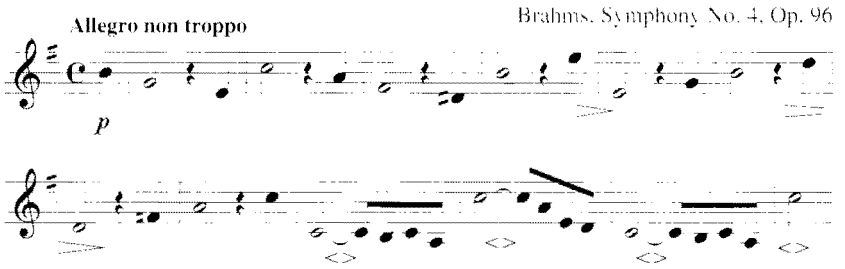
Intervals and Scale Passages How complex need a melody be to be considered a "good" melody? Not complex at all if one considers the well-known passage from Beethoven's Ninth Symphony, shown in Figure 7.13, a "good" melody! It consists entirely of scale steps and uses only quarter notes in the first three measures of each phrase. Also, look back at Figure 4.1 ("Jesu, Joy of Man's Desiring"), which includes only one interval other than a scale step.

FIGURE 7.13



At the other extreme, the melody of Figure 7.14 uses in its first eight measures only intervals of a third and larger.

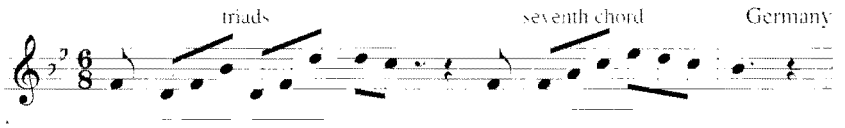
FIGURE 7.14



But we will find that most melodies lie somewhere between these two extremes, using a judicious combination of scale steps and larger intervals. The study of simple melodies should include these considerations:

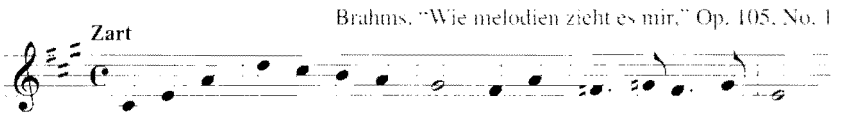
a. Intervals. Intervals of a third or larger can be used freely when resulting in the arpeggiation of a chord, though the number of successive skips is usually not more than three.

FIGURE 7.15



The last of three successive skips at the beginning of Figure 7.16 is to a nonharmonic tone, the harmony remaining tonic.

FIGURE 7.16



A large leap (a fifth or larger) is usually approached from the direction opposite the skip and left in the direction opposite the skip, as in Figure 7.17.

FIGURE 7.17

Bach, Minuet, BWV Anh. 14

b. Scale passages. The usual scale-line passage does not exceed six tones, though longer passages are not uncommon. Looking at number 6 of Assignment 7.1 (page 136), we see that, with but one exception, each scalar passage is limited to four, five, or six notes. The exception, in measure 4, is a run of eight tones, but encompassing only the interval of a sixth because of the chromatic tones.

c. Range. The range of the melody (lowest note to highest note) must not exceed the range of the voice or instrument for which the melody is written. The ranges shown for part-writing voice lines on page 86 also apply here. Note the limited range of the folk songs included in this chapter. Instruments have a much wider range than the human voice. Their outer limits are included in Appendix B.

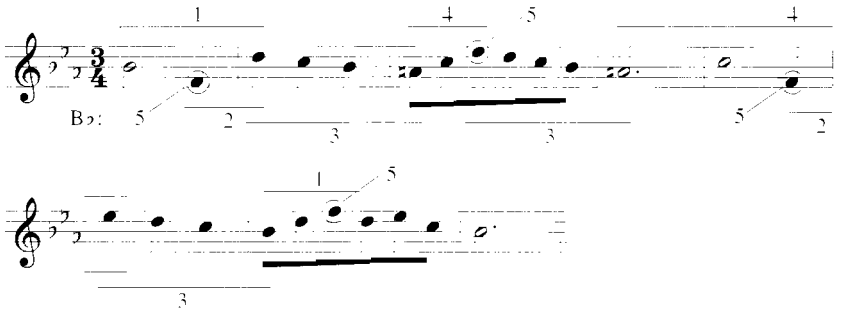
In most melodies, the highest tone, sometimes called the *climax note*, is not repeated within the phrase, and often not within the period. Its effectiveness is usually lost upon repetition. The same is true of the lowest note *(anticlimax note)*, though in its case the rule is not so strictly observed.

ASSIGNMENT 7.3 Analyze the melodies on page 145, looking for the following features:

1. Scale lines. How many notes go in the same direction? How is the run in one direction approached and left?
2. Chord outline. Which chords are outlined in a series of two or more skips?
3. Large leaps. Is the leap approached and left by similar or contrary motion, and is it approached and left by scale step or by skip?
4. High and low notes. Check for the highest note and the lowest note in each phrase. Is either found twice or more?
5. Note any exceptional practices and try to determine why they were used.

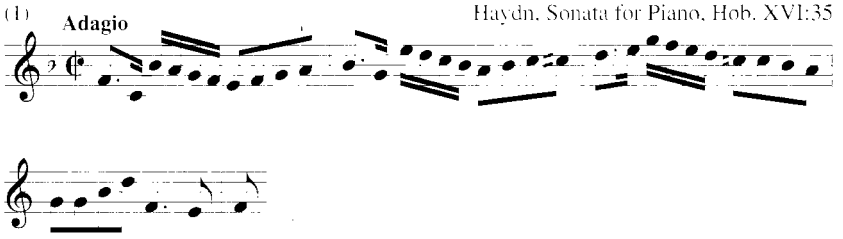
Explanations for the melodic features indicated by the bracketed and circled notes are listed after the following example.

Mozart, Symphony No. 39, K.543



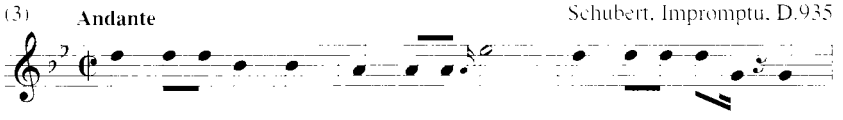
1. These skips outline the tonic triad. In measure 1, the last note is left in contrary motion. In measure 7, the first note is left in a motion contrary to its approach.
2. The large skip is approached and left by contrary motion.
3. In the scale line of four or five notes, each group is approached and left by contrary motion.
4. These skips outline the dominant seventh (V^7) chord, and each group is approached and left by contrary motion.
5. The low notes and the high notes of each phrase are circled. Each phrase displays one of each.

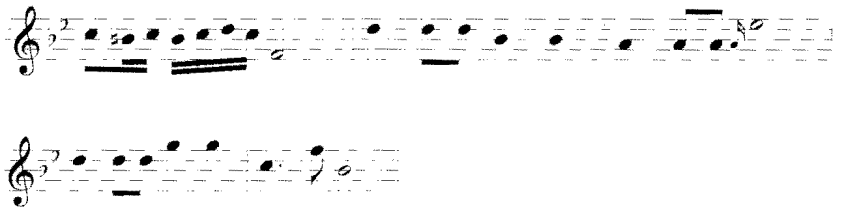
(1) **Adagio** Haydn, Sonata for Piano, Hob. XVI:35



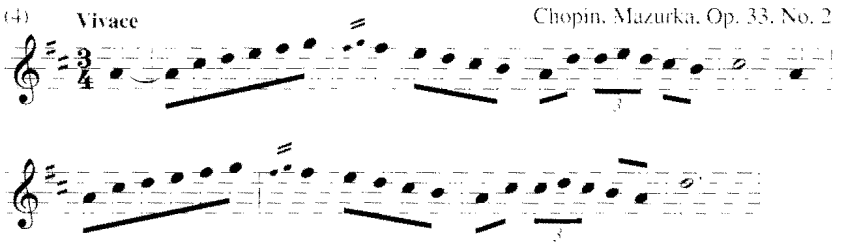
(2) **Adagio** Mozart, Oboe Quartet, K.370

(3) **Andante** Schubert, Impromptu, D.935





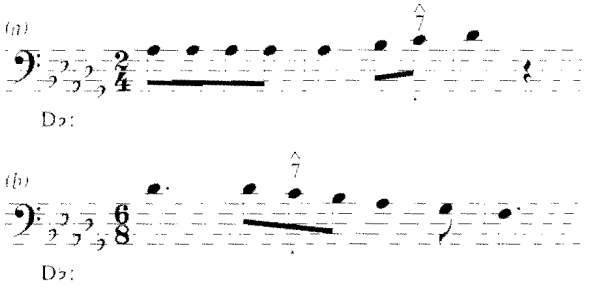
(4) **Vivace** Chopin, Mazurka, Op. 33, No. 2

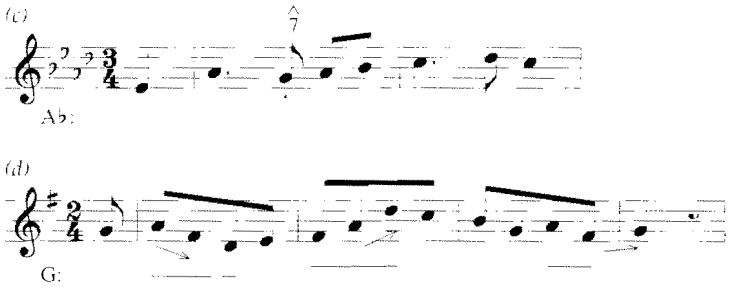


(5) **Ziemlich langsam** Brahms, "Sapphische Ode," Op. 94, No. 4

The Leading Tone The leading tone, $\hat{7}$, must be treated with care. As its name implies, it *leads* to the tonic. When approached by step from below, the leading tone must progress to the tonic (Figure 7.18*a*). When preceded by the tonic note, it may progress down by step, as in a scale (Figure 7.18*b*), or it may return to the tonic (Figure 7.18*c*). When it is part of an arpeggiated triad figure, its direction is determined by the direction of the arpeggio (except when it is found as the final note of the arpeggio, in which case it returns to tonic—Figure 7.18*d*).

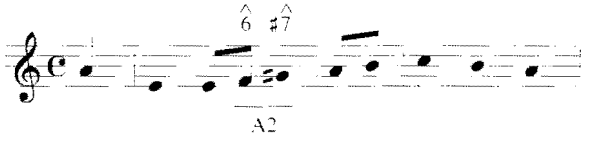
FIGURE 7.18





Minor Keys: The Sixth and Seventh Scale Steps In a minor key, $\hat{6}$ and $\hat{7}$ require particular attention. If the harmonic form of the scale is used, the interval of the augmented second results. Although this interval does have limited uses, it is generally avoided, especially in less sophisticated styles.

FIGURE 7.19

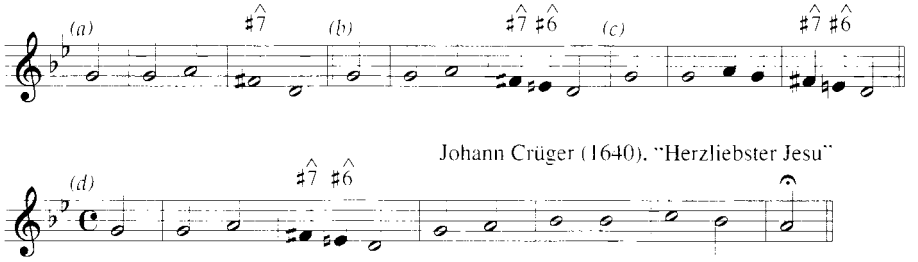


As its name implies, the melodic form of the minor scale is generally used in melodic writing. When a melody ascends through a scale line from the dominant tone to the tonic tone, $\hat{6}$ and $\hat{7}$ are usually raised.

FIGURE 7.20

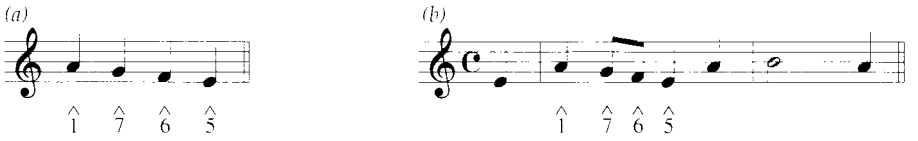
When the V triad is written as an arpeggio (either direction), $\sharp\hat{7}$ is used. When this pattern is filled in with passing tones, it appears as though the ascending form of the scale were used in a descending passage (Figure 7.21).

FIGURE 7.21



Otherwise, when descending, $\hat{1}$ $\hat{7}$ $\hat{6}$ $\hat{5}$, $\hat{7}$ and $\hat{6}$ are generally lowered.

FIGURE 7.22

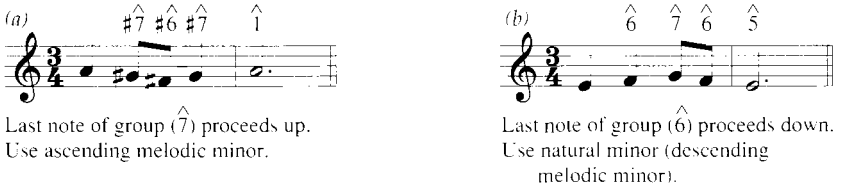


When $\hat{7}$ is used without $\hat{6}$ in a stepwise passage, it is raised and proceeds up (Figure 7.23*a*); when $\hat{6}$ is used without $\hat{7}$, it is lowered and proceeds down (Figure 7.23*b*).

FIGURE 7.23

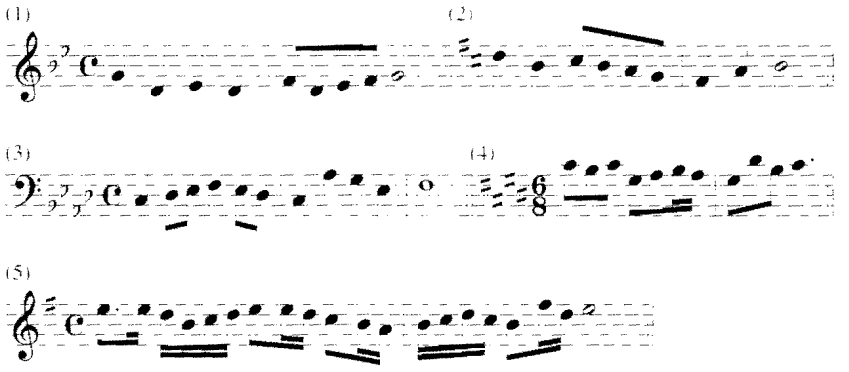
Occasionally, both $\hat{6}$ and $\hat{7}$ are found in a stepwise passage, but not between the tonic and dominant tones. In this case, each $\hat{6}$ and $\hat{7}$ of the group is treated alike. If the last note of the group is $\hat{7}$, all notes of the group are raised (Figure 7.24*a*). If the last note of the group is $\hat{6}$, all notes of the group are lowered (Figure 7.24*b*).

FIGURE 7.24



The G♯ of Figure 7.24*a* implies V in I–V–I, and the F♯ of Figure 7.24*b* implies iv in i–iv–i. The decorative (nonharmonic) tones, between G♯ and G♮ and between F and F♯, are so written to avoid the melodic augmented second.

ASSIGNMENT 7.4 Above each sixth scale step, write ♯6 or ♭6, and above each seventh scale step, write ♯7 or ♭7. Place the correct accidental before each of these tones. Remember that (1) a natural sign will be used in some instances and (2) an added chromatic sign applies to all notes on that line or space in a given measure.

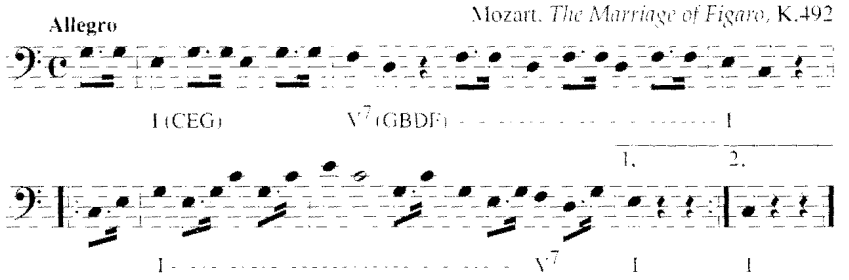


In Appendix E: Answers to the entire assignment are given.

Harmonic Implication

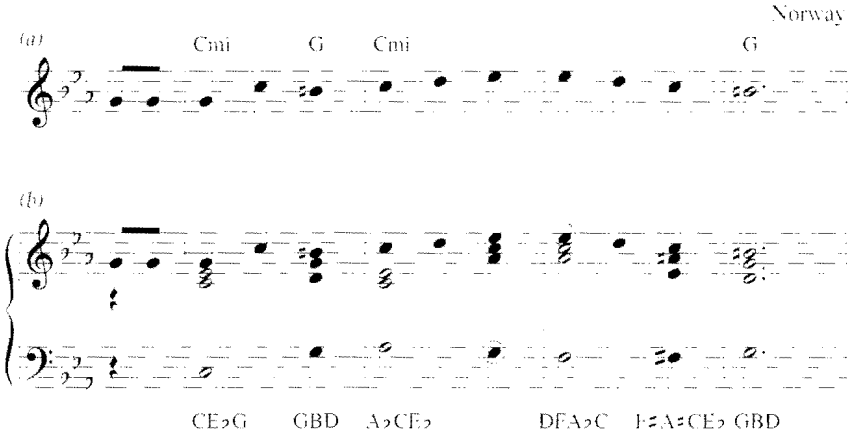
It should take not much longer than a glance to figure out the obvious harmony that Mozart intended for this tune:

FIGURE 7.25



The implication of such simple harmonic structures is inherent in many folk songs and composed melodies in Western culture. That is not to say that a given tune can be harmonized in only one way, however. The folk song of Figure 7.26*a* shows lead sheet symbols of I and V only, but in *b* the same tune is shown with one of the many possibilities using a wider variety of harmonies.,

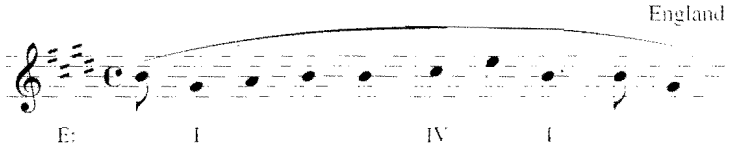
FIGURE 7.26



But for now, we will study harmonic implication with tunes that can be harmonized using I, i, IV, iv, V, and V^7 only. Here is what to look for:

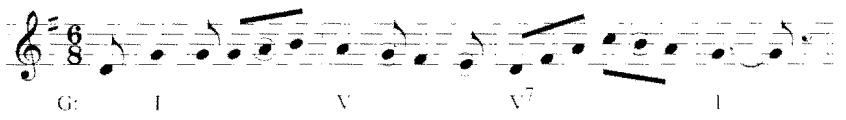
1. A chord is actually outlined in the melody, or suggested by an interval.
   Figure 7.25: Every tone is part of a chord—an interval from the chord or a complete chord.
   Figure 7.26: The first interval, G up to C, suggests C E♭ G.
   Figure 7.27: The interval C♯ up to E in E major obviously implies IV (A C♯ E).
   Figure 7.28: The entire V^7 chord is outlined in measure 3.

FIGURE 7.27



2. When there is no chord outline, the strong beat, or beats, of the measure may suggest the harmony. In Figure 7.28, measure 1, the three repeated notes, G, plus the final B suggest a tonic triad, G B D, and in measure 2, the A and the F♯ on the principal beats suggest the dominant triad, D F♯ A. (The circled notes are nonharmonic tones, to be discussed shortly.)

FIGURE 7.28

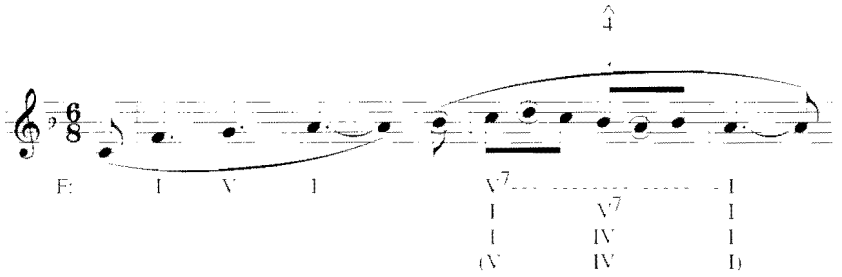


Chord changes may, of course, occur within the measure, as the melodic line dictates.

FIGURE 7.29

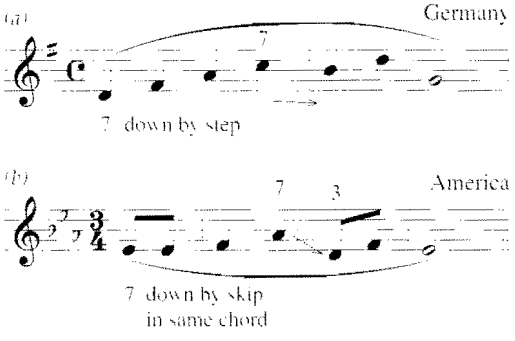
In some cases, $\hat{4}$ can be harmonized with *either* IV *or* V^7. The arrow in Figure 7.30 points to $\hat{4}$ in F major, which in this context can be the B♭ of IV (B♭ D F), or the B♭ of V^7 (C E G B♭). Four harmonizations are therefore possible, though the last, V–IV, is neither conventional nor effective.

FIGURE 7.30



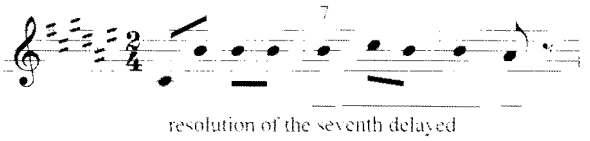
When 4 implies the seventh of a V^7 chord, it usually proceeds downward by step, but it may skip to another member of the V^7 chord (Figure 7.31).

FIGURE 7.31



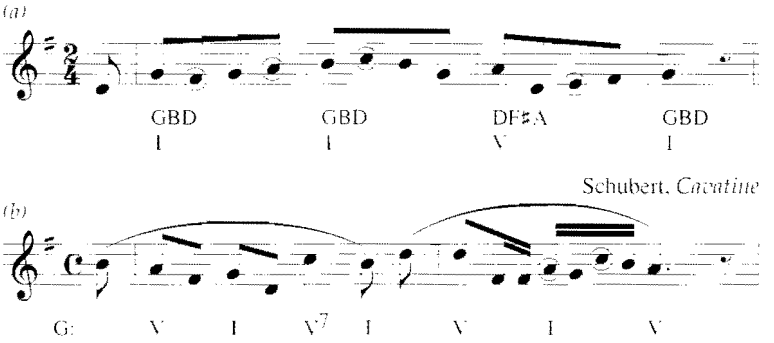
In rare cases in which the seventh is allowed to ascend, the melodic line usually descends immediately after to effect a normal resolution of the seventh.

FIGURE 7.32



3. Most melodies will contain *nonharmonic tones* (review "Cadences Incorporating Dissonances," page 72). Most common and easiest to spot are those that occur stepwise between chord tones, as seen in Figure 7.33*a*, though nonharmonic tones approached otherwise are not uncommon (Figure 7.33*b*).

FIGURE 7.33

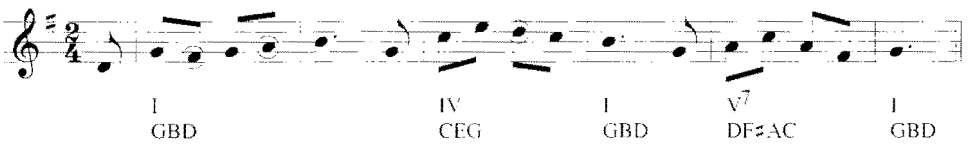


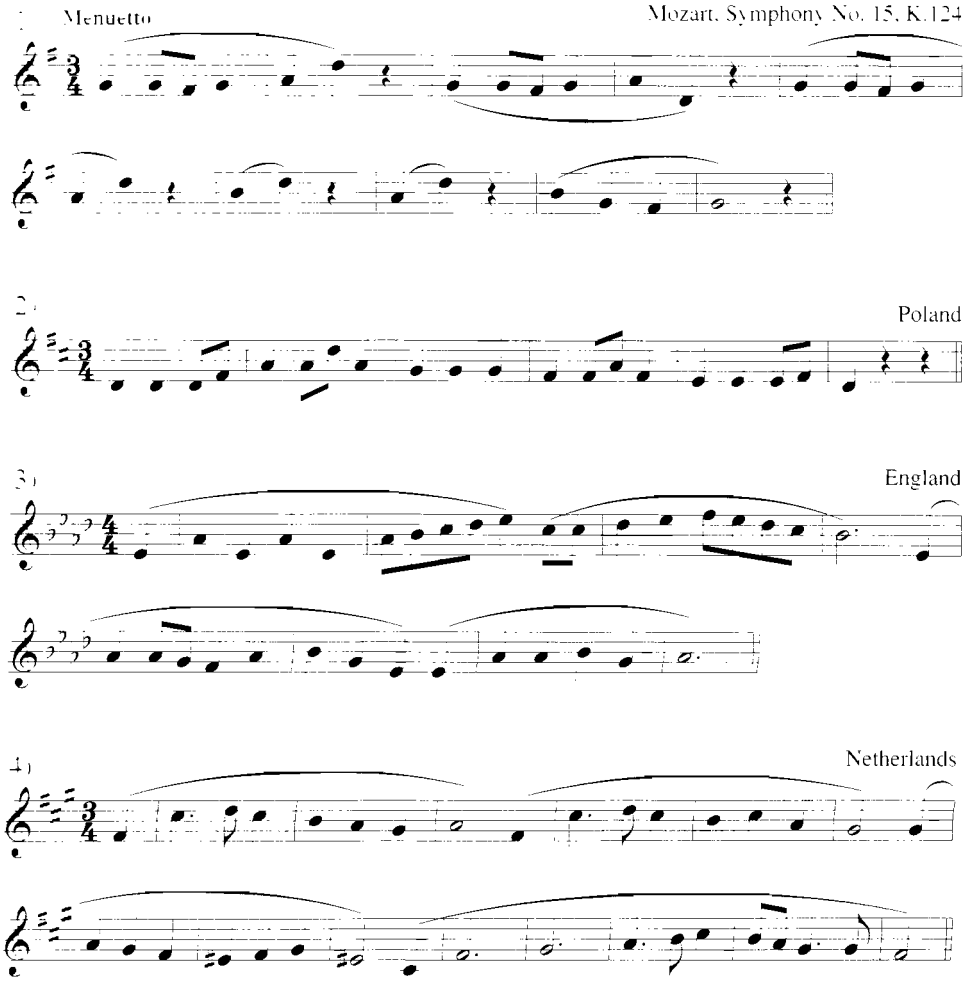
ASSIGNMENT 7.5 Analyze the harmony implied in these melodies, using the example as a guide.

1. Place the chord numbers I, i, IV, iv, V, and V^7 below the staff, as appropriate.
2. Place the chord spellings below the staff.
3. Circle the nonharmonic tones.

Upon completion, play the melody with its harmonization.

Example





Rhythm and Meter

The simplest kind of rhythmic pattern in a melody would be the use of a single note value. Such melodies are rare. Melodic interest is heightened by contrast in the duration of the pitches. This contrast can be very simple, as demonstrated in the melody of Figure 7.13, which consists of only quarter notes except for the cadence at the end of each phrase.

Although more rhythmic variety can be expected in most melodies, the variety of rhythmic patterns is usually limited, and repetition of those chosen is frequent. The Schubert melody, number 3, from Assignment 7.3 (page 145) is a good example. Only the pattern ♩ ♫ ♩ ♩ or ♩ ♫ 𝅗𝅥 is found in five of its eight measures, with each phrase concluding with rhythmic patterns differing from each other.

A melodic sequence is, of course, almost invariably coupled with a rhythmic sequence, although rhythmic sequence is possible without its melodic counterpart; in Figure 7.7, the rhythmic pattern of the two phrases is basically the same (the second phrase uses ♩ instead of ♪♪), but the melodies differ.

Rhythmic patterns in recurring measures of equal lengths with accents implied on the strong beat(s) of the measure are typical of the music of the tonal era. Concepts of rhythm in the music of both the pre-seventeenth-century era and the twentieth century are described in the article "Another Metrical Concept" on page 343.

Melodic Composition

To the noncomposer, the composition of a piece of music often appears to come about when a special musical gift is aided by an unexplainable source of inspiration. Although the presence of both of these factors is certainly helpful, more important to a composer's accomplishments is a thorough knowledge of the materials with which he is working.

The well-known melody from Beethoven's Ninth Symphony (Figure 7.13) is a case in point, showing how a fine melody can be constructed from the simplest materials. In this melody

1. the scale line is used throughout;
2. the harmony implied is I and V only;
3. the rhythmic pattern of repeated quarter notes is varied only at each cadence;
4. the form is a simple eight-measure period.

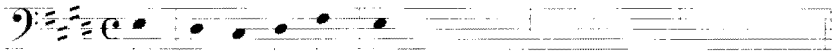
The following assignments will give you the opportunity to write original melodies. The test of a good melody is its "singability." Playing a melody on the piano will not necessarily reveal a defect, since almost any melody can easily be played. If when you are singing, you find the melody contains an awkward interval or section, try to determine the cause of the defect. Then rewrite the melody as much as necessary until it is easily singable.

ASSIGNMENT 7.6 *Melody writing.* Continue each of these melodic beginnings to complete a four-measure phrase. Indicate the implied harmony using roman numeral symbols. Circle all nonharmonic tones. Upon completion, play your melody and harmonization at the keyboard.

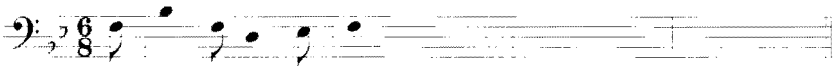
(1) End with a perfect cadence.

(2) Use sequence and end with a perfect cadence.

(3) Use sequence and end with a half cadence.



(4) Choose a cadence.



(5) Use sequence.

(6) Use sequence.

(7)

(8)

ASSIGNMENT 7.7 *Melody writing.* Using any of the phrases from the examples in Assignment 7.6 as the first phrase of a period, experiment with both parallel and contrasting periods. If your phrase from Assignment 7.6 ends with a perfect cadence, rewrite it so that it ends with a half or an imperfect cadence and then continue with the consequent phrase.

ASSIGNMENT 7.8 *Melody writing.* Write completely original periods, following your instructor's directions for such factors as clef, key signature, time signature, and use of sequence. Edit each melody by indicating motives or phrases with phrase marks and by including a tempo indication and dynamic markings.

Summary

Form is a term describing the structure of a composition.

A *phrase* is a group of notes leading to a cadence.

Two phrases may combine to form a *period.* The first phrase ends with a half or an imperfect cadence, and the second usually with a perfect cadence.

In a *parallel period,* the two phrases are similar melodically and/or rhythmically. In a *contrasting period,* the phrases lack such similarity.

A phrase may include *repetition* of musical ideas. A *sequence* is similar to repetition but at a different pitch level.

Melodies are commonly made up of scalar passages and chord outlines. Larger intervals are usually approached and left by contrary motion.

Some scale steps must be handled with care. The leading tone "leads" to the tonic. In a minor key, the sixth and seventh scale steps are raised or lowered according to the direction in which they move.

Many melodic lines imply a harmonic background, though an actual harmonization is not limited to the most obvious implication.

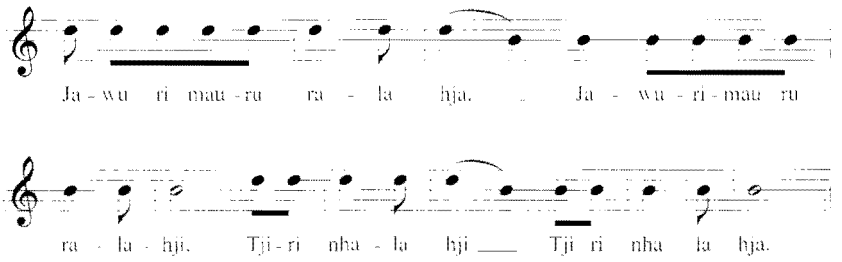
ARTICLE #7

Some Varieties of Melodic Expression

Since melody exists in all parts of the world and has existed presumably from prehistoric times to the present, we can assume that it has displayed many forms and characteristics. A few examples will show the contrast between these other forms and the characteristic melodies of the period of Western music (ca. 1600 through ca. 1900) being discussed in this text.

The following chantlike aboriginal melody, which has been placed in notation by researchers, certainly shows no harmonic implication, no regular metric system, and too few notes to establish a feeling for scale or key. However, a rudimentary form is established when the passage of repeated D's followed by repeated B's is started over again in measure 5.

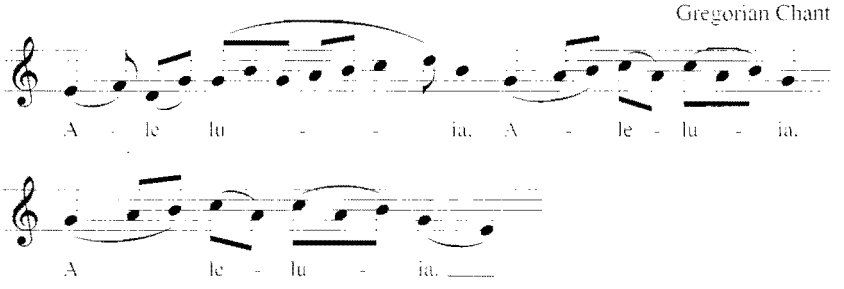
Australian Aboriginal Melody



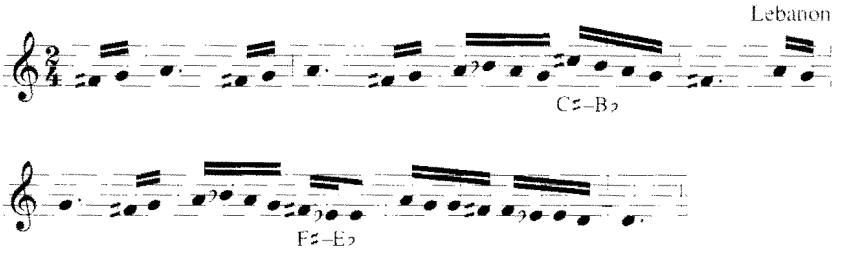
(Let us hurry, the wind is fierce and keen.)

The next example is taken from the earliest known body of Western music, the Gregorian chant of medieval times (ca. A.D. 800). It displays a scale pattern of E F G A B C D E, with tonic on E. This scale is known as the Phrygian mode and is one of several scales, known as *modes*, that were in use before 1600. Since that approximate date, this system has been reduced to two scales, now called major and minor.

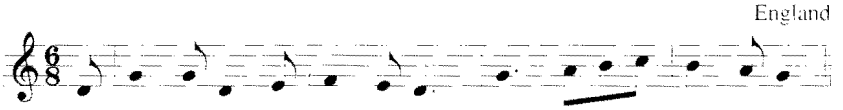
Gregorian Chant



Both the medieval modes and the present major and minor modes are based on half steps and whole steps only. In Eastern Europe, the Near East, and the Arab countries of Asia and Africa, scales containing one or two augmented seconds (three half steps, or a step and a half) are a major part of their melodic resources. In the next example, the augmented seconds are E♭–F♯ and B♭–C♯, and the entire scale is D E♭ F♯ G A B♭ C♯ D. In Eastern Europe, this scale is often known as the *Hungarian minor scale* or the *Gypsy minor scale.**



Folk music of Western European cultures has consistently made use of scale patterns that are the same as the medieval modes. This tune is based on the Mixolydian mode (G A B C D E F G).

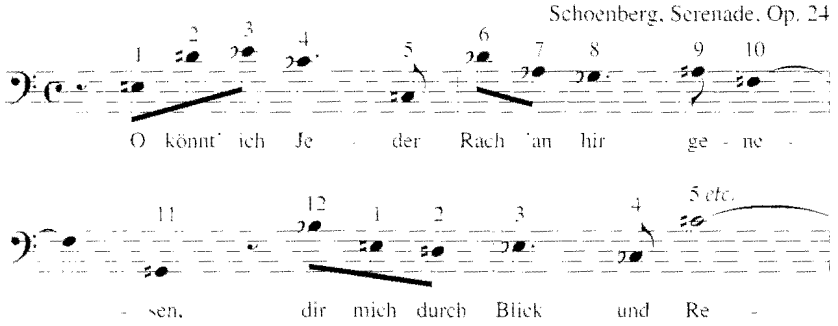


(Further comment on modal writing in composed music is included in the article "Another Metrical Concept," on page 343.)

Since the common practice period, melody has often abandoned the tonal concept and proceeded in many directions. The most dramatic of these is called the twelve-tone system of music, in reference to the twelve tones of the chromatic scale. Its basic premises are that no note may be repeated until the other eleven have been sounded and that the so-called *row* of twelve tones, which is established before the composition is begun, will be used consistently throughout.

*Further examples of medieval modes can be found in Chapter 19 of the author's *Music for Sight Singing*, 4th ed. (Prentice Hall, 1996).

Schoenberg, Serenade, Op. 24



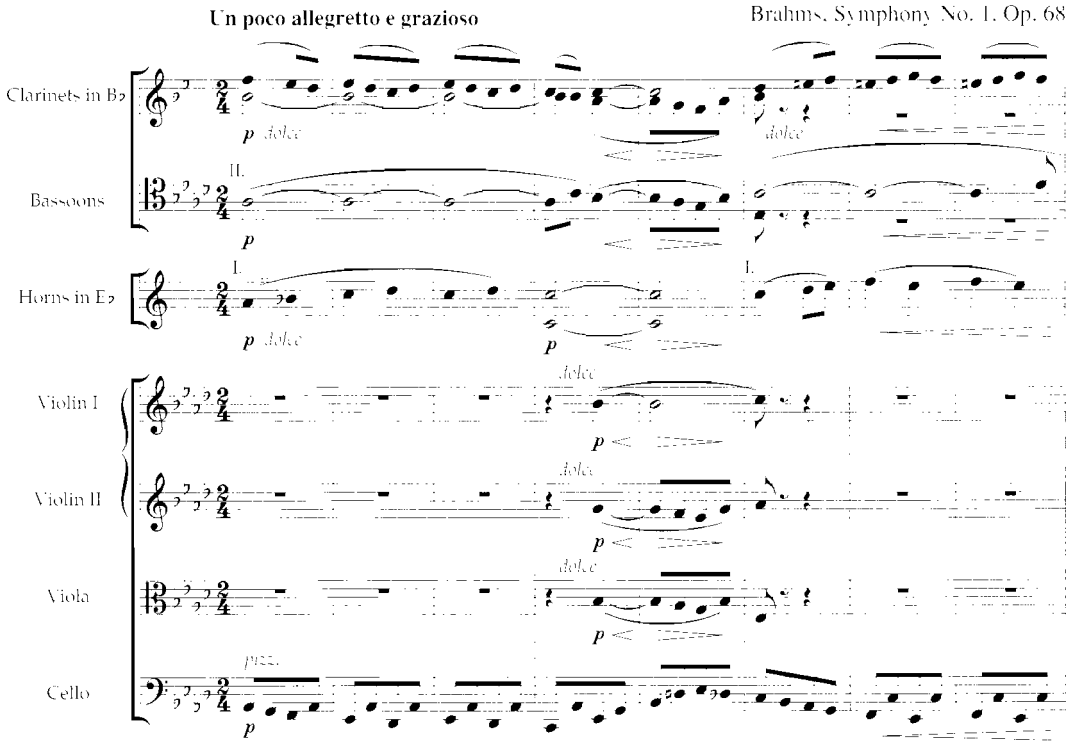
Characteristic of this melody is its angularity—the predominance of wide skips (also seen in the Brahms example, Figure 7.14)—and the inadmissibility of any harmonic implication.

Although these few illustrations can serve as only small samples of the wide variety of melodic practices found in different regions and eras, they should serve to point out several characteristics that differentiate melodies of the common practice period from those of other cultures and other times.

C Clefs; Transposing Instruments

Here is an excerpt from an orchestral score,[1] the opening of the third movement of Brahms's First Symphony. Can you read this score, or does its use of C clefs and transposing instruments baffle you? We will decipher this score one step at a time and reassemble it near the end of the chapter.

CD FIGURE 8.1



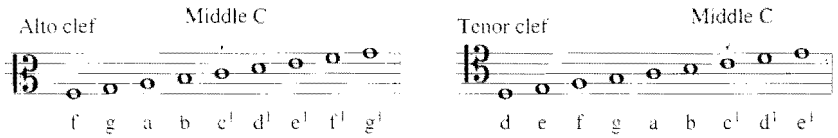
A score in which each instrumental or vocal line is on a separate staff, such as the one in Figure 8.1, is known as an *open score*.

C Clefs

The C clef[2] is universally used in music, though not as commonly as the treble and bass clefs. The C clef sign 𝄡 or 𝄚 indicates the location of *middle C* on the staff. It is particularly useful for those instruments whose range extends from the middle part of the bass clef to the middle of the treble clef because it avoids excessive ledger lines.

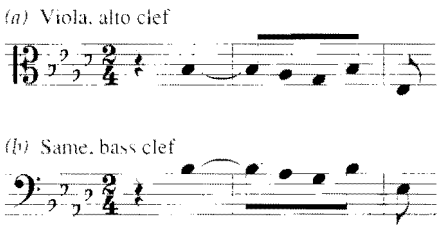
When the C clef is found on the third line of the staff, it is known as the *alto clef*, used almost exclusively by the viola and occasionally by the trombone. When the C clef is found on the fourth line of the staff, it is known as the *tenor clef;* it is often used by the cello, the bassoon, and the trombone, and occasionally by the double bass.

FIGURE 8.2



The viola part of Figure 8.1 uses the alto clef (Figure 8.3*a;* shown in *b* in the bass clef).

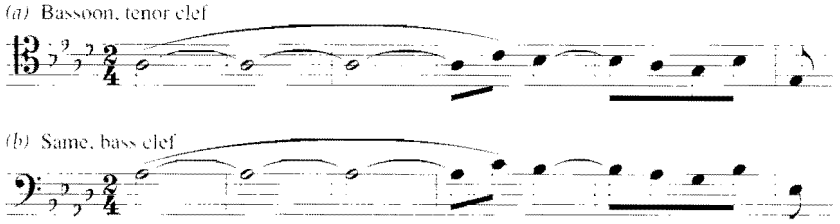
FIGURE 8.3



The bassoon in Figure 8.1 uses the tenor clef. Figure 8.4 shows its notes:

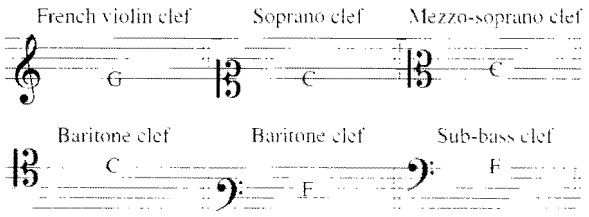
[2]Early versions of various clefs, including C clefs, can be seen on page 39.

FIGURE 8.4



The alto, tenor, treble, and bass clefs are the only ones in common use today from a system of ten clef signs used in music before about 1750. The other six clefs are shown in Figure 8.5.

FIGURE 8.5



These clefs can be found in very old editions of music and in many modern publications of pre-nineteenth-century music.

ASSIGNMENT 8.1 Learn the names of the lines and spaces of the alto clef. Check your ability in the following two ways:

(a) Name the pitch when the line or space is given. Example: fourth line; answer, E.

(b) Name the line or space when the pitch name is given. Example: F; answer, first line or fourth space.

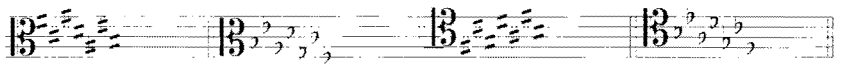
In the Workbook: Answers to the entire assignment are given.

ASSIGNMENT 8.2 Learn the names of the lines and spaces of the tenor clef. Follow the procedures of the previous exercise.

In the Workbook: Answers to the entire assignment are given.

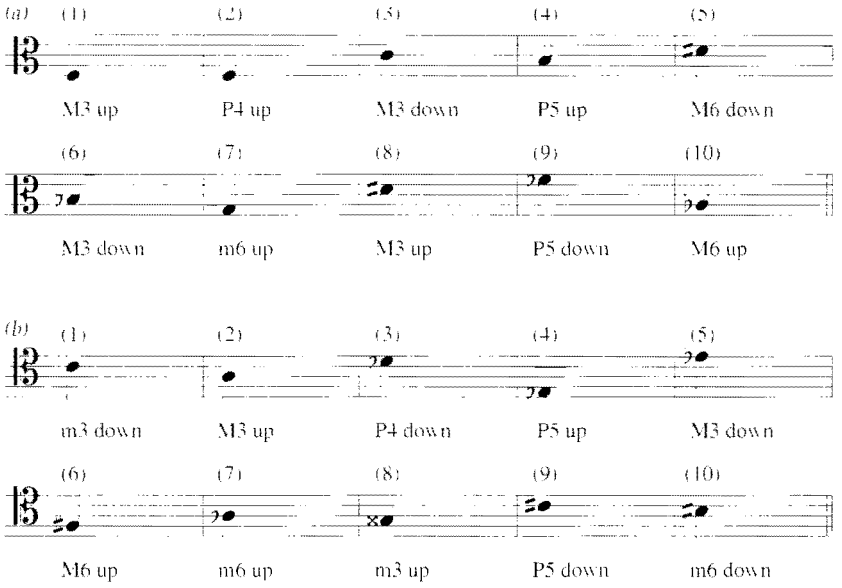
Figure 8.6 shows how sharps and flats for the key signatures are placed for the alto and tenor clefs. Observe that the patterns are the same as for the treble and bass clefs, except for the sharp keys in the tenor clef. Starting with the first sharp on F (second line), succeeding sharps are in a pattern, up a fifth, down a fourth.

FIGURE 8.6



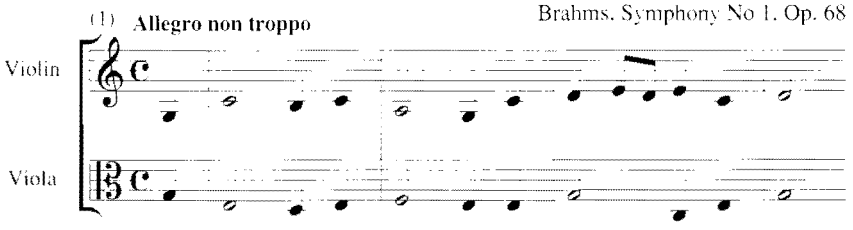
ASSIGNMENT 8.3 Write the key signature for each major and minor key in both the alto and the tenor clefs.

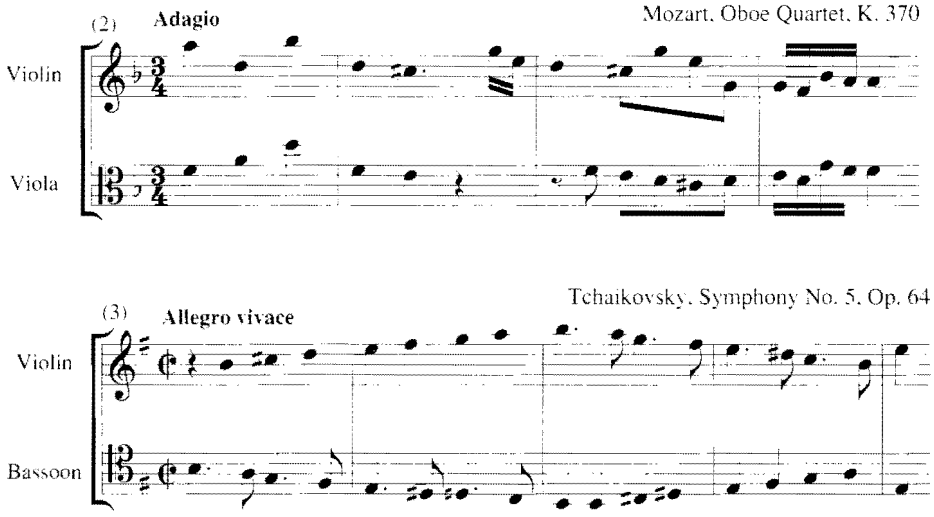
ASSIGNMENT 8.4 *Writing intervals in the C clefs.* Write the second note of the given interval *(a)* in the alto clef and *(b)* in the tenor clef.



In Appendix E: Answers to Assignment 8.4 a (1)–(5); and b (1)–(5) are given.
In the Workbook: Answers to the entire assignment are given.

ASSIGNMENT 8.5 Rewrite both lines of each example, replacing the C clef with a treble or bass clef as appropriate and using the correct notation for that clef. Remember that the C clef indicates *middle C*.



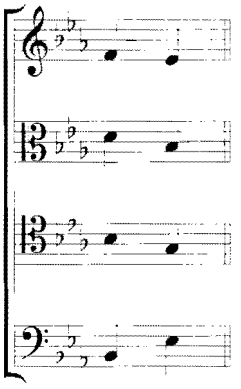


In Appendix E: The viola line in (1) is given.

ASSIGNMENT 8.6 *Writing cadences in open score.* Write each cadence in four parts, one part to a staff, using clefs as shown below. Example: E♭ major, $\frac{\hat{2}–\hat{1}}{V–I}$ ($\hat{2}$–$\hat{1}$ indicates scale-step progression; in E♭ major, F–E♭).

Observe:

1. Brace connecting the staves in open score.
2. Use of stem direction for a single melodic line on each staff.



Write these cadences in the same manner:

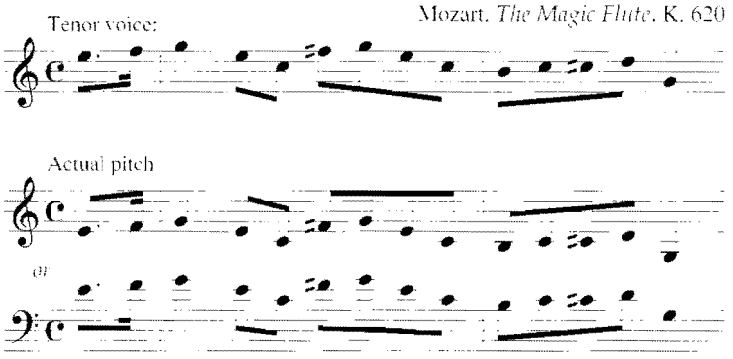
(1) G major	$\hat{2}$	$\hat{1}$	(5) B♭ major	$\hat{3}$	$\hat{2}$
	V	I		I	V
(2) D minor	$\hat{1}$	$\hat{7}$	(6) F♯ minor	$\hat{5}$	$\hat{5}$
	i	V		V	i
(3) E major	$\hat{7}$	$\hat{1}$	(7) D♭ major	$\hat{5}$	$\hat{3}$
	V	I		V	I
(4) F minor	$\hat{2}$	$\hat{3}$	(8) G♯ minor	$\hat{1}$	$\hat{2}$
	V	i		i	V

In Appendix E: Answers to (1) and (2) are given.
In the Workbook: Answers to the entire assignment are given.

A Clef for the Tenor Voice

The tenor clef is ideal for the tenor voice, since use of either the treble or the bass clef results in a large number of ledger lines. Though the tenor clef was once used for the tenor voice, it has been replaced by the treble clef, but with its notation an octave higher than it sounds (Figure 8.7). The clef is sometimes written as 𝄡 or 𝄞, the latter now becoming commonly used.

FIGURE 8.7



Transposing Instruments

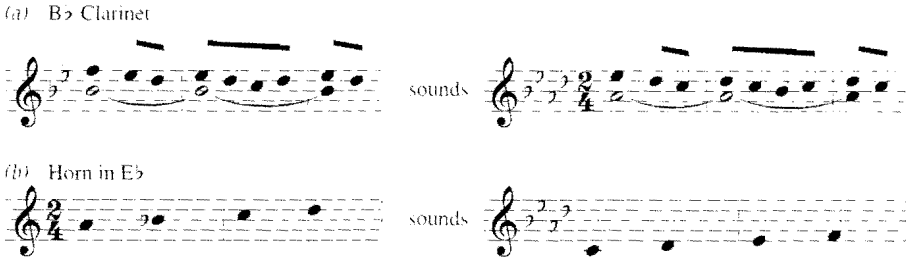
The clarinet part of Figure 8.1 is marked "Clarinet in B♭." Such a description indicates a transposing instrument, that is, one whose written notation is different from its actual pitch. In this case, "in B♭" means that when the clarinet plays C on its staff, the sound produced is a major second lower, "concert B♭," the B♭ of the piano or other nontransposing instruments. Thus the general rule: A transposing instrument sounds its name when it plays C. The B♭ clarinet sounds B♭ when it plays C.

There are two transposing parts in the Brahms score, Figure 8.1; they are shown separately in Figure 8.8. Note that the composition is written in the key of A♭ major.

1. In Figure 8.8*a*, the part for the B♭ clarinet is written in B♭ major, a major second *above* the concert key of A♭ major. Therefore, each note of the clarinet part sounds a major second *lower* than written. The first note, F, sounds E♭, and so forth.
2. In Figure 8.8*b*, the part for the horn in E♭ is written in F major, a major sixth *above* the concert key of A♭ major. Traditionally, horn parts have been written without key signatures, with accidentals placed in the music as needed. In the example, the second note requires a flat, since B♭ is $\hat{4}$ of the F major scale. In reading the E♭ horn part, each note sounds a major sixth *lower* than written. The first note, A, sounds C, and so forth.

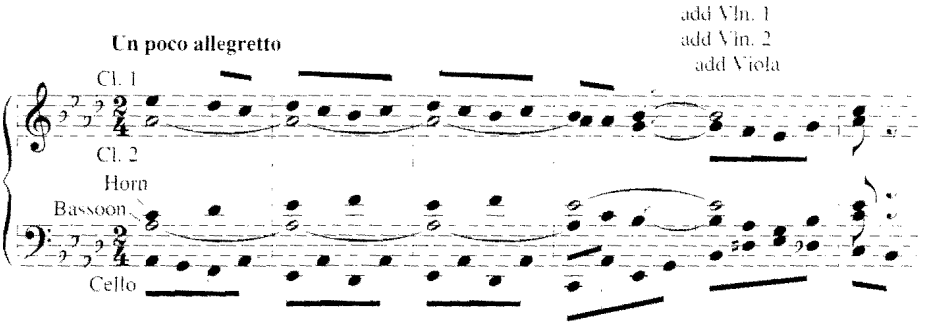
Since about the mid–twentieth century, many composers have been writing horn parts *with* key signatures. Figure 8.8*b* so written would have a key signature of one flat.

FIGURE 8.8



Putting these together with the C-clef parts (Figures 8.3 and 8.4) and the remaining nontransposing instruments, the opening five measures of Figure 8.1 look like this in piano score.

FIGURE 8.9 *Figure 8.1 in Piano Score*



Regardless of your preferred performance medium, your ability to read various notations as presented here should greatly increase your musical horizons and music literacy by making available to you the means for comprehending music scores more complex than those for solo performance.

Writing for Transposing Instruments. When the instrument name includes a pitch name, find the interval between that pitch name and the C above. For the clarinet in A, the pitch A up to C is a minor third. Therefore, the part for clarinet in A will be written a minor third above concert pitch. For example, for a piece in G major for clarinet in A and piano, the piano part will be in G major (signature, 1 sharp) and the clarinet part in B♭ major (signature, 2 flats).

Horns may be in D, E♭, E and F, the last the most common. The part for a horn in F is written a perfect fifth above concert pitch.

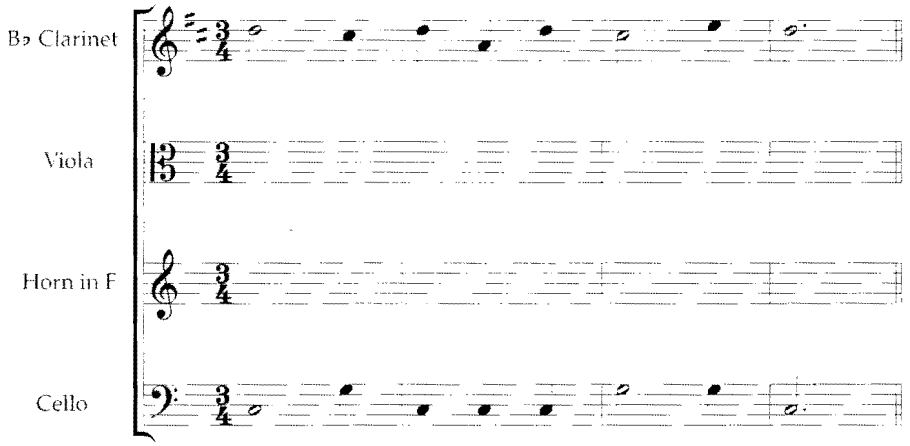
ASSIGNMENT 8.7 *(a)* Write or name the concert pitch in each of these examples.

(b) Write the note on the staff that will sound the given concert pitch.

In Appendix E: Answers to the entire assignment are given.
In the Workbook: Answers to the entire assignment are given.

ASSIGNMENT 8.8 Rewrite previous part-writing examples for various instruments.

(a) From Assignment 5.8 (1), fill in the two inner voices.



(b) Using (2) from Assignment 5.8, make a staff such as the one above and use the following instruments, starting with the top staff: flute, viola, bassoon (tenor clef), and contrabass.

(c) Continue with (3) and (4), using instrumentation as chosen or assigned. Examples from Assignment 6.10 may also be used.

Summary

C clefs locate middle C on the staff.

The C clef on the third line is called the *alto clef;* the C clef on the fourth line is called the *tenor clef.*

C clefs are used by a number of orchestral instruments, including the viola, the bassoon, and the trombone.

The tenor voice, written in the treble clef, sounds an octave lower than written, often indicated by  .

Some instruments are *transposing instruments,* such as the clarinet in B♭. Each transposing instrument sounds its name when it plays its C.

9

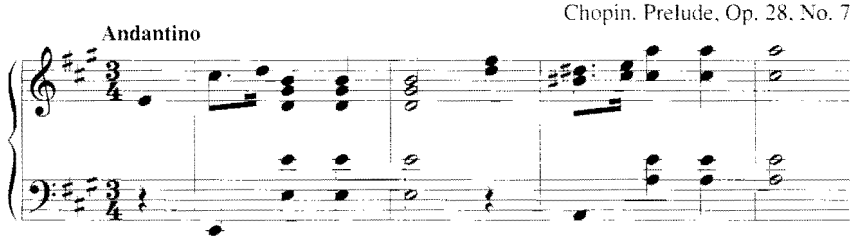
The Triad in Inversion

Review "Inversion" and "Figured Bass" in Chapter 2.
See the article "The Theory of Inversion" at the end of this chapter.

Inverting a chord means simply placing a chord member other than the root as the lowest sounding voice. Except for certain types of music in a popular vein, the exclusive use of roots as bass notes is rare. One such example is a well-known prelude by Chopin, a sixteen-measure composition without a single inversion. The first four measures are shown as Figure 9.1

FIGURE 9.1

Chopin, Prelude, Op. 28, No. 7

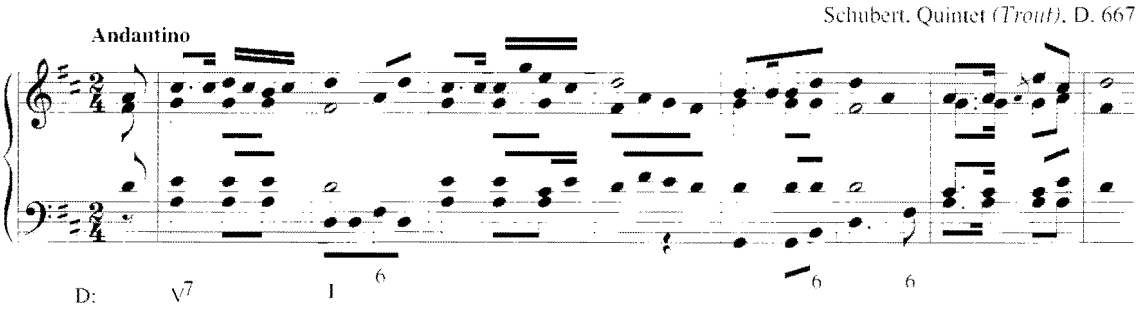


The Triad in First Inversion

Use of inversions has two advantages, one harmonic and the other melodic.

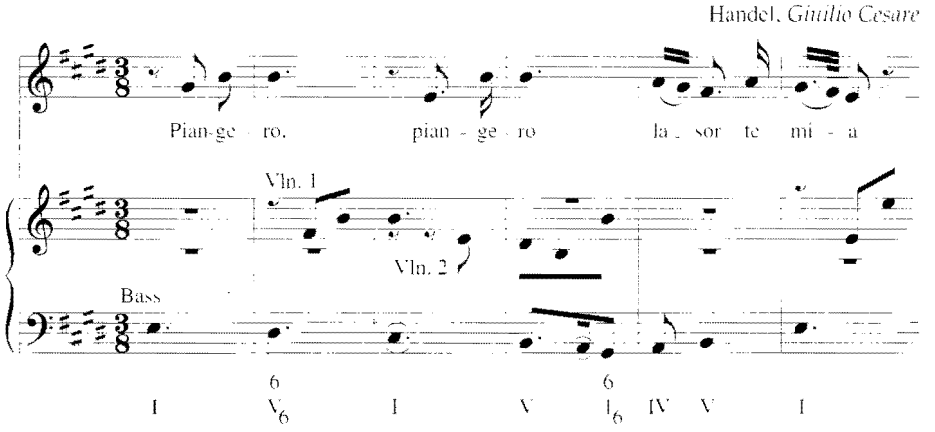
1. *Harmonic:* A triad and its inversions provide three different sonorities while using the same letter names (four for seventh chords). Thus, the easiest way to introduce an inversion is by arpeggiating the bass line. In Figure 9.2, Schubert uses mostly roots in the bass but makes three welcome changes in sonority where he places the third in the bass.

CD FIGURE 9.2



2. *Melodic:* Without the inversions, the lowest voice lacks any sense of being a melodic line. With inversions, the bass can become truly melodic. The bass line of Figure 9.3 consists only of scale steps, made possible by the use of two triads in first inversion. Of particular interest is Handel's determination to maintain a scale line even though in measure 3 the bass note C♯ is held throughout the duration of the E G♯ B triad.[1]

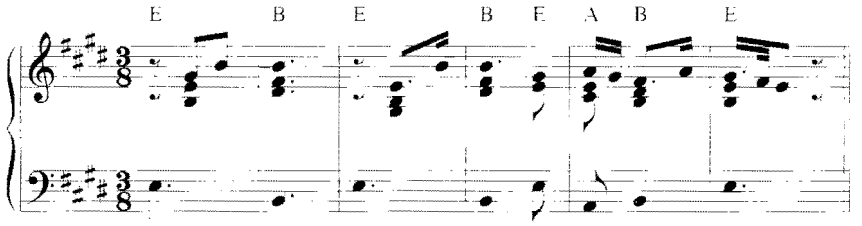
CD FIGURE 9.3



Listen to Figure 9.4, a lead sheet version of Figure 9.3 using a minimal harmonization (roots in the bass); now there should be no question about the heightening of musical interest through the use of inversions.

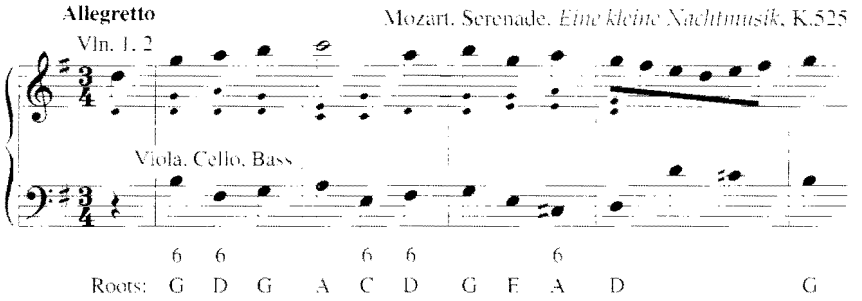
[1] The C♯ in the bass might be considered the root of C♯ E (G♯) B, a seventh chord, vi^{7}. However, the treatment of the seventh (B) is atypical (Chapter 13). On the other hand, the long duration of C♯ as a nonharmonic tone is also uncommon. Ambiguous situations such as this are not infrequent in music. In these cases, specific analyses may not be possible.

CD FIGURE 9.4



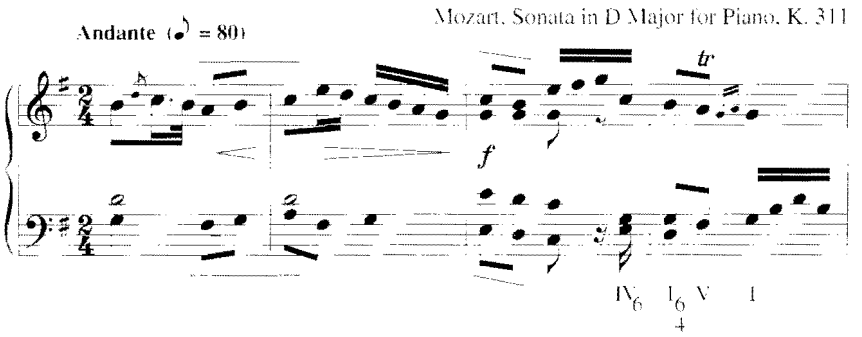
In one of Mozart's most popular works, first inversions are used to create a melodic sequence in the bass line, measures 1–2. Also notice the initial interval in the first measure, the leap of a fourth from "third to third." Written in only two voices, the harmonic movement is implied and should be quite clear. We have added middle voices (for analysis only—not for performance!) in stemless notation.

CD FIGURE 9.5



Also effective is the use of first inversions to create parallel thirds and sixths between the bass and an upper voice. Figure 9.6 shows thirds in measures 1–2 and sixths in measure 3. The triad marked I^6_4 will be discussed shortly.

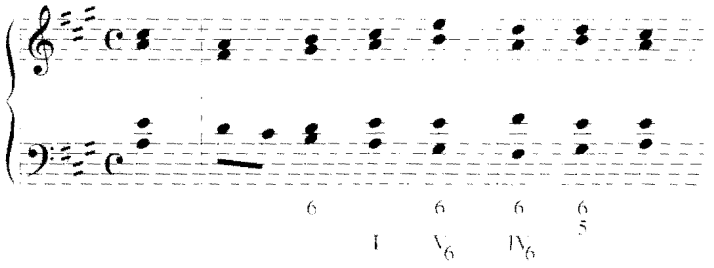
CD FIGURE 9.6



Like the bass line of Figure 9.3, the bass line of Figure 9.7 is mostly stepwise. Of interest here is the V_6–IV_6 progression.[2] In a series of first inversions in which the bass moves stepwise, any chord progression may appear, even those that are otherwise uncommon or rare. In Chapter 6, we noted that the use of V–IV is limited, but as a succession of first inversions its use is common.

CD FIGURE 9.7

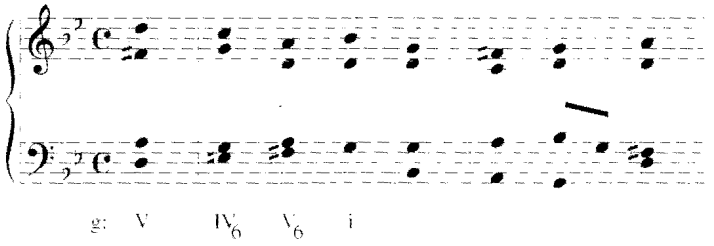
Bach, "Du Friedefürst, Herr Jesu Christ" (#42)



In another pair of first inversions (Figure 9.8), the bass line in minor passes through ♯6 and ♯7, requiring the subdominant triad to be major, IV_6, as it progresses to V_6. Also note that IV_6 is preceded by V to begin the stepwise motion in the bass.

CD FIGURE 9.8

Anon. (ca. 1670) "Nun sicht der Tag"



In summary, inversions can create more musical interest by

1. arpeggiating a triad (Figure 9.2);
2. progressing by leap from triad root to inversion (or reverse), or from inversion to inversion (Figure 9.5);
3. using a scale line in the bass, where the inversion is found intermittently (Figure 9.3), or when inversions are in succession (Figures 9.7 and 9.8);
4. moving the bass line in thirds or sixths with an upper voice (Figure 9.6).

[2] V_6–iv_6 can be used in a minor key. The minor dominant triad will be studied in Chapter 16.

The Triad in Second Inversion

In contrast to the liberal use of first inversions, the second inversion is restricted to a limited number of specific devices. This is because the triad in second inversion contains a perfect fourth between the bass and one of the upper voices. From very early times in the history of Western music, the perfect fourth above the bass has been considered a dissonance, requiring specific resolution and therefore limiting the ways in which the inversion can be used.

The Cadential Six-Four Chord This chord is so named because of its frequency of use at a cadence point, though it is used commonly in other locations. Harmonic movement culminating in a I_4^6–V–I cadence is so common that the progression is virtually a "trademark" of tonal harmony, and for that reason it was virtually abandoned in the new concepts of music composition developing in the early years of the twentieth century.

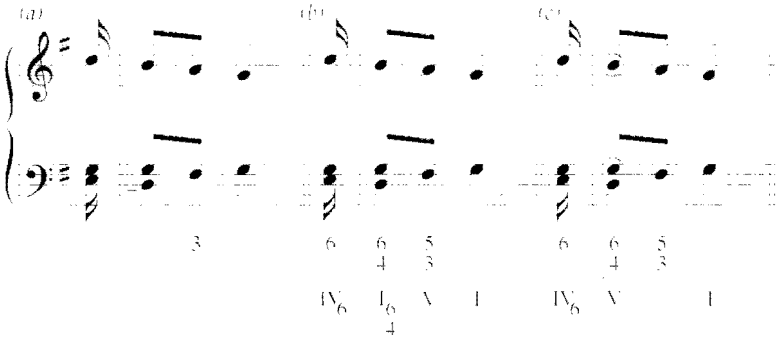
Look at the triad marked I_4^6 in Figure 9.6. You can clearly see the spelling G B D in G major; yet, if asked to sing the root of this triad, most people respond by singing (not incorrectly) the bass note D. There must be an explanation for this contradictory interpretation.

Figure 9.9 demonstrates these interpretations.

1. In *a*, the "dissonant" fourth above the bass is clearly marked.
2. In *b*, the progression to V is analyzed the way it *looks*—two triads, I and V.
3. In *c*, the progression is analyzed the way it *sounds*—a V triad with nonharmonic tones above its root in the bass.

Try playing (or listening to) Figure 9.9, stopping at the six-four chord. The necessity for resolution should be obvious. Note that the sixth (B) above the bass tone, though consonant with the bass note (D), is at the same time dissonant with the implied harmony, D F♯ A.

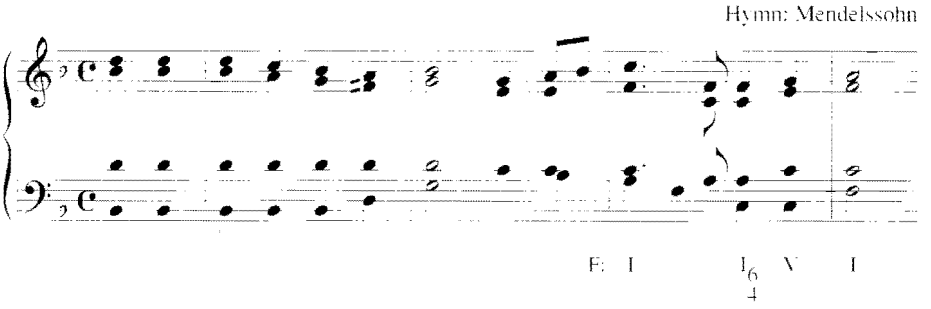
FIGURE 9.9



For purposes of analysis, we will consider the six-four sonority as a triad built above its fifth, as in Figure 9.9*b*, but in writing and listening, the dissonant function of the perfect fourth above the bass should always be kept in mind.

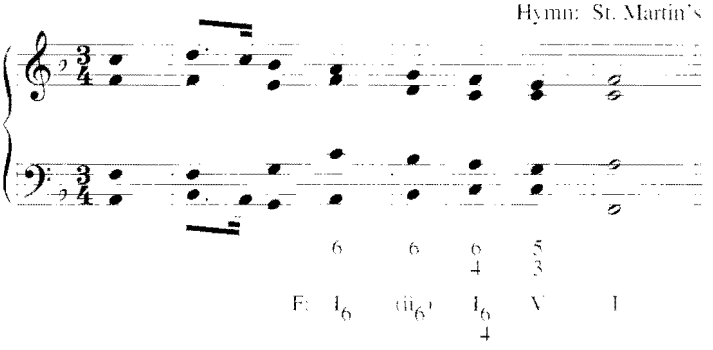
Even though the fourth usually resolves down, it is occasionally seen moving in the opposite direction (Figure 9.10).

FIGURE 9.10



In duple and quadruple time, the cadential six-four almost invariably occurs in a strong rhythmic position, allowing the ensuing tonic, root in bass, also to occur in a strong rhythmic position, as in Figure 9.10. In triple time, the six-four may also appear on the second beat of the measure, followed by V on the third beat leading to I on the next strong beat (Figure 9.11).

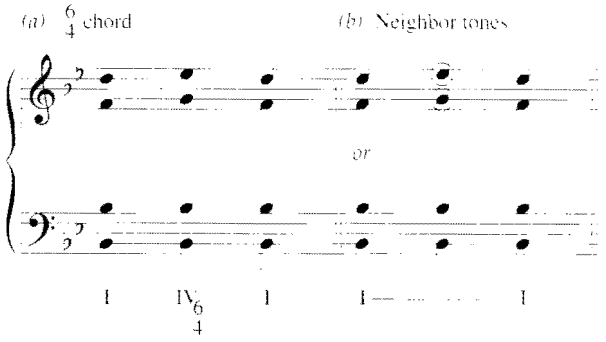
FIGURE 9.11



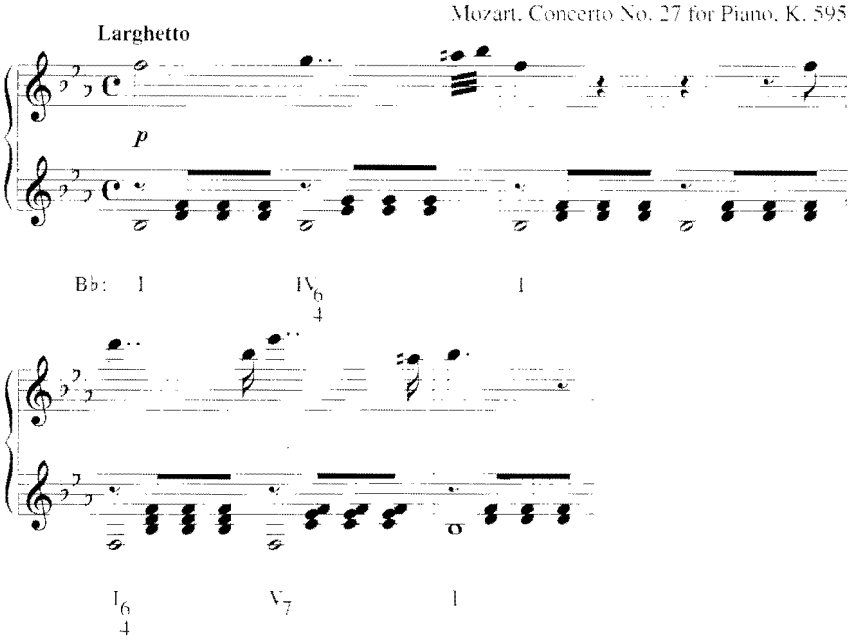
The Pedal Six-Four (Embellishing Six-Four, Auxiliary Six-Four) Here the bass note of the six-four is held over or repeated from the bass note of the previous chord and continued into the chord of resolution. The name derives from a nonharmonic tone, the *pedal point* or *pedal*, in which the bass holds a single tone regardless of the harmony above it. The pedal six-four is most commonly found as I–IV$\frac{6}{4}$–I (Figure 9.12).

The terms *embellishing*, *auxiliary*, and *neighbor* six-four present a different interpretation: The bass note is a chord tone above which there is movement to and from a nonharmonic tone (neighbor tones, Figure 9.12*b* and 9.13).

FIGURE 9.12



CD FIGURE 9.13



The Passing Six-Four This six-four is found between a triad in root position and its first inversion, or the reverse, and differs from the others in that there is no resolution of the perfect fourth. Rather, the root of the six-four sonority (G in Figure 9.14) functions as a chord tone sustained from the previous chord, the remaining tones acting as nonharmonic tones.

FIGURE 9.14

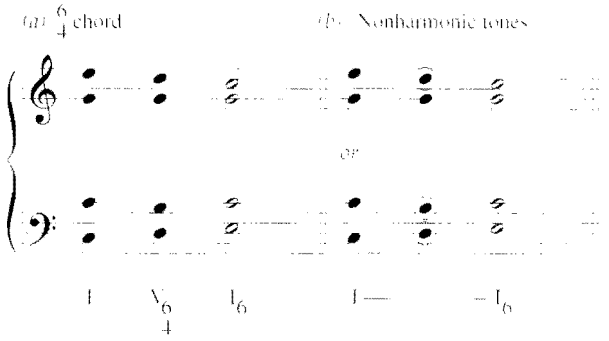
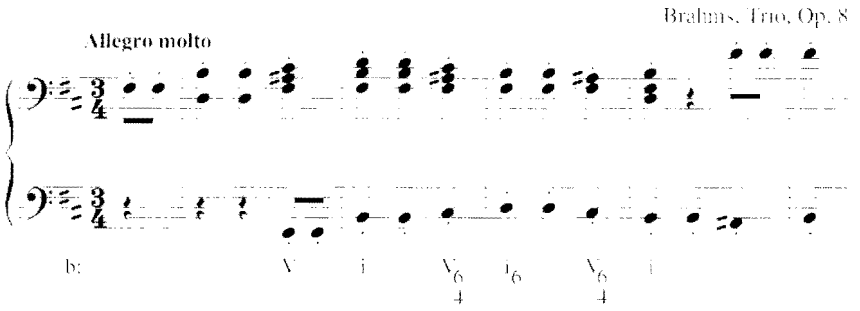
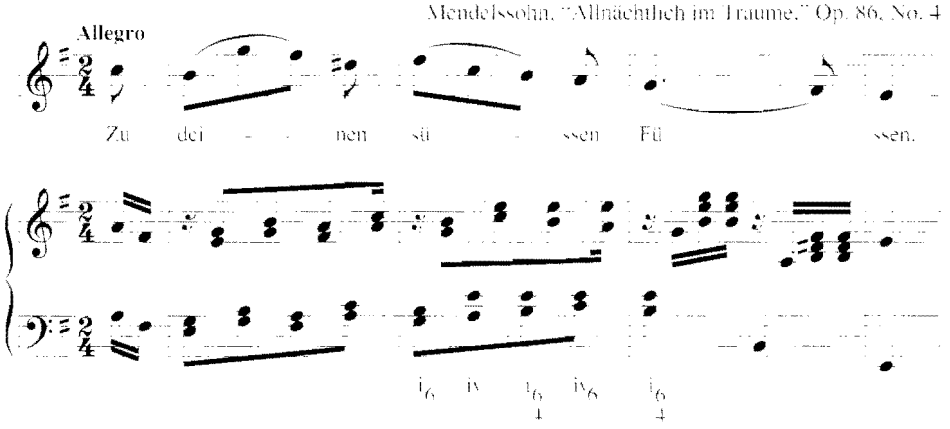


FIGURE 9.15



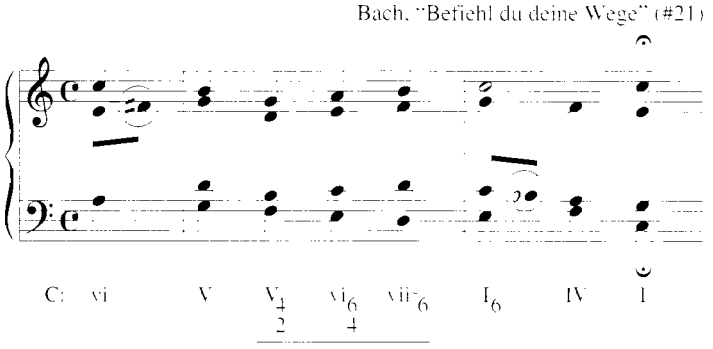
The most commonly used passing six-fours are (1) the I-V^6_4–I_6 or reverse, (2) the IV_6–I^6_4–ii^6_4, to be studied in Chapter 13, and (3) occasionally the iv–i^6_4–iv_6, shown in Figure 9.16. Note the lack of a G in the first i^6_4, allowing the two B's to function as nonharmonic tones in the iv triad.

FIGURE 9.16



You are not likely to see any other variety of a passing six-four, although there is always a possibility, such as this unusual passing $vi^{\flat}_{4}$ from a Bach chorale.

FIGURE 9.17



ASSIGNMENT 9.1 *Identifying triads in inversion.* Each of these music excerpts includes one or more triads in first and/or second inversion. Locate each inversion and describe its use. For first inversions, check the summary on page 172, and for second inversions, name each as described on the pages immediately preceding this assigment.

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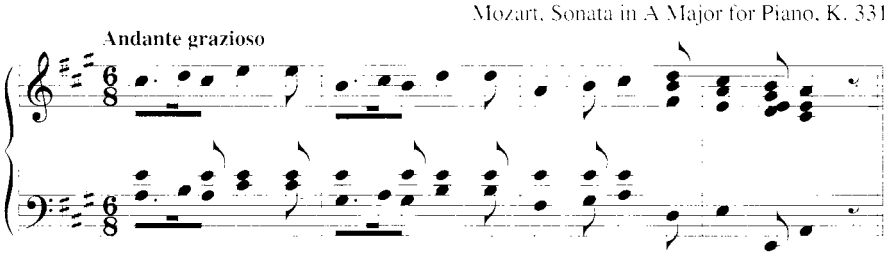
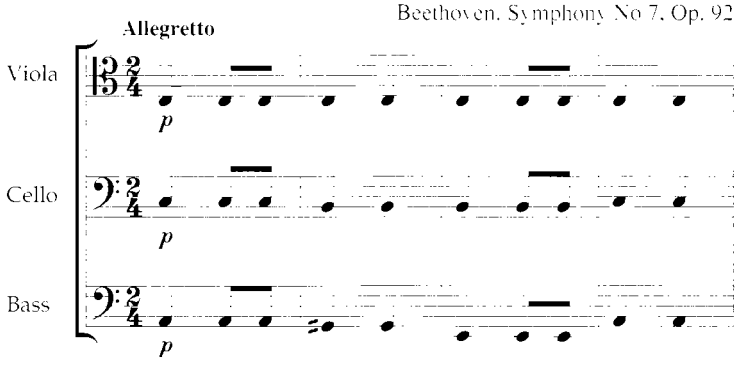


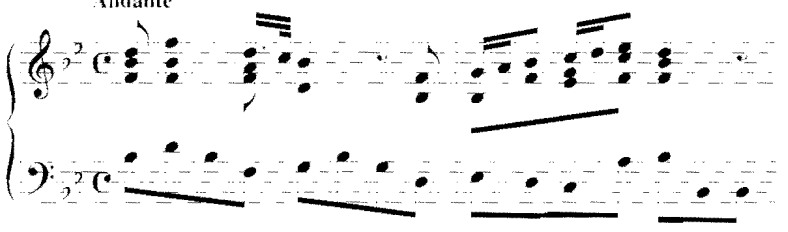
(2)



(3)

Andante

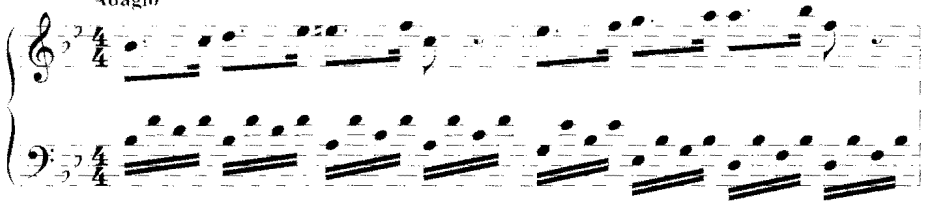
Handel, *Samson*



(4)

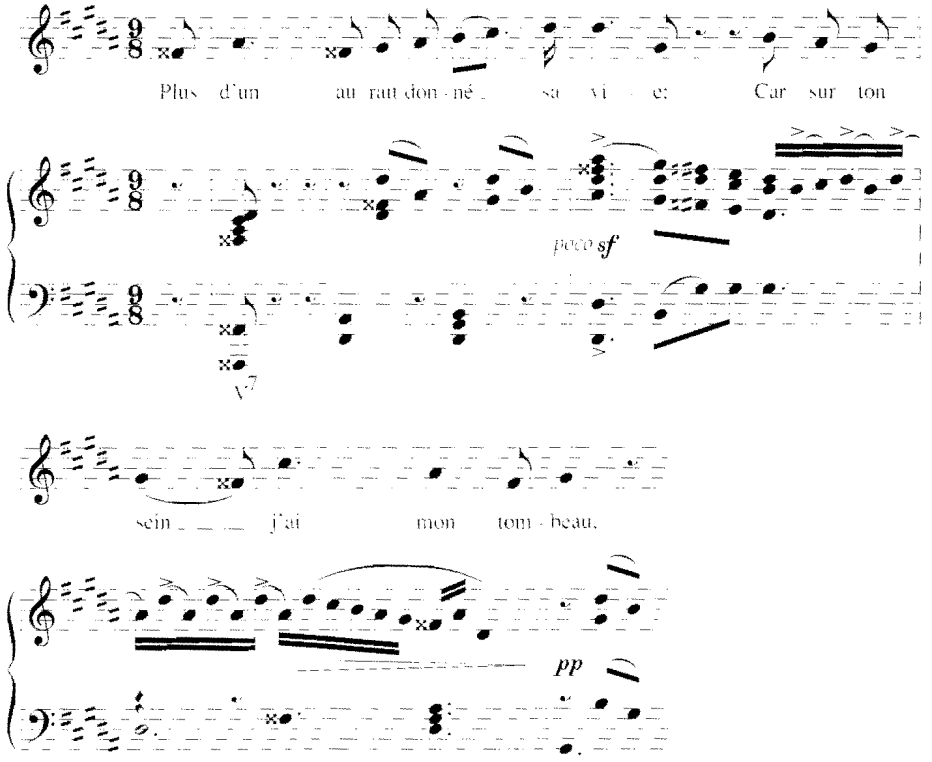
Adagio

Mozart, Sonata in F Major for Piano, K. 332



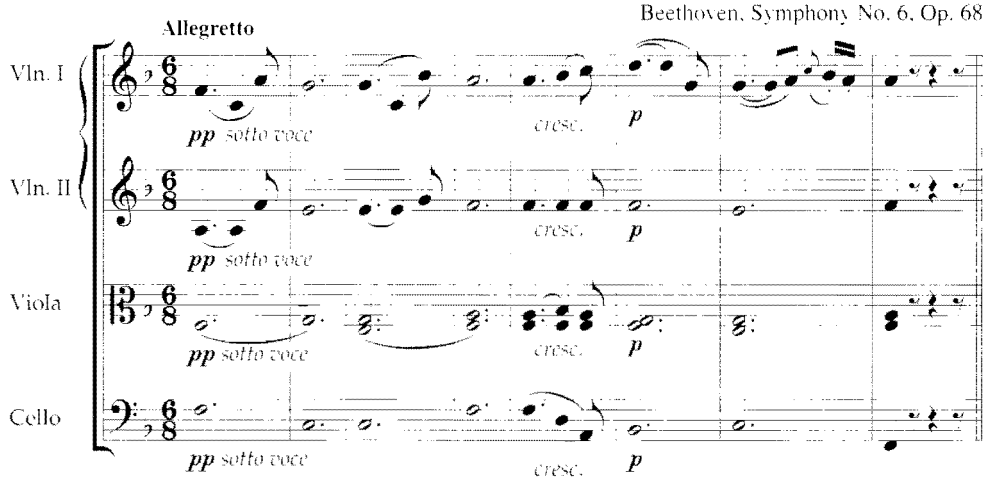
(5)

Berlioz, *Nuits d'été*, "La Spectre de la rose," Op. 7



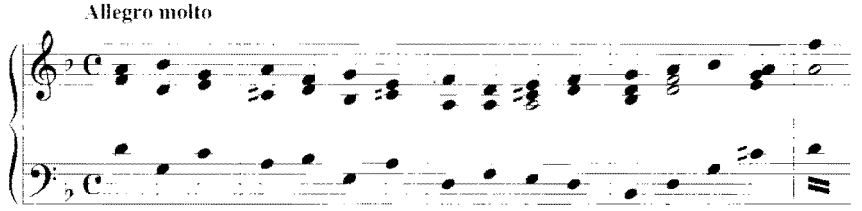
CD (6)

Beethoven, Symphony No. 6, Op. 68



CD (7)

Verdi, *Requiem*



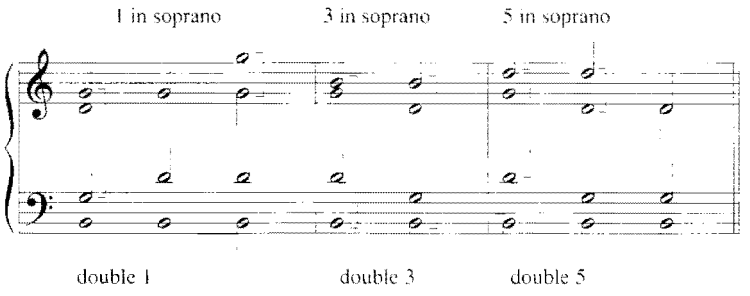
In Appendix E: The answer to (1) is given.

Writing a Triad in First Inversion

Any doubling is possible in a first inversion (even the leading tone under the right circumstances, see page 252), but we will start with the conventional doublings, that is, those which are most frequently used.

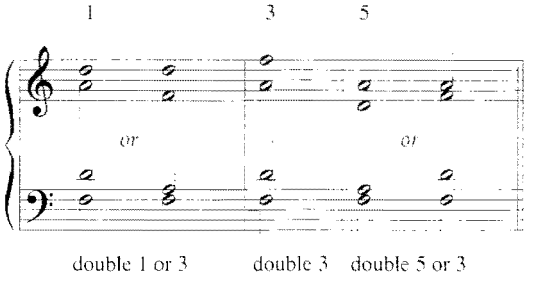
Major Triads The soprano note is doubled, with one each of the remaining triad tones.

FIGURE 9.18

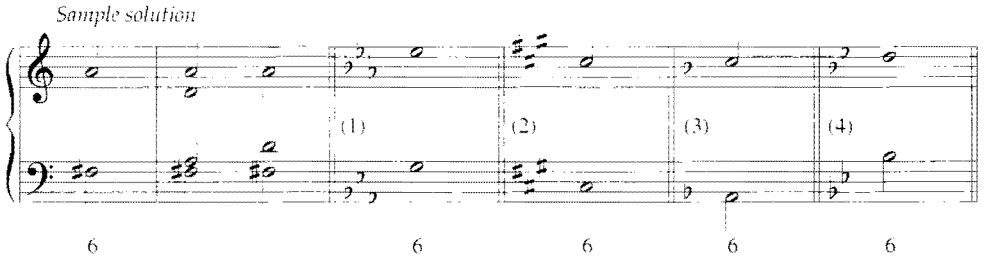


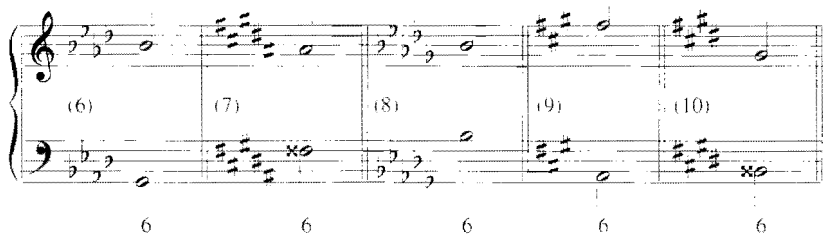
Minor Triads Although the same doubling applies to minor triads, it is also common procedure to double the third.

FIGURE 9.19



ASSIGNMENT 9.2 Add alto and tenor voices in these first-inversion triads. Write each in both open and close position, except where vocal range will not allow.





In Appendix E: Answers to (1)–(3) and (6)–(7) are given.
In the Workbook: Answers to the entire assignment are given.

Writing to or from a Triad in First Inversion

When progressing from a triad in first inversion to a triad in root position (such as V_6–I), or the reverse (I–V_6), you are most likely to avoid parallels and other problems by first writing the two voices that lead to and from the doubled note. These two voices can move in three different ways in relation to each other.

1. *Contrary motion:* The two voices move in opposite directions (Figures 9.20*a* and 9.21*a*).
2. *Oblique motion:* One voice remains stationary while the other moves (Figures 9.20*b* and 9.21*b*).
3. *Similar motion:* The two voices move in the same direction (Figures 9.20*c* and 9.21*c*).

FIGURE 9.20

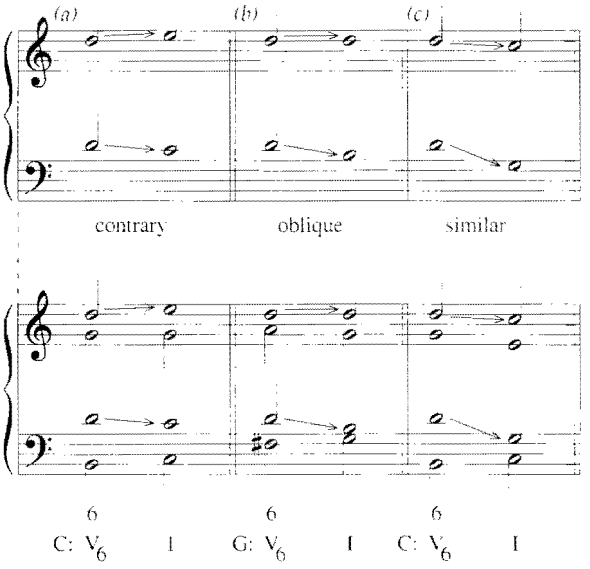
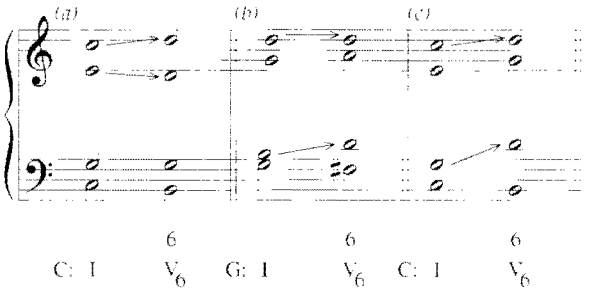
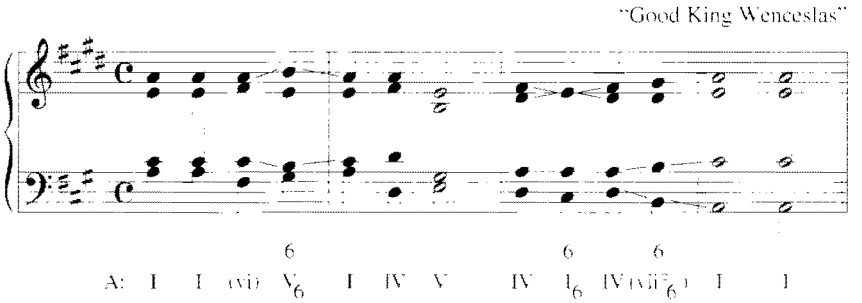


FIGURE 9.21



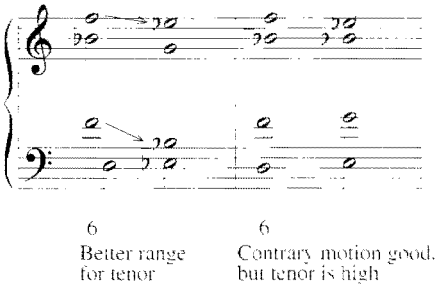
It is always best to use contrary or oblique motion in approaching and leaving the doubled note. In Figure 9.22, contrary motion is used exclusively at every occurrence of a triad in first inversion.

FIGURE 9.22



Similar motion is ordinarily necessary only in unusual cases when one voice must be brought into a better range or to effect a change of position.

FIGURE 9.23



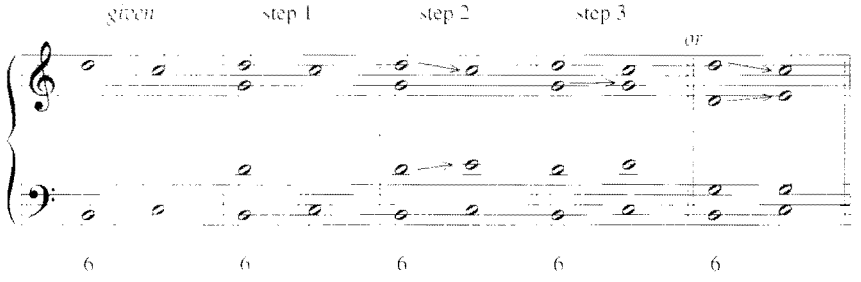
The most efficient procedure for part-writing to or from a triad in first inversion is as follows (Figure 9.24):

Step 1. Complete the first of the two triads.

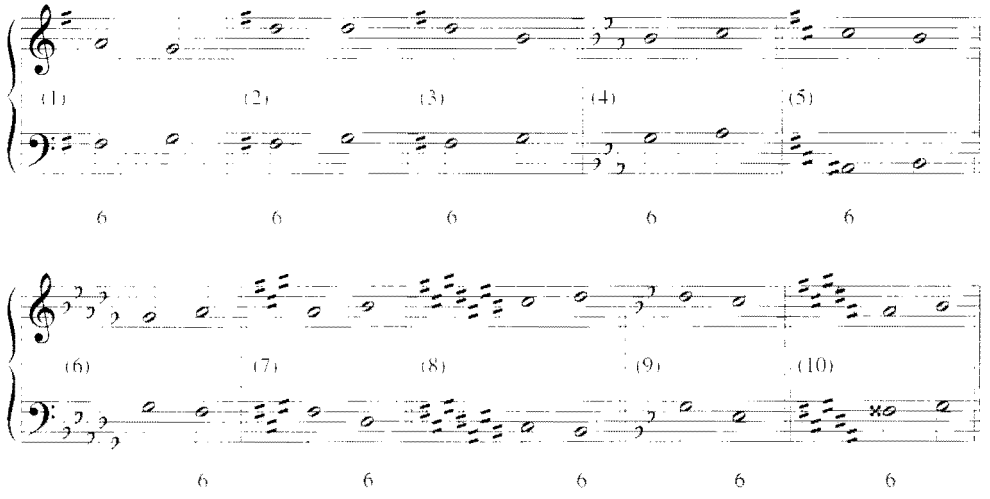
Step 2. Approach or resolve the doubled note by contrary or oblique motion if possible.

Step 3. Fill in the remaining voice with the note necessary to produce normal doubling. When the doubled note moves by contrary or oblique motion, the remaining voice usually moves by step or remains stationary, rarely moving by leap.

FIGURE 9.24



ASSIGNMENT 9.3 Write pairs of triads. Where possible, write the example in both voicings, as shown in Figure 9.24. Place the chord number below each bass note.

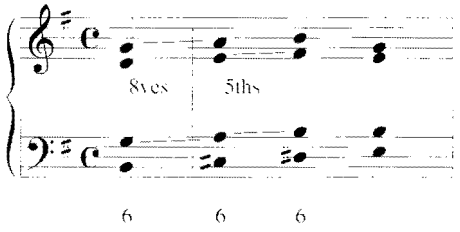


In Appendix E: Answers to (1), (5), and (7) are given.
In the Workbook: Answers to the entire assignment are given.

Writing Successive Triads in First Inversion

When triads in first inversion are used in succession, it is impossible for each of these triads to be found with the usual doubling in the same pair of voices, since parallel octaves and fifths will result.

FIGURE 9.25

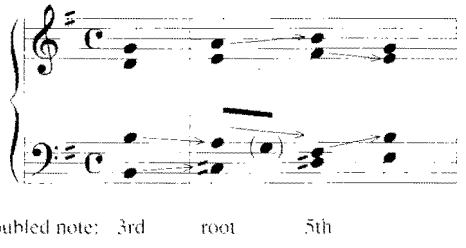


To avoid these, use a different doubling for each triad in inversion, if necessary.

In a most instructive example, Figure 9.26, Bach has successfully handled three successive first inversions, including $\hat{6}$ and $\hat{7}$ in the bass. He has avoided all the "booby traps" by carefully choosing his doubled notes, a different one in each triad. As a result, each doubled note is both approached and left by contrary motion. Study this example carefully, because in your work in inversions, you are unlikely to encounter any problem more difficult.

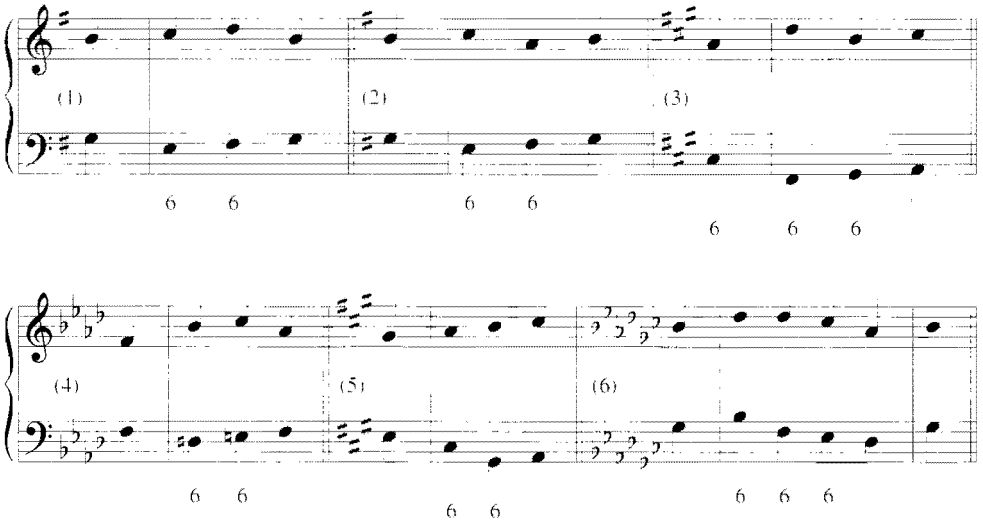
FIGURE 9.26

Bach, "O Herre Gott, dein göttlichs Wort" (#14)



When selecting doublings, be sure not to double the leading tone or any altered tone. Notice the $\hat{6}$ and $\hat{7}$ in Figure 9.26. Neither is doubled.

ASSIGNMENT 9.4 Write examples of successive first inversions.



In Appendix E: Answers to (1)–(3) are given.
In the Workbook: Answers to the entire assignment are given.

Writing a Triad in Second Inversion

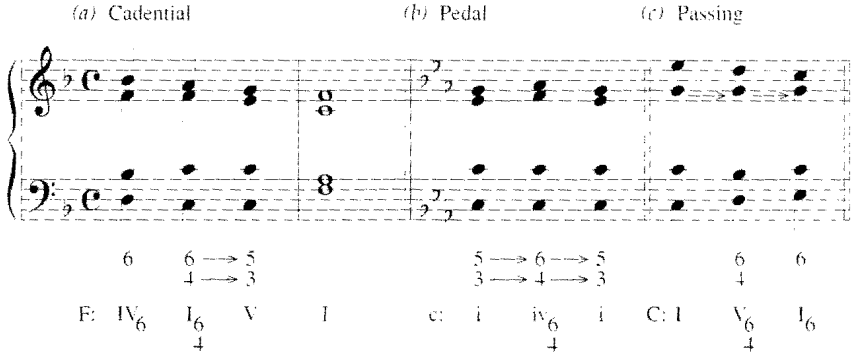
The ambiguity of the six-four triad, a sonority that appears to be a triad with tones that function as nonharmonic tones, places limitations on its doubling and its part-writing in a progression.

Doubling The fifth (bass note) is ordinarily doubled.

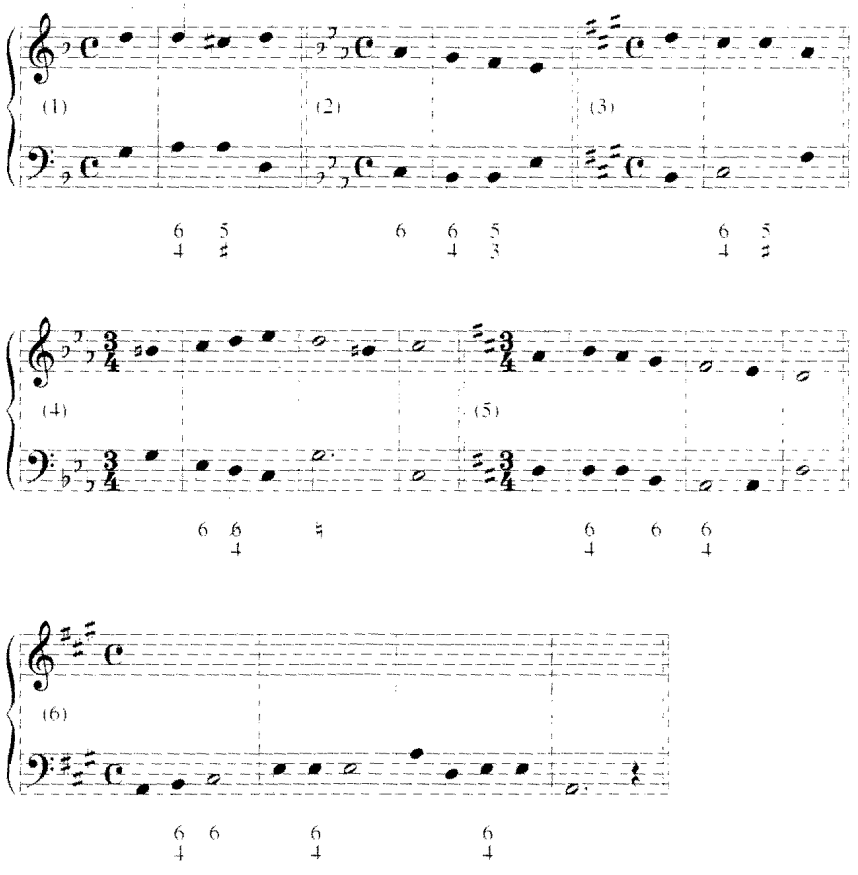
Approach and Resolution

1. *Cadential:* The bass note is *not* approached from the same tone or from the leading tone. In resolution, $\hat{6}$ moves to $\hat{5}$ above the bass, and $\hat{4}$ moves to $\hat{3}$ (Figure 9.27*a*).
2. *Pedal:* Motion above the bass is usually stepwise. (Figure 9.27*b*).
3. *Passing:* The "dissonant" fourth remains stationary (Figure 9.27*c*).

FIGURE 9.27



ASSIGNMENT 9.5 *Writing six-four chords.* Numbers 1–3 are cadential, number 4 is passing, and number 5 is pedal. In number 6, bass line only, supply three upper parts and include one example each of the three types of six-four chords.



In Appendix E: Answers to (1) and (5) are given.
In the Workbook: Answers to the entire assignment are given.

Other Part-Writing Considerations

Before we continue with phrase-length exercises, three additional observations applicable to any part-writing procedures will make your efforts easier.

The Melodic Augmented Fourth This interval is usually avoided in melodic writing and, therefore, should not appear in any voice line. Both tones of the interval have strong resolution tendencies, the upper resolving up and the lower resolving down. In a melodic leap, both resolutions cannot be accommodated, and the undesirable large leap must continue in the same direction (Figure 9.28*a*).

The problem is easily solved by using the augmented fourth's inversion, the diminished fifth, thus allowing the melodic change of direction (Figure 9.28*b*). How it works in a practical application, IV–V_6, is seen in Figure 9.29.

FIGURE 9.28

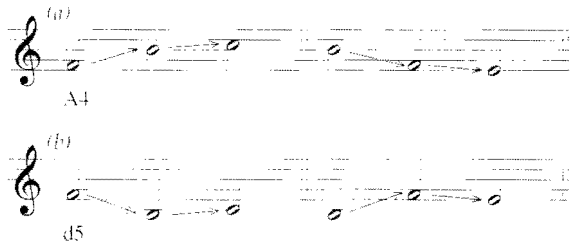
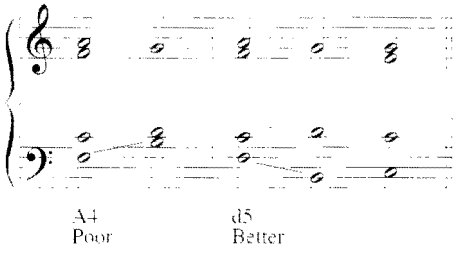
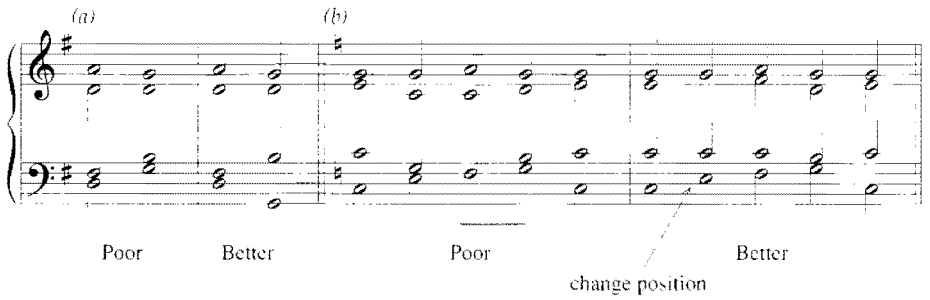


FIGURE 9.29



Overlapping Voices These can be illustrated better than described. In Figure 9.30*a*, measure 1, the bass note D moves to G, but the G is higher than the previous tenor note. These are overlapping voices, and they can occur between any pair of adjacent voices, ascending or descending. Correction is sometimes as simple as changing the direction of one voice (Figure 9.30*a*). Otherwise, change the triad position at some point before the overlapping pair. A good place to change position is at a repeated triad, as in Figure 9.30*b*.

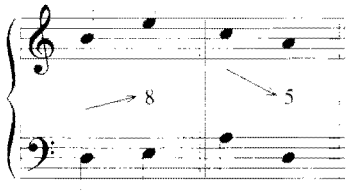
FIGURE 9.30



Unlike parallel fifths, overlapping voices are not to be considered completely unusable. They, along with crossed voices (page 88), are often useful when creating melodic lines using inversions and nonharmonic tones, as will be shown later.

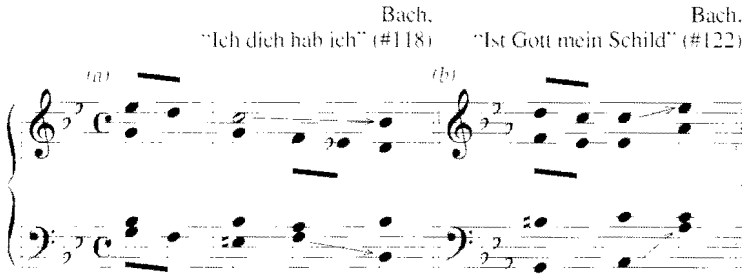
Hidden Octaves and Hidden Fifths (Direct Octaves and Fifths) A hidden octave occurs when two voices progress in similar motion to a perfect octave. A hidden fifth occurs when two voices move in similar motion to a perfect fifth. Although not parallel, they often produce the aural effect of parallel movement.

FIGURE 9.31



Hidden octaves and fifths are a problem *only* when they occur between the two outside voices of a composition (soprano and bass in four-part writing). Even then, they are acceptable when (1) the soprano moves by step, as in the perfect authentic cadence, soprano $\hat{2}$–$\hat{1}$ with bass descending (Figure 9.32*a*), and (2) when the bass moves by the interval of an octave, considered the same as a repeated tone (Figure 9.32*b*).

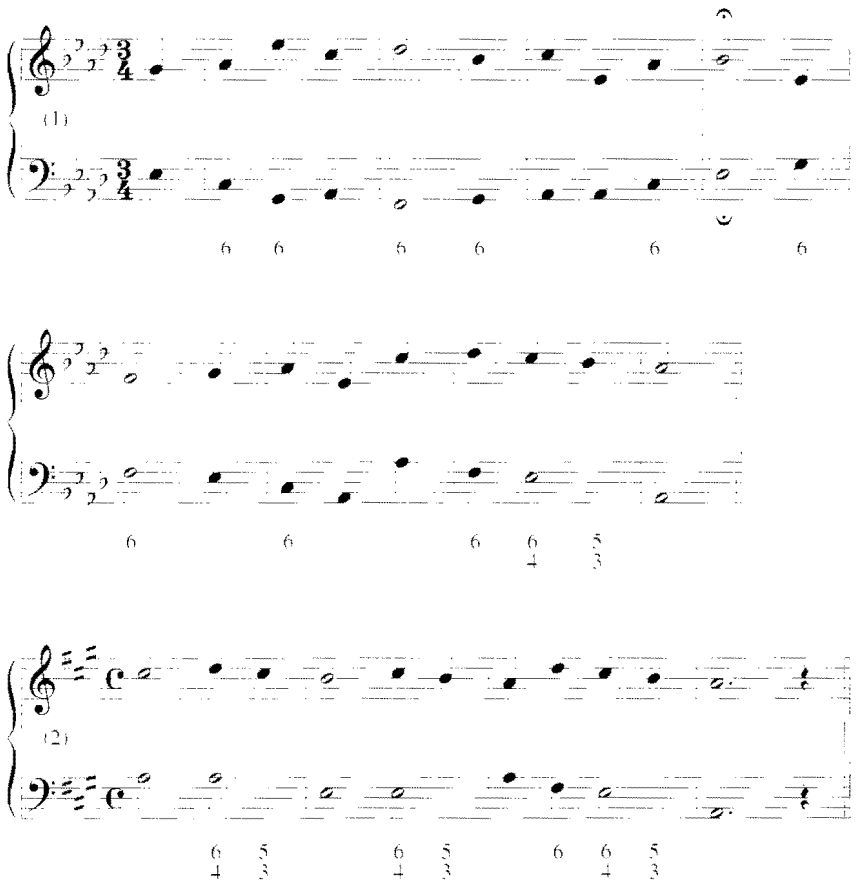
FIGURE 9.32

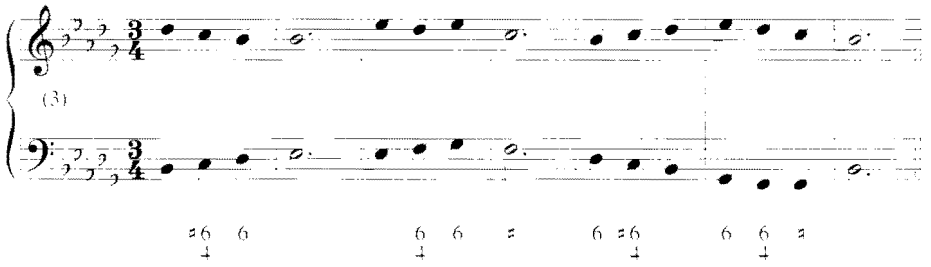


In other circumstances, a hidden fifth or octave between outside voices is not necessarily entirely unusable but should be chosen only after careful consideration of its aural effect.

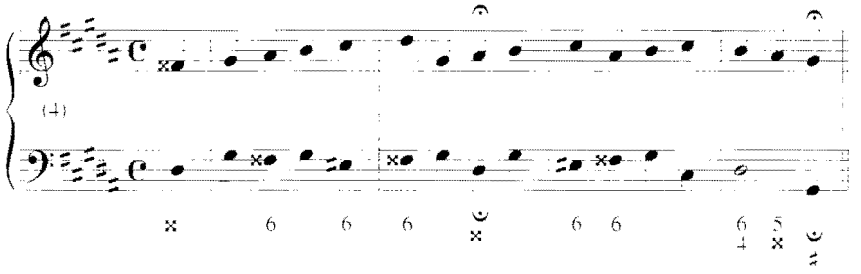
ASSIGNMENT 9.6

(a) Write extended exercises (the soprano and bass lines are given). Make a harmonic analysis.

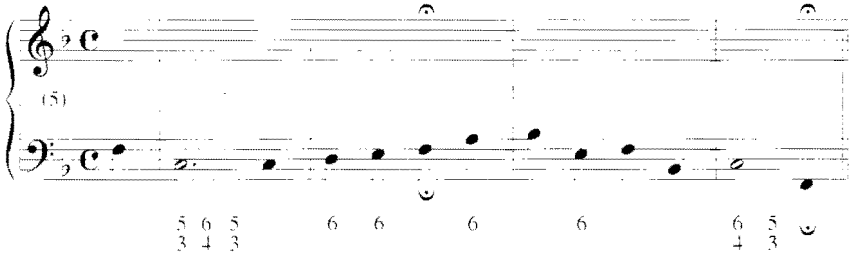


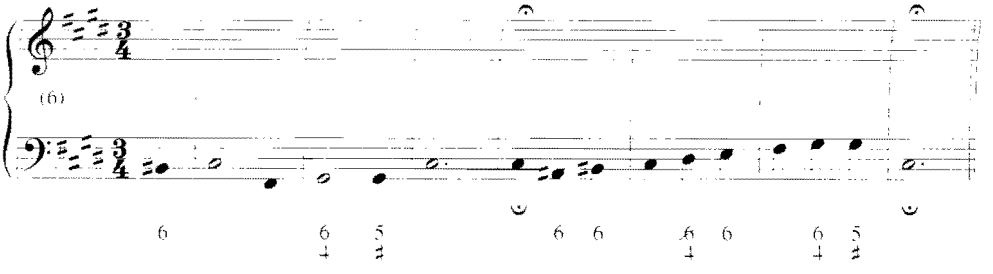


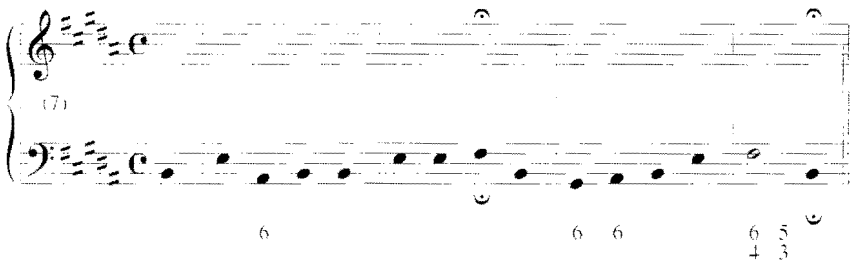
(Review Figure 9.26.)



(b) The bass only is given. Write the soprano line and fill in the alto and tenor voices. Make a harmonic analysis. When you write the melodic line, be sure to follow the procedures of good melodic writing as described in Chapter 7. Choosing a soprano note at random simply because it fits the designated chord rarely produces worthwhile results.



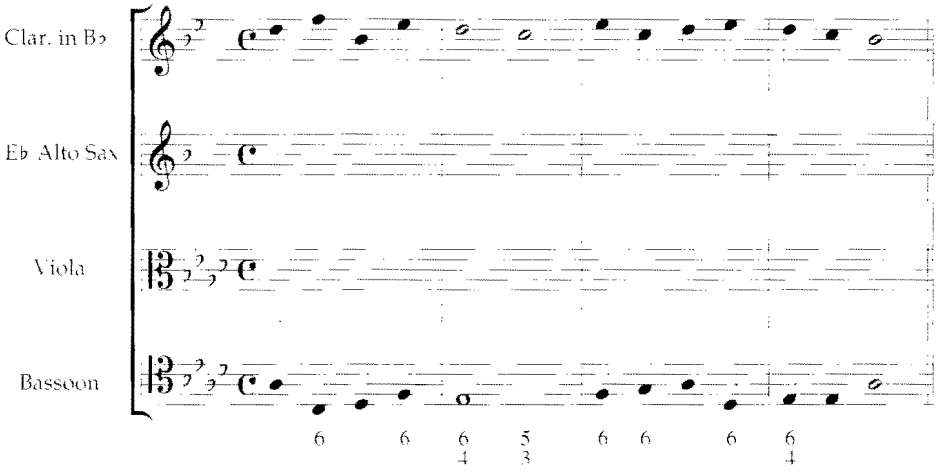




Alternative methods of solution

1. Write any exercise on four staves (open score), using correct transposition for the tenor voice. Don't forget to use correct stem directions when writing a single voice line on the staff.
2. Write any exercise in open score, using treble, alto, tenor, and bass clefs, reading from the top staff down.

ASSIGNMENT 9.7 *Part-writing for instrumental ensemble.* Add inner voices to the following example. For additional experience, rewrite exercises from Assignment 9.6 for instruments of your choice or as assigned.



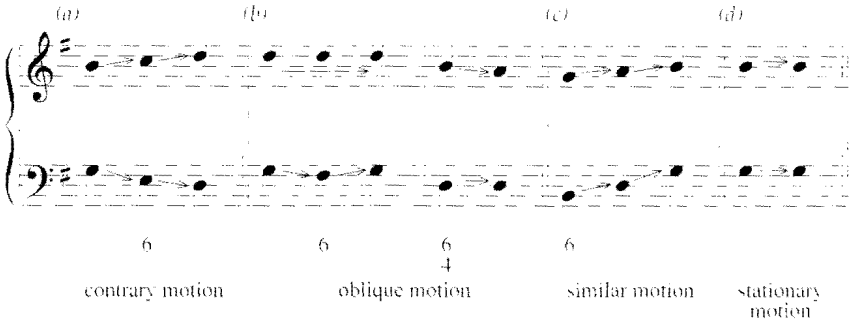
Melody Harmonization

When harmonizing a melody using inversions, you must decide which triads will be in inversion and which will have the root in the bass. Therefore, write the complete bass line first, *before* the inner voices.

When the bass moves with the soprano, their related movements can be in any one of four directions:

1. *Contrary motion* to each other
2. *Oblique motion*—soprano stays on the same tone while bass moves, or soprano moves while bass maintains the same tone
3. *Similar motion* to each other
4. *Stationary motion*—both soprano and bass repeat their tones

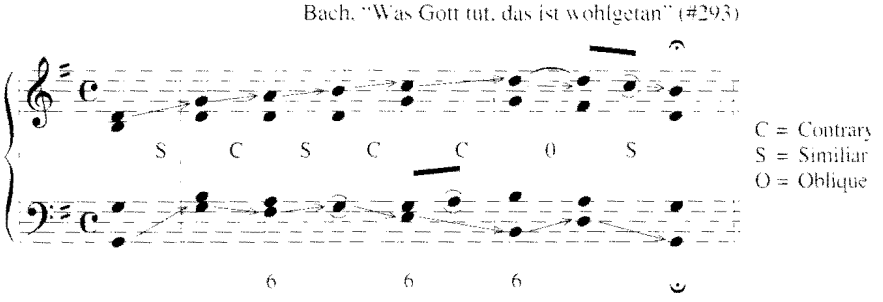
FIGURE 9.33



Of the four types of motion, contrary and oblique are the most frequently used. Similar motion is very effective for intervals of thirds or sixths between soprano and bass (see Figure 9.6, bracketed voices) but otherwise should be used with care, avoiding parallel or hidden octaves and fifths. Stationary motion, having no melodic or harmonic motion, is little used.

The chorale in Figure 9.34 uses I, IV, and V only. Here is the count of the motions between outside voices: contrary, 3; similar, 3; oblique, 1. Note that the similar motions occur during a repeated triad, as thirds between soprano and bass, and in the V–I cadence.

FIGURE 9.34 *Motion between Outside Voices*



As a final test of the chosen bass line, play or sing (two persons) your soprano and bass lines only. The sound of the two-voice composition should be musically effective, even without the inner voices, as already demonstrated in the Mozart example, Figure 9.5. Try this on Figure 9.34, or on any other Bach chorale.

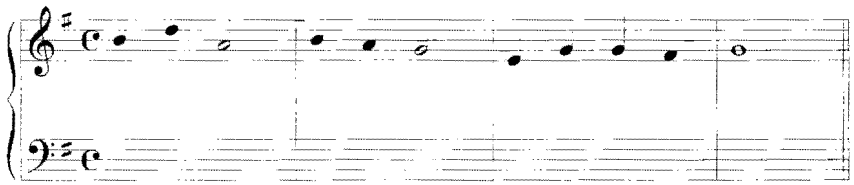
ASSIGNMENT 9.8 *Analysis of motion between outside voices.* Using music examples from this chapter, indicate each motion by C (contrary), S (similar), or O (oblique), as in Figure 9.34. Count the total number of each motion. Also count the number of similar motions involving parallel thirds or sixths. Be able to discuss the significance of these statistics.

		C	S	O	S: 3rds or 6ths
Example:	Figure 9.34	3	3	1	1
	Figure 9.5	___	___	___	___
	Figure 9.7	___	___	___	___
	Figure 9.11	___	___	___	___
	Figure 9.17	___	___	___	___

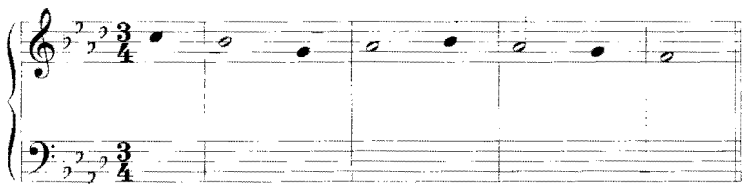
In Appendix E: Answers to the entire assignment are given.

ASSIGNMENT 9.9 *Melody harmonization.* Following directions from Assignment 6.11 (page 125), first write the bass line using roots only, then decide where use of inversions will be effective, with special attention to the motion between the outside voices. Each exercise asks you to use certain inversions, but you are not limited to these.

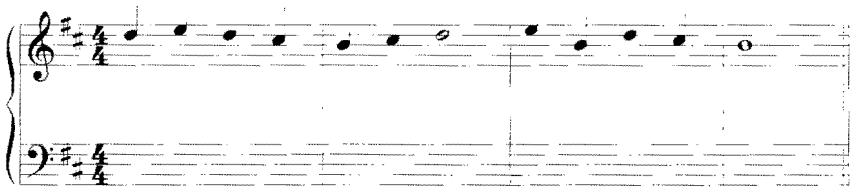
(1) Use two different six-four chords.



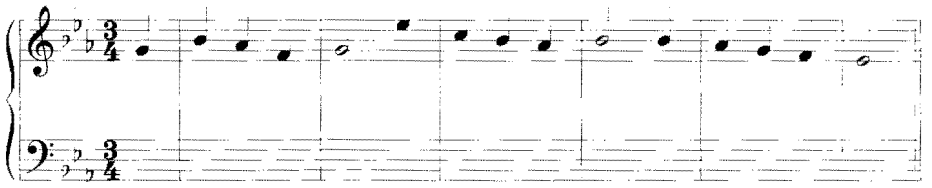
(2) Use $\hat{6}$–$\hat{7}$ in the bass.



(3) Use a pedal six-four and a measure similar to measure 1 of Figure 9.6 (page 171).



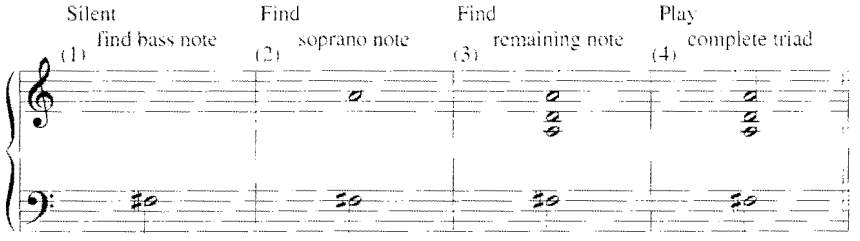
(4) Use a V_6–IV_6 progression and a cadential six-four chord on a weak beat.



Keyboard Harmony

ASSIGNMENT 9.10 Play any major or minor triad in first or second inversion, with any member of the triad in the soprano. As in previous keyboard performances of single triads, play each triad in inversion with three notes in the right hand and one in the left, using correct doubling. Example: Play the first inversion of the D major triad, with its fifth in the soprano.

FIGURE 9.35



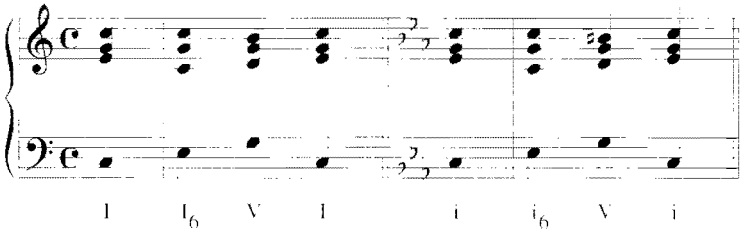
Play these triads or others as assigned. Soprano note is indicated in parentheses.

First Inversion: Major—C(1), E♭(5), A(3), B(1), D♭(5)
Minor—D(1), G(5), F♯(3), B♭(1), D♯(5)

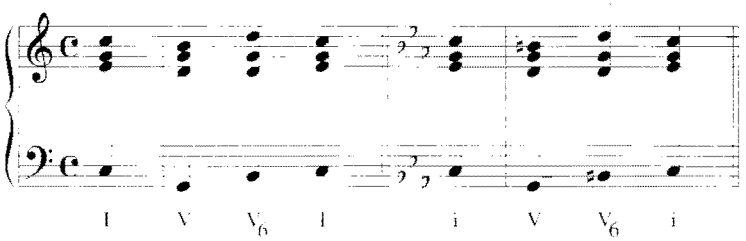
Second Inversion: Major—A(3), F(1), G♭(5), E(1), C♯(3)
Minor—A(1), F♯(5), B(3), G♯(1), E♭(1)

ASSIGNMENT 9.11 Play these progressions in each major and minor key. The first three are written out. Also, try each exercise beginning with one of the two other soprano positions of the opening tonic triad.

(1)



(2)



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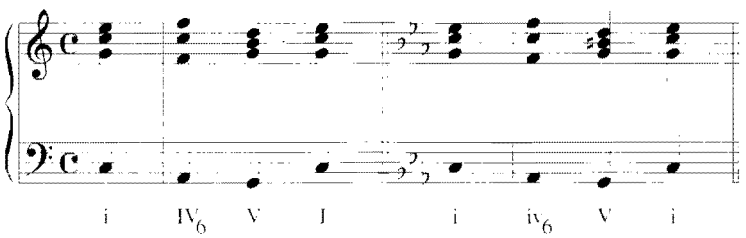


(4) I I_6 IV V I: i i_6 iv V i
(5) I IV_6 V_6 I: i IV_6 V_6 i
(6) I IV I^6_4 V I: i iv i^6_4 V i
(7) I IV_6 I^6_4 V I: i iv_6 i^6_4 V i

Summary

A chord in inversion is one in which some tone other than the root is the lowest tone: in first inversion, the third; in second inversion, the fifth.

Inversions are valuable for creating bass lines with melodic interest greater than that possible with chord roots alone. Specific devices made possible are melodic sequences in the bass and parallel thirds or sixths between the bass and an upper voice.

When first inversions are used in succession, any resulting chord progression is usable, including V–IV, not ordinarily found with roots in the bass.

In a minor key, the bass line ascending through $\hat{6}$ requires the use of the major subdominant triad, IV.

The use of second inversion is limited because the interval of the perfect fourth above the bass is considered a dissonance, requiring resolution to a third above the bass.

The second inversion is used principally as a *cadential* chord, resolving to V at a cadence. Other uses are the *pedal* six-four and the *passing* six-four.

Conventional doubling in first inversion is the soprano note; in second inversion, the bass note. Successive first inversions require differing doublings as needed to avoid parallels.

Part-writing inversions is best accomplished by writing to and from the doubled note first.

When inversions are used to harmonize a melody, contrary and oblique motion between the outside voices should be the most frequent. Similar motion is effective when soprano and bass move in parallel thirds or sixths.

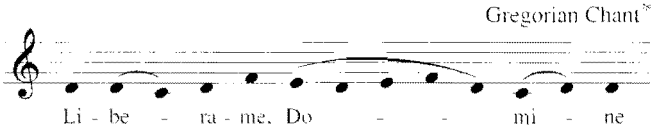
ARTICLE #8

The Theory of Inversion

The fact that a chord can be inverted—that, for example, E G C is the same chord as C E G, only inverted—appears so obvious to us now that we assume the concept must have been known to the very earliest composers. In reality, however, the seemingly "simple" fact of harmonic invertibility became formally established only in the year 1722 by Jean-Philippe Rameau (1683–1764) in his *Traité de l'harmonie reduite à ses principes naturels (Treatise on Harmony Reduced to Its Natural Principles).*

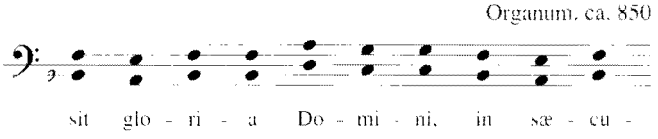
To understand why the concept of the chord and its inversion came so late, we must once again look back to the beginnings of composition in Western music. The earliest known music is melodic, that of the chants of the medieval church.

Gregorian Chant*



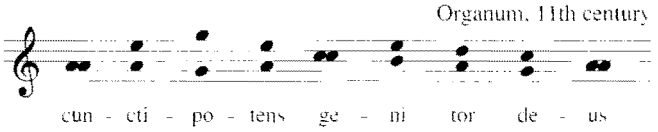
Music in two voices, two melodic lines together, appeared in the ninth century, with the chant also stated a perfect fifth higher than the original melody and with the two lines sung simultaneously.

Organum, ca. 850



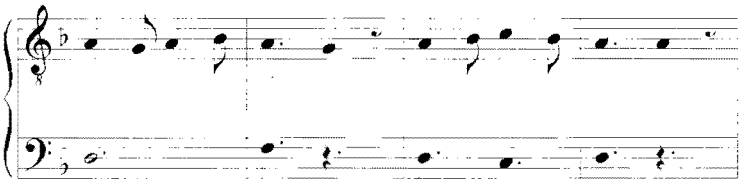
This simple device of sounding two melodies simultaneously, known as *counterpoint,* evolved first through independence of direction in the two lines,

Organum, 11th century



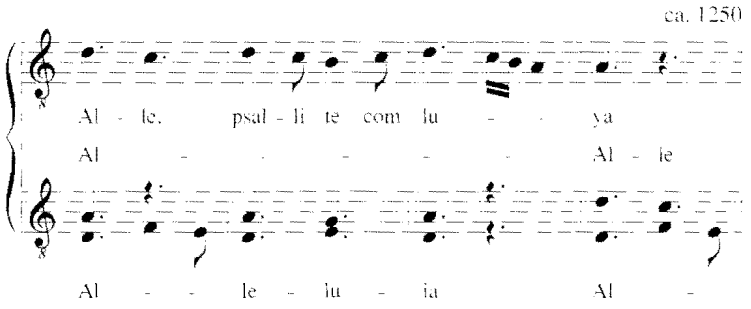
then with independence of rhythm,

ca. 1200

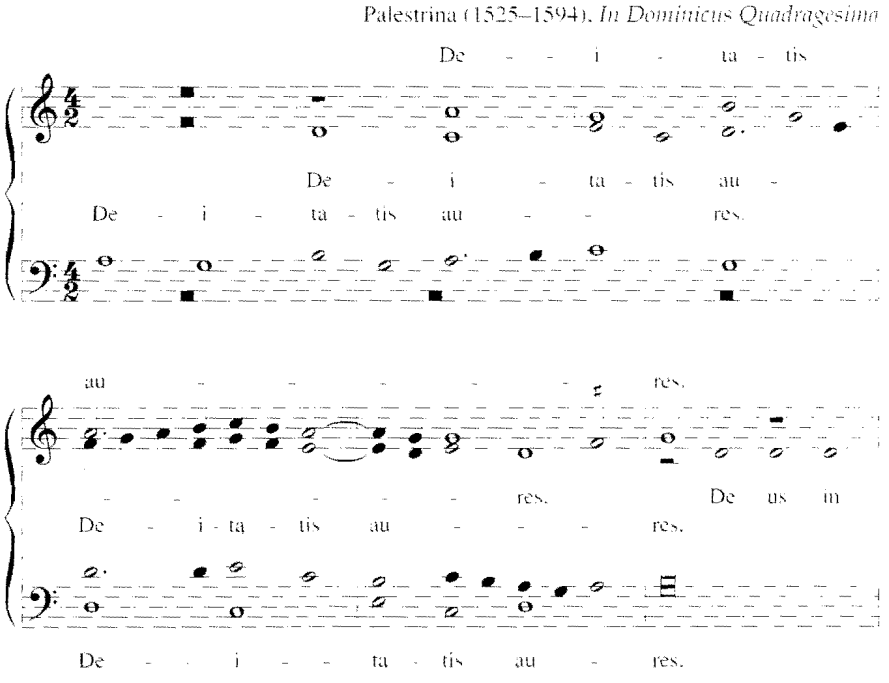


followed by the addition of more and more melodic lines,

*These first five excerpts are reprinted by permission of Harvard University Press, Cambridge, Mass., from Davison and Apel, *Historical Anthology of Music,* Vol. I (1949).



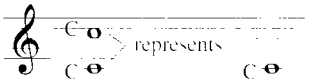
and reaching its culmination in the *polyphonic* (many-voiced) contrapuntal writing found in the masterworks of the late sixteenth century.



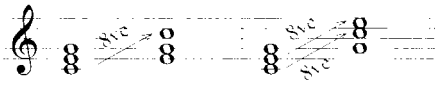
In all these developments, the primary compositional concern was the setting of voice lines against each other. The harmonic aspect was controlled exclusively by making sure that intervals above the lowest sounding notes were consonant with these notes (though specific dissonances in well-defined situations were allowed). Hence, the first vertical sonority in measure 4 of the Palestrina example we would call a D minor triad, but in the sixteenth century it would have been described simply as a minor third and a perfect fifth above the D in the bass. On the fourth beat of the measure, we see from the bass up the notes C E A, to us the first inversion of an A minor triad, but at that time a major third and a major sixth above the C in the bass. Only the

major triad occurring at the end of a composition was given an identity, and called the *trias harmonica* (harmonic triad).

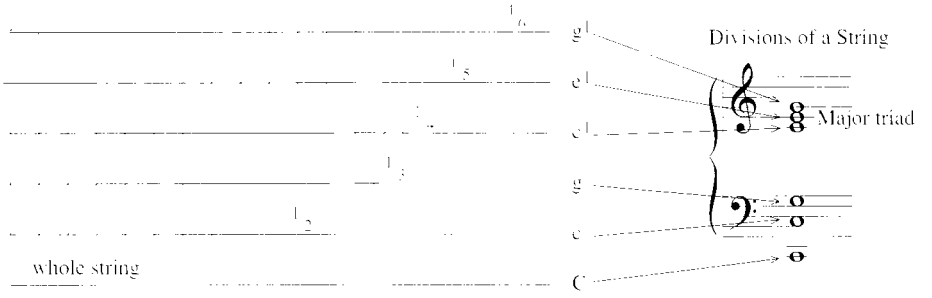
The impetus of performance and composition through the use of figured bass (see the article "Figured Bass" in this chapter) heightened awareness of the harmonic aspect of music. Many theorists during this time attempted a rational explanation of this new concept, but none was successful until the theories of Rameau appeared, approximately 125 years after the introduction of the figured bass. Rameau's proof of the invertibility of a chord or of an interval was arrived at through the principle of the "identity of the octave." In the interval of the octave, the two notes sound identically; therefore, the octave actually represents a single pitch of the same name. It should follow that any interval of a chord that is changed only by an octave transposition of one or more of its notes has not really been changed at all.



Thus, E G C is C E G, the same triad but in a different form, the first inversion; and G C E is C E G, but in second inversion.

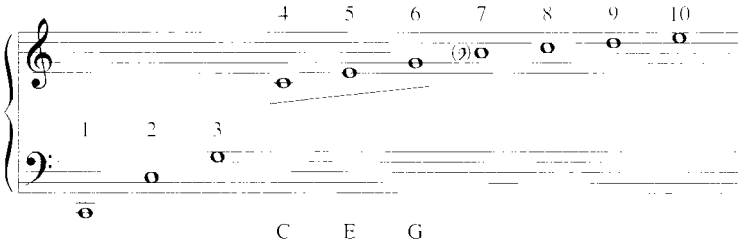


But why is C the fundamental note of this triad, rather than E or G? The answer to Rameau was based on an acoustical phenomenon well known as far back as early Greek times and said to have been discovered by Pythagoras (sixth century B.C.). We take a string that when played sounds C. If we press a finger at the halfway point on the string and play on one half of the string, the note produced is another C an octave higher. If we place the finger to divide the string in thirds and play on one third of the string, we get the pitch G an octave and a fifth above the original note. Here are the pitches derived from the first six divisions of a string sounding C.

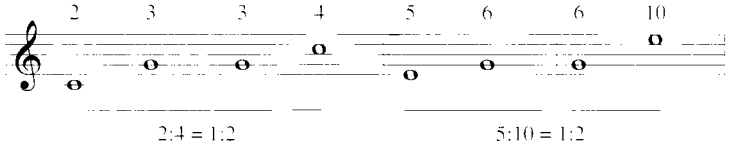


Rameau observed that each note created by dividing the string was directly related thereby to the entire string, the source from which the upper tones are derived. In our illustration, the triad c^1 e^1 g^1 is derived from the division of an original string sounding C. c^1 is in an octave relationship to the original C; it therefore represents the fundamental or generating tone and becomes the root or fundamental of the triad, no matter in what order the triad notes are arranged.

Another acoustical phenomenon, the *overtone series* (described in Appendix C), displays the same relationship of intervals as that found in the division of a string. Although it was discovered by Joseph Sauver, a blind and deaf music theorist, twenty years before Rameau's theories, Rameau, once he had become acquainted with it, pointed to the overtone series as further confirmation of his work. In the following overtone series on C, the C E G triad appears as partials numbered 4, 5, and 6, comparable to the fourth, fifth, and sixth divisions of the string.



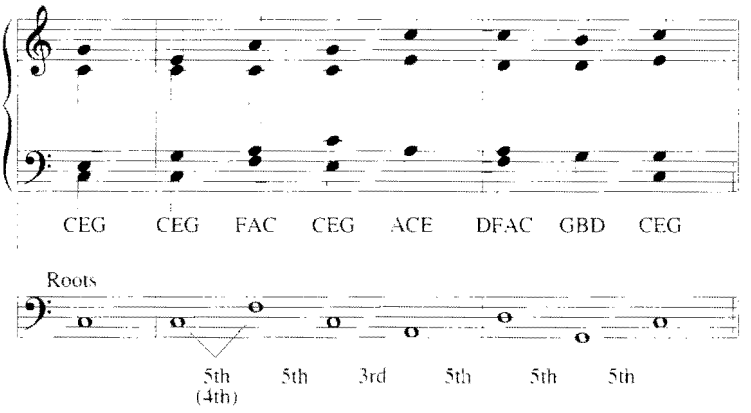
Intervals are invertible in the same manner. Moving the lower note up an octave or the upper note down an octave changes the interval only by the ratio of 1:2. Since this ratio indicates the octave, which in turn represents the fundamental, the two intervals are inversions of each other. Perfect fifths and perfect fourths are inversions of each other; minor thirds and major sixths are inversions of each other.



Having found that all chords have roots and that the root remains constant when the notes are rearranged, Rameau next sought to discover the underlying principle governing the progression of one chord to another. Rameau said that these progressions are based upon movement of the roots of chords, whether or not those roots are in the bass. In looking at the intervals from the division of the string and from the overtone series, he noted that the first interval to appear above the fundamental and its repetition, the octave, is the fifth. Therefore, root movement should be best when the roots are a fifth

apart. This can be shown by taking a piece of music and extracting the roots, placing these on a third staff, as in the following example. It should be kept in mind that there are three possible root movements: by fifth, by third, and by second. According to the theory of inversion, the effect of the fourth is the same as that of the fifth (C up to F is the same as C down to F), the sixth is the same as the third (C up to A is the same as C down to A), and the seventh is the same as the second (C up to B is the same as C down to B).

Hymn: St. Anne



In this part of his theory, Rameau was correct; subsequent analysis has shown that in the music of almost every composer during the years 1600–1900, the majority of root movements were by the interval of the fifth. Rameau's reasoning that root movement by thirds should be next best and root movements by seconds least best has been reversed by the practice of composers.

But on the whole, Rameau was eminently successful in discovering satisfactory principles of chord construction and chord progression. Chords have roots that may or may not be in the lowest sounding voice, and chord succession is a function of the movement of these roots, movement by the fifth being the best. These principles allow us to identify a chord by numbering the chord according to the location of its root in the scale and to study the relationship of chords through the movements of their roots.

Music written after the time of Rameau and up to about 1900 can, for the most part, be studied and analyzed by the principles first outlined by Rameau. It is because of this fact, and in spite of the large number of composers and diverse styles in this three-century span, that we can study the music of this period under the single subject heading of harmony.

ARTICLE #9

Figured Bass

In its four-hundred-year history, figured bass has functioned in three distinct areas of musical endeavor. It began as a solution to a performance problem; then, during the Baroque era, it became an important compositional device; and, finally today, it serves as a widely used aid in the learning of harmony and part-writing.

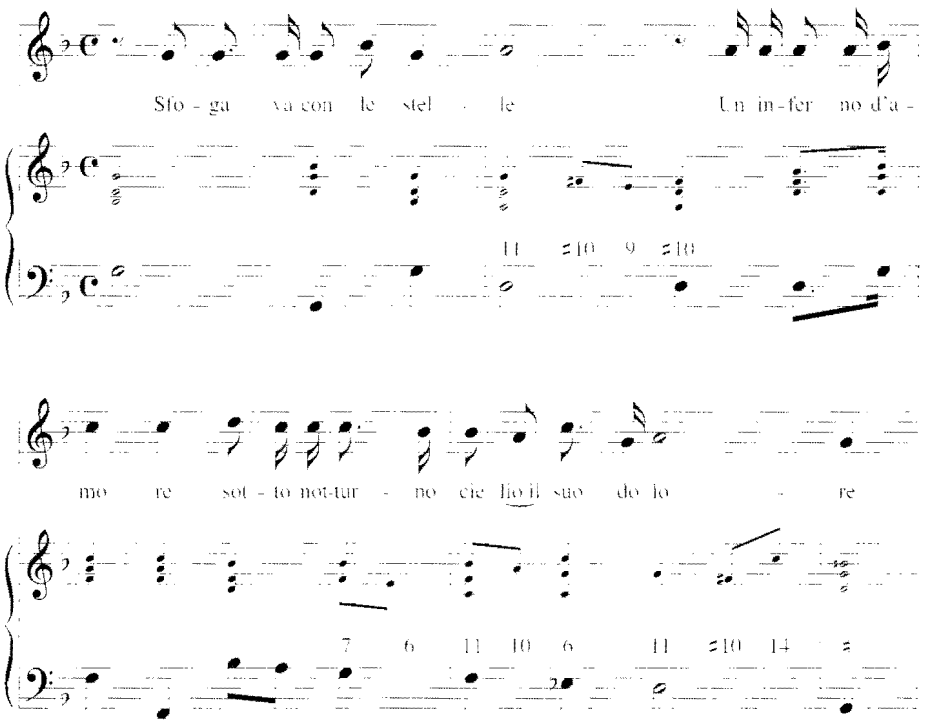
Its history dates from the late sixteenth century. You will read in the article "Another Metrical Concept," in Chapter 15, that vocal music of the time was written on separate pages for each of the voices. And although much of this music was written without accompaniment *(a cappella)*, it was the custom of the time to include instrumentalists informally, playing any or all of the vocal parts or even playing them without singers. The performance problem we have spoken of arose when the keyboard player tried to read all the separate parts of a work simultaneously when performing it with the ensemble. The problem was compounded by the fact that in this pre-seventeenth-century music, each line was a melodic line, and all the lines were superimposed on each other to create a contrapuntal composition (as we will see in the Palestrina excerpt in the article "Another Metrical Concept," previously mentioned).

A solution to the keyboard player's dilemma came when someone thought of using the bass part only and writing numbers under or over certain bass notes to indicate the intervals above those notes. The performer quickly calculated the intervals above the bass and played these notes as a group—as a *chord*. As the music evolved, the succession of chords harmonized with the contrapuntal composition, even though it was in direct contrast to the melodic intent of the composition.

Although a concept of harmony, as opposed to one of counterpoint, was stirring in the sixteenth century, this practice of playing from a figured bass—of preparing a solo line and a figured bass line—actually provided composers with the impetus to write chordally. The first such music in this style was written by Lodovico Viadanna, in or about the year 1596. The style was eagerly accepted and practiced by most composers, and thus harmony soon replaced counterpoint as the predominant characteristic of music.

The following example is taken from Caccini's *Le Nuove Musiche (The New Music)*, published in 1601. Only the vocal solo line and the bass line with figuration, called *continuo* or *basso continuo*, were written by the composer. The rest of the notes represent one possible interpretation, called a *realization*, of the figured bass.

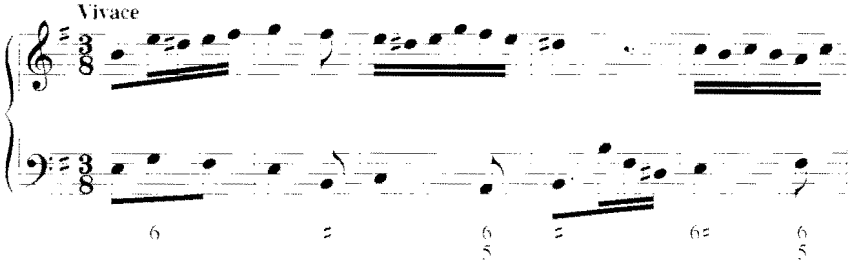
Giulio Caccini (1550?–1618), *Sfogava con le stelle*

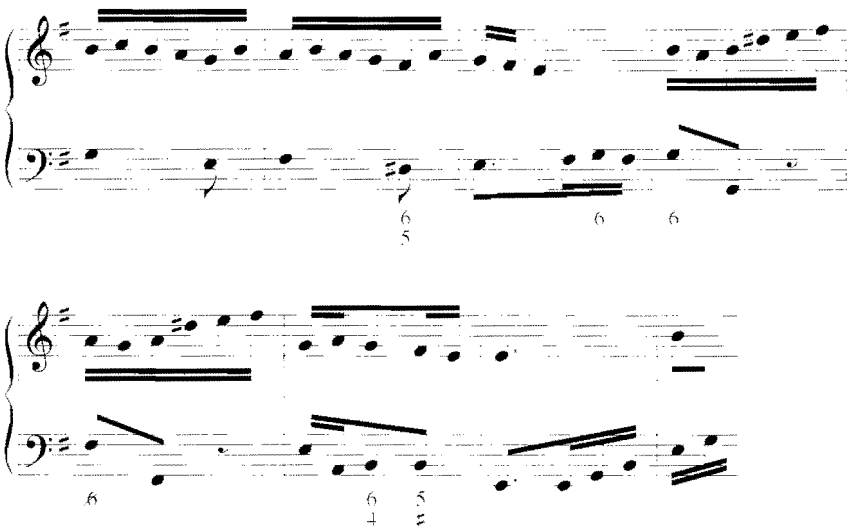


Early figured bass examples, such as that of Caccini, often used numbers higher than 8 to indicate compound intervals (10 = 8ve + 3rd). Except for 9 in certain circumstances, these large numbers were soon discarded. The player seeing 6, for example, could play the sixth above the bass in any convenient octave.

Composition using figured bass continued throughout the mid–eighteenth century and included many of the great vocal and instrumental works of Bach, Handel, and their contemporaries.

Geminiani (1680–1762), Sonata for Oboe or Flute or Violin





Whereas keyboard performers of this period improvised freely over the given figured bass lines, today's performers prefer to purchase a copy of the score with the keyboard part already written out. Thus, if one purchases the Handel violin sonatas in two different editions, one gets two different keyboard realizations. There is no reason, however, why any player cannot improvise or write out a keyboard part for any figured bass composition.

When looking at original figured bass lines, one notices that the method of writing for figured bass varied from composer to composer. For example, the markings ♮6, 6♮, 6+, and ♯ all mean the same thing. Symbols are often missing when the composer thinks the harmony is obvious, but at times they are present when they seem unnecessary. The figured bass symbols shown in examples in this book are authentic to their historical period, but of necessity their style cannot be attributed to any one composer.

With the end of the eighteenth century, figured bass, together with improvisation and casual interpretation of the music score, became a thing of the past. Composers now wrote exactly what they wanted played, and since that time it has been considered an artistic necessity for the performer to reproduce as exactly as possible the composer's intentions. But the twentieth century has seen a revival of the improvisatory and casual aspects of music, particularly in jazz groups and in scores for aleatoric music, which give both performers and conductors choices of what to play and how to play it.

Harmonic Progression; the Leading-Tone Triad and the Supertonic Triad

By "harmonic progression" we mean the order in which chords follow one another. A harmony once sounded is, of course, followed by another, but which one should it be? Is there any particular order? Are some progressions favored over others? Does it really make any difference?

Root Movement

Progression of chords, one to another, is always described in terms of root movements—that is, the intervallic distance between the roots of the two successive chords in question, regardless of the actual bass notes (inversions) used. Intervallic distances between chord roots can be only three: the fifth, the third, and the second. The fourth, the sixth, and the seventh are merely inversions of these (a root movement C up to G, a fifth, is the same as a root movement C down to G, a fourth).

Root movement *down by a fifth* accounts for a large percentage and often a majority of the chord progressions in the music of most composers. This is the movement of the authentic cadence (V–I), which is so effective in establishing a sense of key. It has been surmised by many theorists that the basic quality of the downward fifth lies in its relationship to the first interval (other than the octave) in the overtone series: a fifth, the third partial descending to the second.

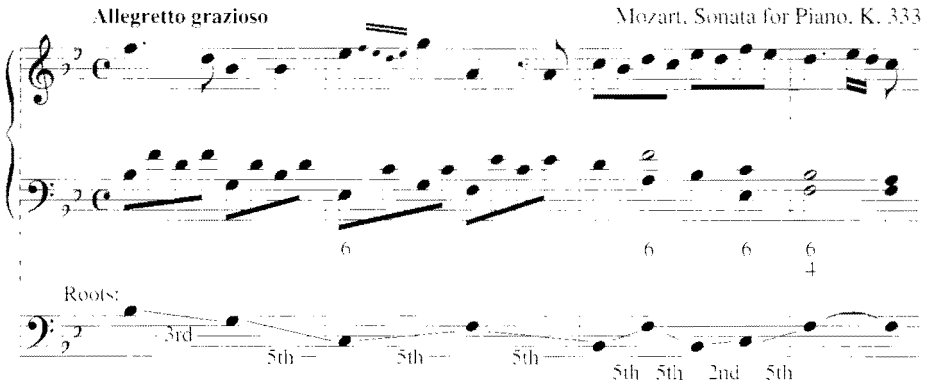
In Figure 10.1, the pattern of root movement in an excerpt from Mozart is shown on the third staff. Note that when the roots move a fourth, the progression is labeled "5th," and when a chord is in inversion, the root, rather than the bass note, is shown.

See Appendix C.

Counting the root movements (considering the root of the six-four to be F), we find

by fifth—6
by second—1
by third—1

CD FIGURE 10.1 *Root Movements*



The preponderance of root movement by fifth in this example is typical of tonal harmony in general, though not always in this same proportion, of course. But it bears out our earlier statement that "root relationship by fifth . . . is probably the most significant element delineating the character of tonal harmony."

Harmonic Progression

Having established a system of root movements, we still need to know what specific chords are used and in what progression we would find them.

If we made an extensive survey of thousands of progressions in tonal music, probably any chord progression imaginable would show up. But in such a survey, we would notice that certain progressions occur over and over again, others less frequently, and still others rarely. It is obvious that composers have not chosen to utilize all chord progressions equally. We will discover these choices through analysis of root movements.

Root relationship by fifth has already been considered in the study of the authentic cadence, V–I, in which the root of V descends a fifth to the root of I. What root, then, descends a fifth to the root of V? It is, of course, ii. Counting back by descending fifths, we arrive at this succession, any pair of which is a commonly used progression.

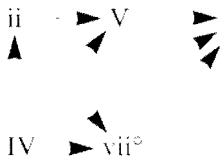
FIGURE 10.2 *Harmonic Progression by Fifths in Major*

(IV → vii°) → iii → vi → ii → V → I
IV vii°

But you will note that IV and vii° seem to be misplaced. In movement by fifths, vii° should precede iii. However, vii° usually functions as a dominant, progressing to I. Why? The three tones of the vii° triad are the same as the upper three tones of V^7 (C: vii° = B D F; V^7 = G B D F). Because of its urgency to progress to I, and because its spelling is so similar to that of V^7, many theorists define vii° as an incomplete V^7 with root implied (V^7).[2] In this sense, the *implied* root is a fifth above the tonic. However, IV–vii°–iii is useful in a harmonic sequence (Chapter 17).

We have already studied the remaining triad, IV, in its movement to V and to I. As stated in Chapter 6, the IV–V progression is commonly implied in folk melodies, and this harmonization is common in amateur performance. It is interesting to note that in composed music, the progression ii–V is much more frequent than IV–V.

So we have a cluster preceding I; the arrows indicate these useful progessions.[3]



ii: to V or vii°

IV: to ii, V, or vii°

vii°: to I

In a minor key, ii and IV in the above list will be ii° and iv. But when $\hat{6}$ in either triad progresses to $\hat{7}$ in the following triad, ii (minor) and IV (major) will be used to avoid the interval of an augmented second.

The progression ii°–vii°, two successive diminished triads, is not useful.

These two additional common progressions remain:

1. When a triad skips in the direction of tonic (sometimes called *elision*): vi–V, iii–IV (actually more common than iii–vi), and iii–ii_6[4]
2. When a triad moves away from the tonic (sometimes called *retrogression*): V–vi, vi–iii–IV (vi–iii is uncommon except when followed by IV)
3. A common progression interrupted by a tonic triad: ii–I–V, for example

Harmonic Progressions in Minor Keys

In minor, iv and VII *are* included in the series of progressions by fifths. Since these two are minor and major triads respectively, they can progress by perfect fifth, iv to VII and VII to III, continuing as in Figure 10.3. The entire series can be seen in G minor in the Haydn example, Figure 10.6

[2] In this text, the designation vii° is used rather than V^7 because of significant differences in part-writing the two chords (page 224).

[3] For study of the common progression IV–ii (shown in the cluster), see page 310.

[4] Why ii_6 and not ii? See page 304.

FIGURE 10.3 *Harmonic Progression by Fifths in Minor*

iv → VII → III → VI → ii° → V → i
iv → vii° → i

Note that:

VII is built on ♭$\hat{7}$ (C minor: B♭ D F).*

vii° is built on ♯$\hat{7}$ (C minor: B D F).

The triad on ♯$\hat{6}$ is seldom seen (C minor: A C E♭).

iv appears twice, preceding VII as well as the dominant

Figure 10.4 consolidates all the information about common harmonic progressions and refers to both major and minor keys, except as noted. You should use this table for future reference.

FIGURE 10.4 *Table of Common Progressions*

I, i	(1) May progress to any other triad (2) May interrupt any progression, such as ii–I–V		
Major keys		*Minor keys*	
ii	ii–V, ii–vii$^{\circ}_{6}$	ii$^{\circ}_{6}$	ii$^{\circ}_{6}$–V
		ii	ii–V, ii–vii$^{\circ}_{6}$
iii	iii-ii$_{6}$, iii–IV, iii–V, iii–vi	III	III–ii$^{\circ}_{6}$, III–iv, III–VI
IV	IV–I, IV–ii, IV–V, IV–vii$_{6}$	iv	iv–i, iv–ii$^{\circ}_{6}$, iv–V, iv–VII
		IV	IV–V, IV–vii$^{\circ}_{6}$
V	V–I, V–vi	V	V–i, V–VI
		v	v–VI
vi	vi–ii, vi–IV, vi–V, vi–iii–IV	VI	VI–ii$^{\circ}_{6}$, VI–iv, VI–V, VI–III–iv
vii$^{\circ}_{6}$	vii$^{\circ}_{6}$–I	vii$^{\circ}_{6}$	vii$^{\circ}_{6}$–i
		VII	VII–III

*ii and IV in minor used with ascending ♯$\hat{6}$; v in minor used with a descending ♭$\hat{7}$.

*Discussed on page 350.

ASSIGNMENT 10.1 After sufficient study of Figure 10.4, place an X before those of the following progressions that appear in the table. Do not refer to the table until you are finished.

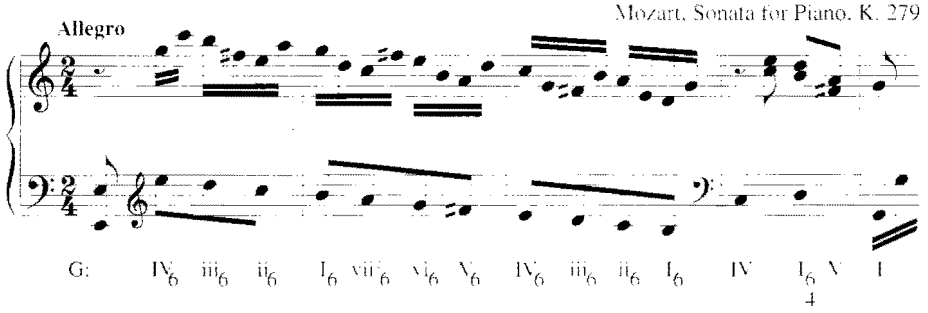
(1)	_____	ii–V	(6)	_____	iii–I–IV
(2)	_____	IV–vi	(7)	_____	vii°–V
(3)	_____	vi–iii–V	(8)	_____	iii–vii°
(4)	_____	V–vi	(9)	_____	vi–iii–IV
(5)	_____	I–iii	(10)	_____	VII–III (minor)

Other Common Types of Progressions

There are three additional categories of harmonic progression. In these, the progression standing alone is infrequently used, but in special situations it can be considered equally deserving of use as any common progression.

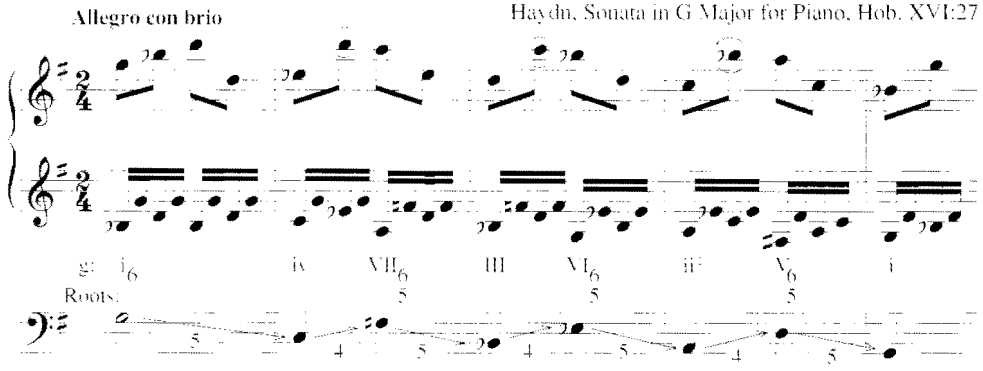
1. *First inversions in succession.* When a bass line moves by step and each note is the third of a chord, any resulting succession of chords is acceptable.

CD FIGURE 10.5



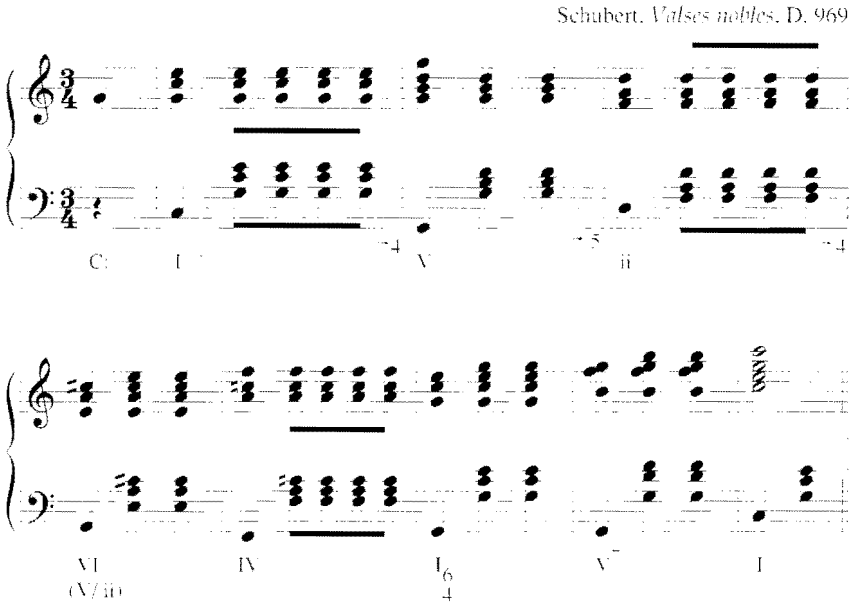
2. *Harmonic sequence.* A harmonic sequence is a series of chords, four or more, with a regularly recurring pattern of root movements, a series in which any resulting pair of triads is acceptable. In the most common harmonic sequence, the roots alternately descend a fifth and ascend a fourth, which, of course, is the same as the series in Figures 10.2 and 10.3. In Figure 10.6, which shows the complete series, first inversions and root positions alternate, but this does not affect root movement.

CD FIGURE 10.6 *Harmonic Sequence*



A harmonic sequence can display any other pattern of root movements. In Figure 10.7, roots descend a fourth and ascend a fifth, just the opposite of Figure 10.6. A major triad built on $\hat{6}$ is used here rather than the diatonic vi. The progressions V–ii and ii–VI are a result of the sequence, and otherwise they are not ordinarily encountered.

FIGURE 10.7

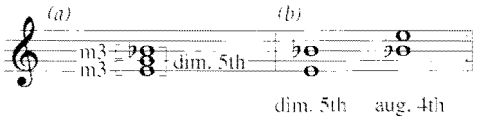


3. *Chromatic bass line.* When the bass line ascends or descends by a series of half steps, any resulting chord succession is usually satisfactory. Further discussion and illustration of this type of chord movement will be presented during the study of altered chords in *Advanced Harmony*.

The Diminished Triad

The diminished triad consists of two successive minor thirds. Together, these produce the interval of the diminished fifth (d5), which when inverted becomes an augmented fourth (A4).

FIGURE 10.8

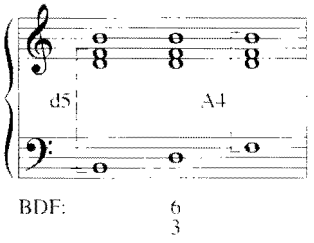


Because of the interval of the diminished fifth, the diminished triad is classified as one of the dissonant triads. Both the interval of the diminished fifth and its inversion, the augmented fourth, are known commonly as a tritone, referring to the fact that the interval is composed of three whole steps (six half steps). The interval under either name equally divides the octave.

FIGURE 10.9 *The Tritone*

Only in the first inversion is there no tritone above the bass note. For this reason, the diminished triad is used almost exclusively in the first inversion. (See the article "The Devil in Music," in this chapter.)

FIGURE 10.10 *Tritones in the Diminished Triad*



As a diatonic triad, the diminished triad is found on the leading tone (vii°) in both major and minor, and on the supertonic (ii°) in minor.

ASSIGNMENT 10.2 Spell these diminished triads by spelling two minor thirds.

(1) C _____ _____

(2) _____ B♭ _____

(3) F♯ _____ _____

(4) _____ _____ A

(5) E♯ _____ _____

(6) _____ _____ A♭

In Appendix E: Answers to the entire assignment are given.
In the Workbook: Answers to the entire assignment are given.

The Leading-Tone Triad

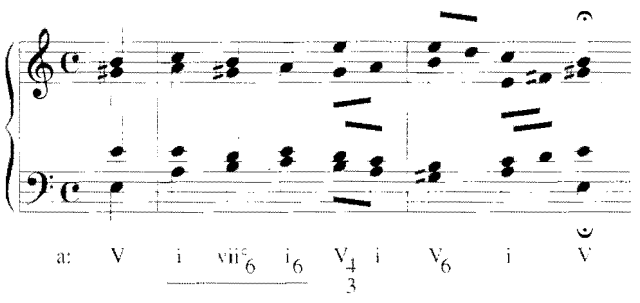
The leading-tone triad is diminished in both major and minor. For example, in either G major or G minor it is spelled F♯ A C. It functions as a dominant triad, since it almost invariably progresses to tonic.

The leading-tone triad, vii°, has two principal uses:

1. Between the tonic and its first inversion, or reverse.

CD FIGURE 10.11

Bach, "Schau, lieber Gott, wie meine Feind" (#3)

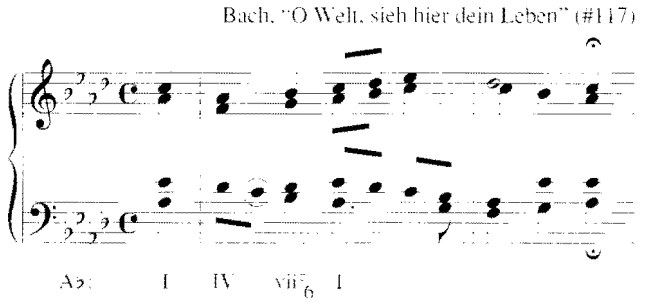


The aural effect is similar to the passing six-four. The use of I–vii$^{\circ}_{6}$–I$_{6}$ is much more frequent and can be considered the preferred choice.

2. Following the subdominant triad when the melody ascends. You may remember that in the progression from IV to V, contrary motion between the upper voices

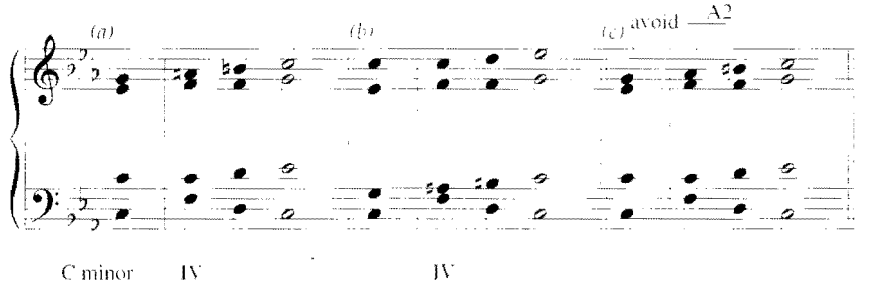
worked out best. But when the soprano ascends, parallel motion is almost inevitable, except for the infrequently used progression shown in Figure 6.14. Using IV–vii°_{6} instead of IV–V avoids any real or implied parallels and so is the usual choice in this circumstance.

CD FIGURE 10.12



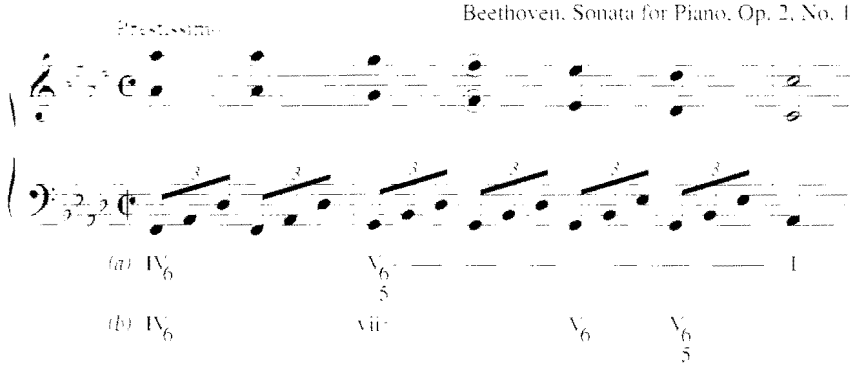
Should the progression be found in a minor key, the major IV triad is necessary to avoid the augumented second interval between ♭$\hat{6}$ and ♯$\hat{7}$.

FIGURE 10.13



In the Table of Common Progressions (Figure 10.4), the progression vii°–V was not included. In our next example, Figure 10.14, there appears to be a clear-cut example of this progression, with the root of vii° in the bass. When the two chords vii° and V^7 are adjacent, as here, there is a better explanation. The entire measure, as in analysis *a*, is V^7, with all notes sounding, but not simultaneously. This is simpler than trying to account for every note change with a different chord number, as in *b*. As a general rule, when successive notes can be grouped together to make a single chord, that analysis is usually preferable.

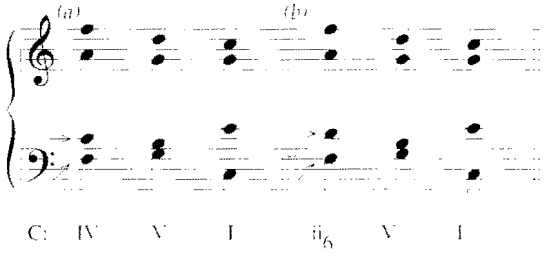
Beethoven, Sonata for Piano, Op. 2, No. 1



The Supertonic Triads

The supertonic triads (ii in major and ii° in minor) have much in common with the subdominant triad. Not only do ii and IV (ii° and iv) have two notes in common, but also, when ii and ii° are found in first inversion, which is most of the time, they have the same bass note as the root of IV. Figure 10.15*a* and *b* differ by only one note, the tenor note in the first triad.

FIGURE 10.15



In addition, both triads commonly resolve to V or I, and consequently both are considered to be subdominant in function.

Like V as opposed to V^7, ii and ii° are used far less frequently than ii^7 and $ii^{\circ 7}$, but the basic principles stated here set the stage for the presentation of the seventh chords in Chapter 13.

FIGURE 10.14

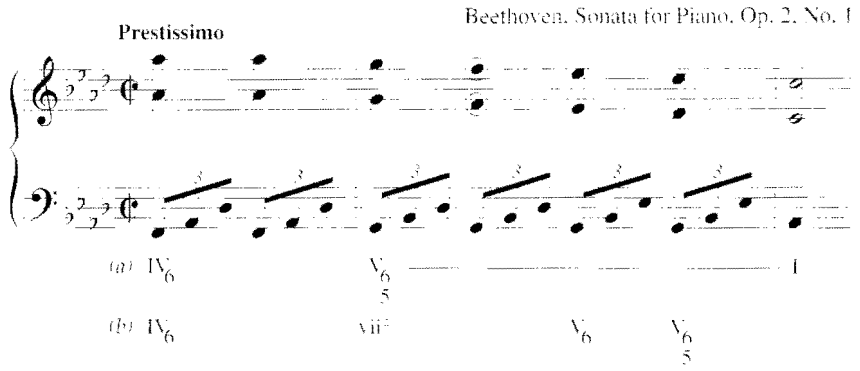


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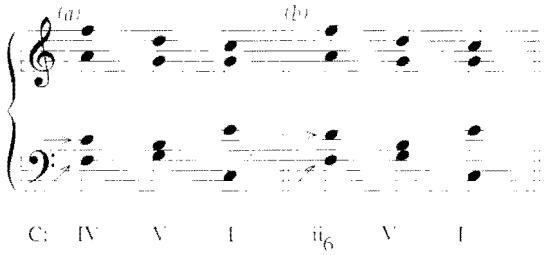
FIGURE 10.15



In addition, both triads commonly resolve to V or I, and consequently both are considered to be subdominant in function.

Like V as opposed to V^7, ii and ii° are used far less frequently than ii^7 and $ii^{\circ 7}$, but the basic principles stated here set the stage for the presentation of the seventh chords in Chapter 13.

ASSIGNMENT 10.3 *Spelling and identifying diminished triads built on the leading tone or the supertonic.* Each answer will be one of these: vii°, ii°, or a key name.

a. D♯	F♯	A	is _____ in _____ major and ii° in _____ minor.
b. _____	_____	_____	is _____ in A♭ major and ii° in _____ minor.
c. _____	_____	_____	is _____ in _____ major and ii° in G♯ minor.
d. C	E♭	G♭	is _____ in _____ major and _____ in _____ minor.
e. F♯	A	C	is ii° in _____ minor and _____ in _____ major.
f. _____	_____	_____	is _____ in _____ major and ii° in F♯ minor.
g. E♯	G♯	B	is ii° in _____ minor and _____ in _____ major.
h. _____	_____	_____	is ii° in b minor and _____ in _____ major.

In Appendix E: Answers to the entire assignment are given.
In the Workbook: Answers to the entire assignment are given.

Here are typical uses of the supertonic triad.

1. In first inversion. This is the most common use of the supertonic triad. It usually leads to V–I or to I. As a preparation for the dominant, it is used much more frequently than IV (iv).

CD FIGURE 10.16 $ii^{\flat}$–I^{6}_{4}

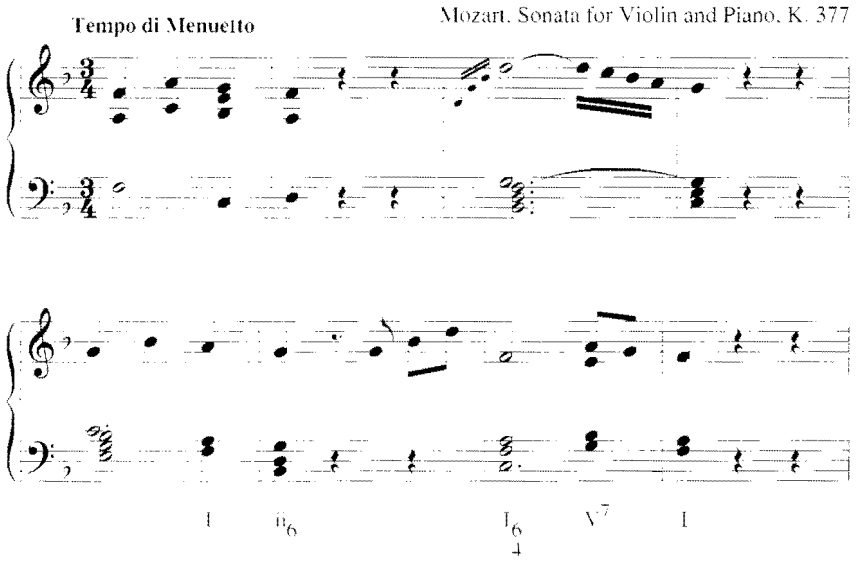
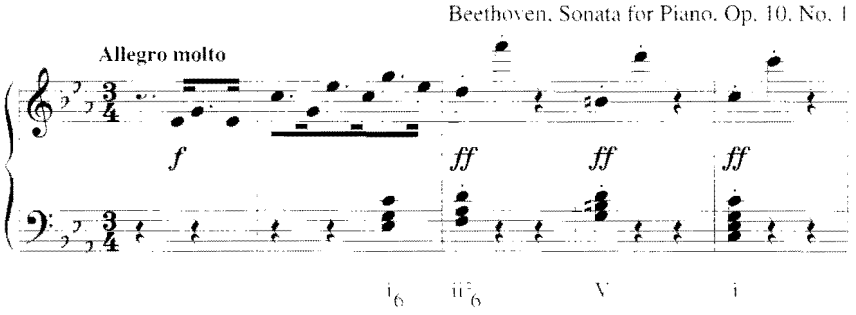
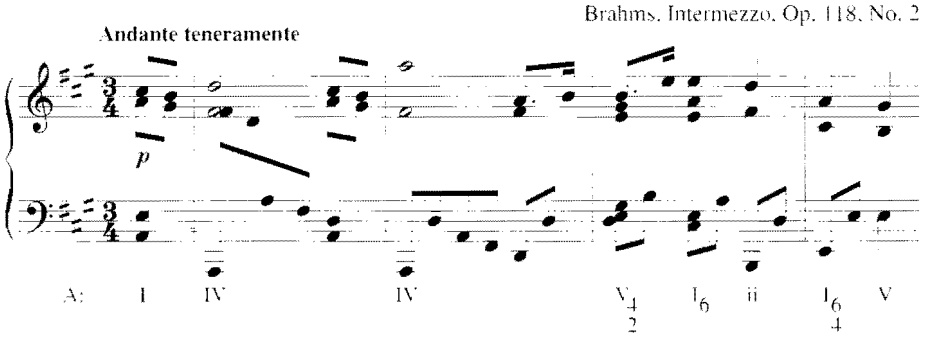


FIGURE 10.17 ii_6–V



2. With root in bass. The supertonic triad with its root in the bass is useful only in major keys, but still much less so than in first inversion. Root position in minor is rarely used (except in harmonic sequence; see example in Figure 10.6), since it is a diminished triad. Figures 10.18 and 10.19 show root position movement to I^6_4 and V, respectively. Observe in Figure 10.18 how easily Brahms could have used a IV triad simply by changing the bass note B to D.

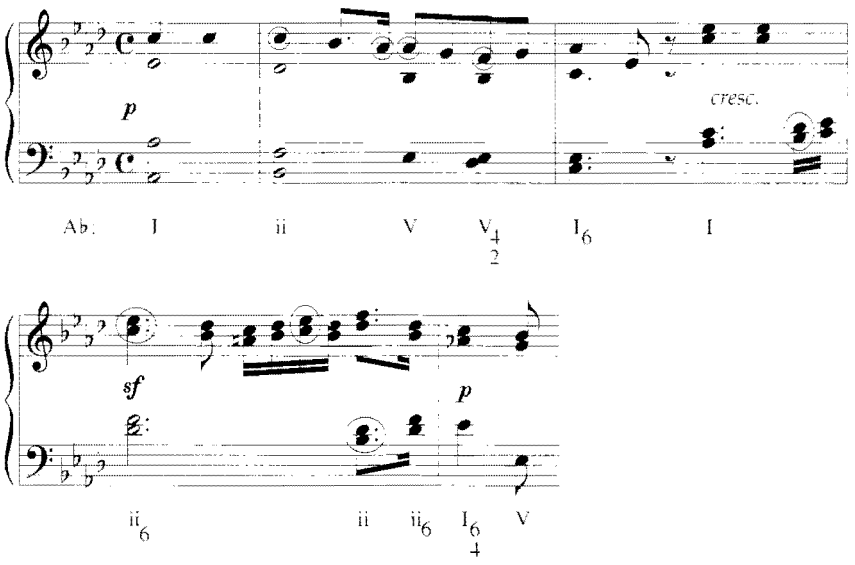
CD FIGURE 10.18 ii–I^6_4



CD FIGURE 10.19 *ii–V*

Beethoven. Sonata in C Minor. for Violin and Piano. Op. 30. No. 2

Adagio cantabile



3. The ii triad in a minor key. When a voice line ascends at the point where a supertonic triad is used, $\hat{6}$, the fifth of the triad, must be raised to ♯$\hat{6}$ to progress to ♯$\hat{7}$ without incurring an augmented second. In Figure 10.20*a*, the alto line is 5 ♯6 ♯7 8 (C♮ D♮ E♯ F♮) of the F♯ melodic minor scale. Note that three analyses are given.

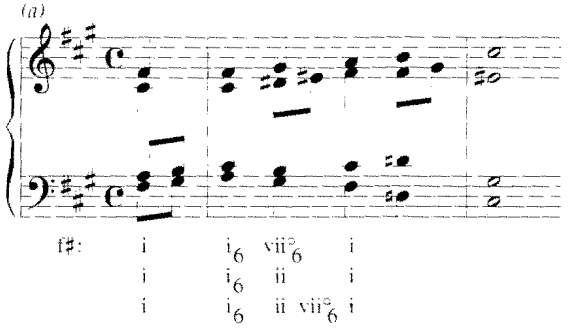
   In (1) is D♮ a passing tone in the vii° triad?
   In (2) is E♮ a passing tone in the ii triad?
   In (3) are there two triads, ii followed by vii°?

   When ambiguous passages such as this are encountered, analysis depends upon the tempo of the composition and upon the aural effect on the listener.

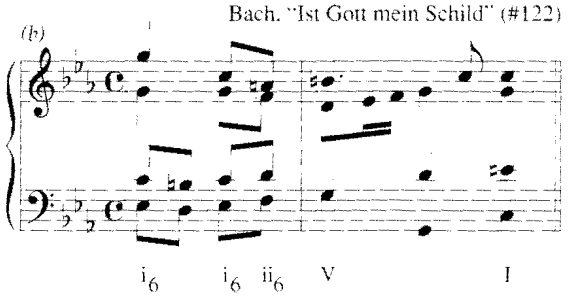
   In *b*, the use of ii (C minor: D F A) is clearer, even though it appears on the second half of the beat. Its appearance and sound indicate an independent sonority.

FIGURE 10.20

Bach, "Wo soll ich fliehen hin" (#25)



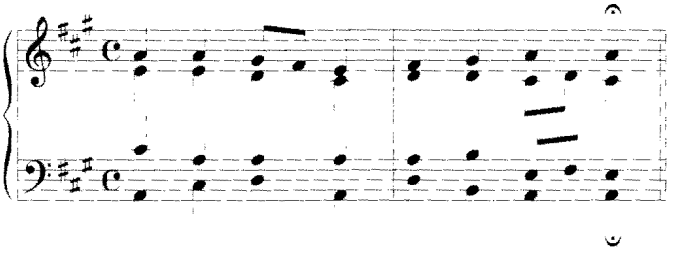
Bach, "Ist Gott mein Schild" (#122)



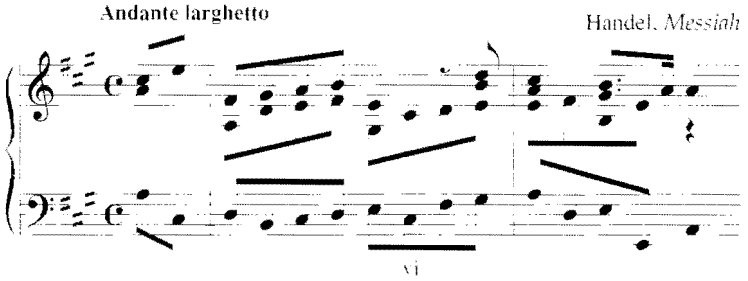
ASSIGNMENT 10.4 *Harmonic analysis.* These examples include leading-tone triads and supertonic triads. Write chord numbers below the staff and circle all nonharmonic tones. Included with the examples of vii° are the ♯6̂–♯7̂ scale line and the "vii°–V" (Figure 10.14). Indicate the location of these.

CD (1)

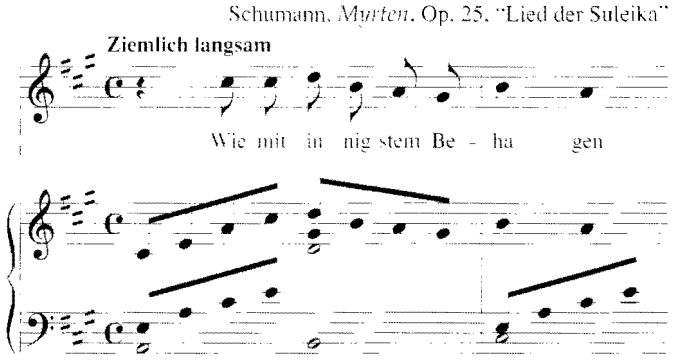
Anon., "Alle Menschen müssen sterben"



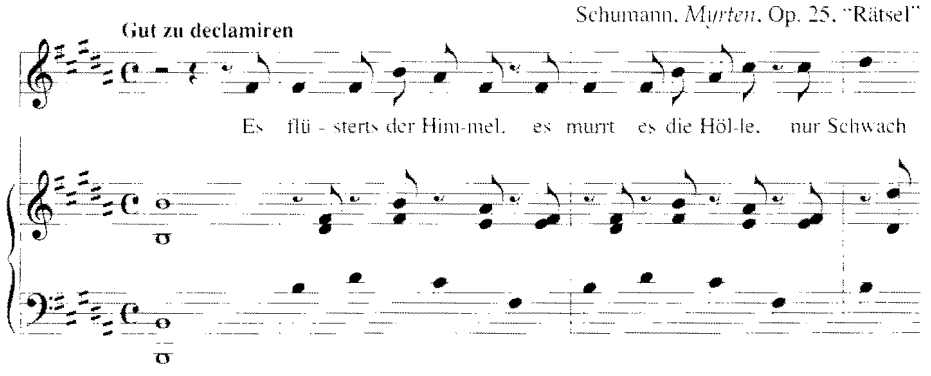
(2)


Andante larghetto
Handel, *Messiah*
vi

CD (3)

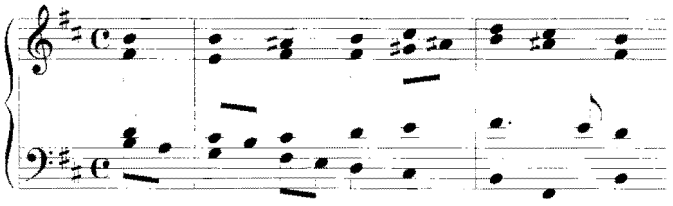

Schumann, *Myrten*, Op. 25, "Lied der Suleika"
Ziemlich langsam
Wie mit in nig stem Be - ha gen

(4)


Schumann, *Myrten*, Op. 25, "Rätsel"
Gut zu declamiren
Es flü - sterts der Him-mel, es murrt es die Höl-le, nur Schwach

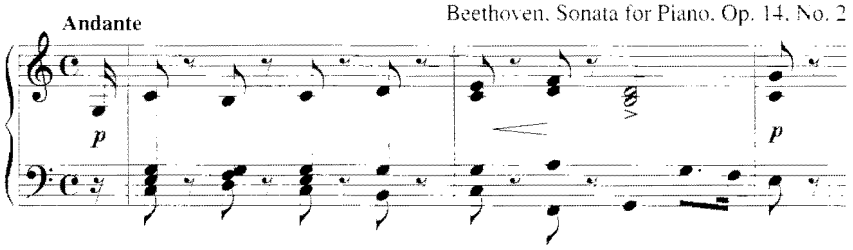
(5)

Bach, "Herr Jesu Christ, du höchstes Gut" (#294)



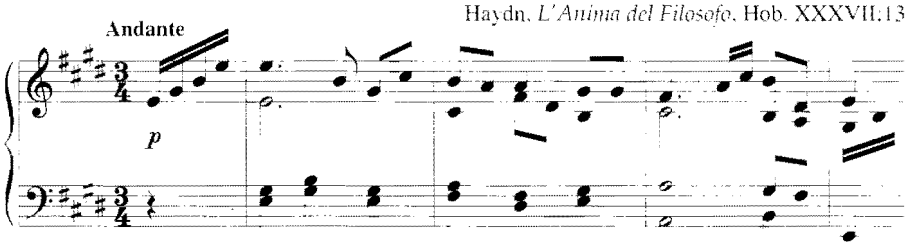
(6) Could Beethoven have used a IV triad instead of ii?

Beethoven, Sonata for Piano, Op. 14, No. 2



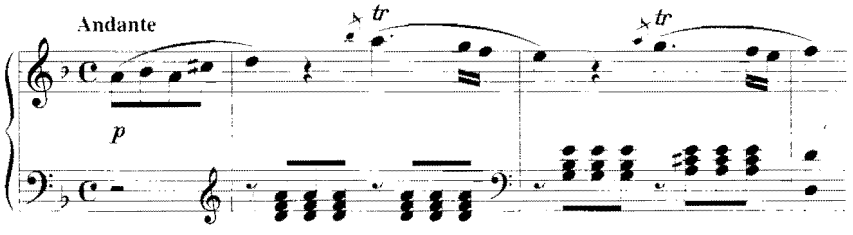
(7) The second triad of measure 2 appears diminished, but it could be a V^7. Can you explain why Haydn would omit the root?

Haydn, *L'Anima del Filosofo*, Hob. XXXVII:13



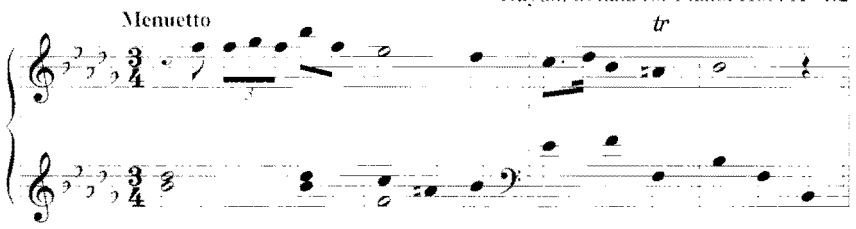
(8)

Mozart, Sonata in D Major for Piano, K. 284



(9) Only two notes of the supertonic are used. What is the complete spelling?

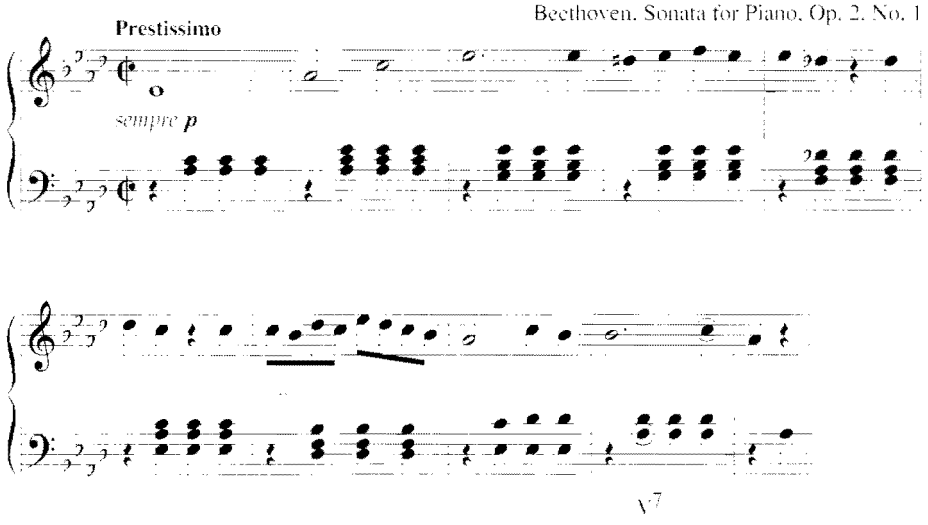
Haydn. Sonata for Piano. Hob. XVI:2



CD (10) The series of first inversions can easily be seen, but it is interrupted in measure 6. What chord interrupts the series, and what would its spelling have been had Beethoven continued the series through this measure?

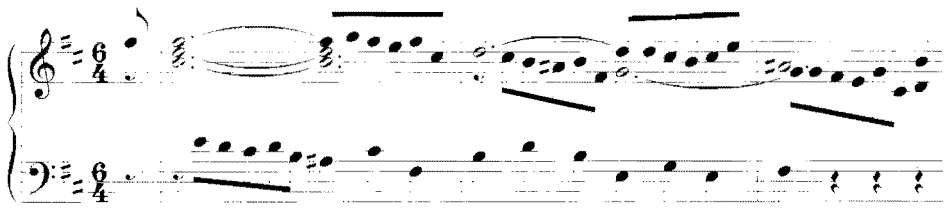
In the cadence, the notes B♭ and D♭ imply E♭ G B♭ D♭, an implied V^7. Sounding simultaneously with an A♭ implying tonic, the dominant seventh chord functions as an *appoggiatura chord* (see page 272).

Beethoven. Sonata for Piano. Op. 2. No. 1



CD (11)

Bach. *French Suite III*. Courante. BWV 814



Writing the Diminished Triad

Only the use of the first inversion of the diminished triad will be considered at this time. Root position is used in harmonic sequence (see the ii° in Figure 10.6). Use of second inversion is very rare.

The common voice distribution for any diminished triad in first inversion is two thirds, one root and one fifth (bass note doubled), except that when the triad is found with the fifth in the soprano, the fifth is usually doubled (two fifths, one root, one third).

FIGURE 10.21 *Root (or Third) in Soprano*

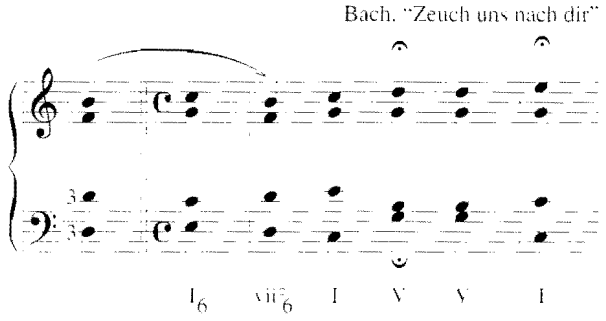
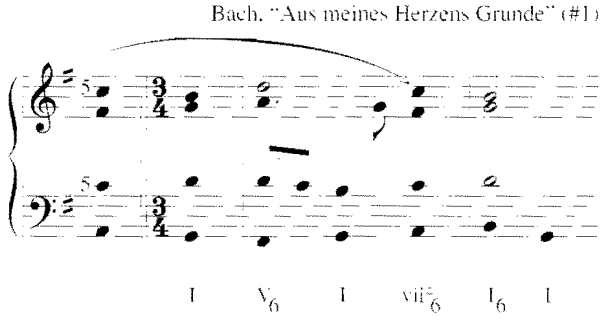
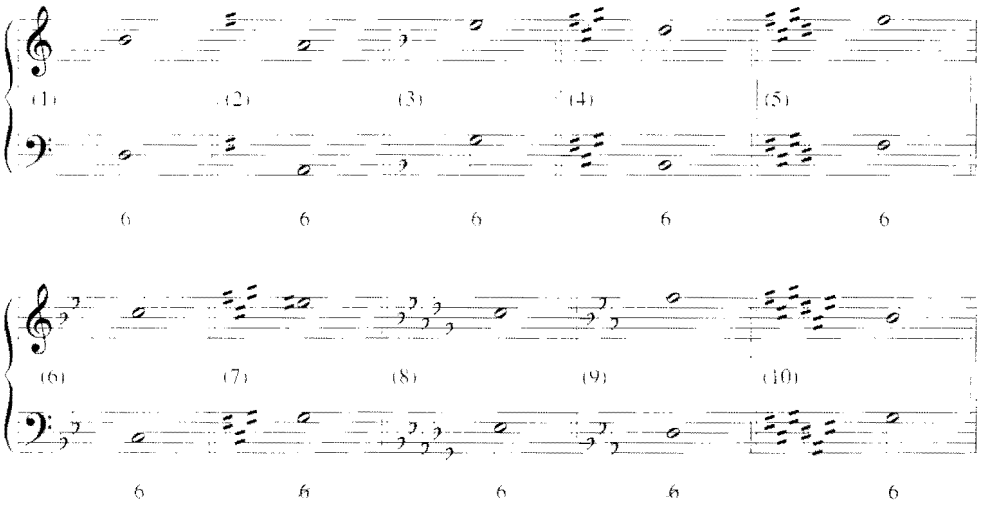


FIGURE 10.22 *Fifth in Soprano*



The fifth of ii° is infrequently used in the soprano. The doubled soprano is the lowered sixth scale degree: resolving both down by step results in octaves, and resolving one upward to the leading tone results in an augmented second. Any other doubling usually is aurally ineffective.

ASSIGNMENT 10.5 *Writing diminished triads.* Double the third when the root or the third is in soprano; double the fifth an octave lower when the fifth is in the soprano.

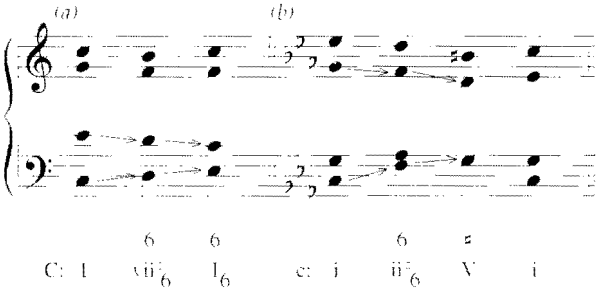


In Appendix E: Answers to (1)–(5) are given.
In the Workbook: Answers to the entire assignment are given.

Writing to and from the Diminished Triad

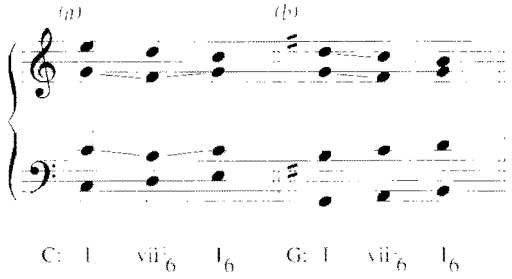
1. Doubled notes. Since the diminished triad is usually found in first inversion, the main part-writing consideration is the same as that for other triads in inversion: *Approach and resolve the doubled note whenever possible by contrary or oblique motion.*

FIGURE 10.23



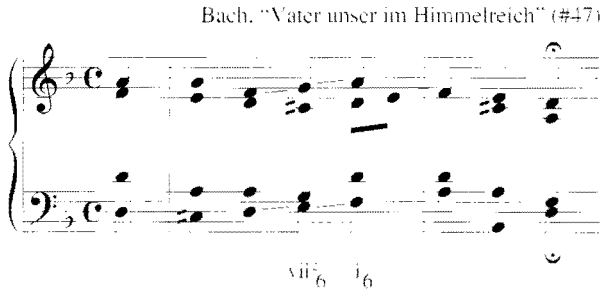
2. Unequal fifths. This term describes a diminished fifth preceded or followed by a perfect fifth in the same pair of voices. The visual effect is that of parallel fifths, but since they are unequal in size they are acceptable, except between the two outer voices.

FIGURE 10.24 *Unequal Fifths*



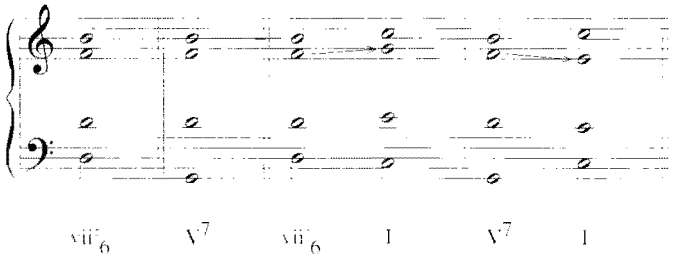
3. vii°6 with the fifth in the soprano. As a soprano tone, the fifth of the vii° triad (or any diminished triad) usually descends, as does the soprano line of Figure 10.22. But the fifth in the soprano may ascend when found in a melody line moving in similar motion with the bass at the interval of a tenth, as in Figure 10.25.

CD FIGURE 10.25



With this knowledge of the usual part-writing procedures for diminished triads, we can now explain why vii° should not be considered an incomplete V^7, even though it sounds and functions like a V^7. The difference is this: In progressing to the tonic, the seventh of the V^7 usually resolves down, whereas in the vii° triad, the fifth (the same note as the seventh of V^7) usually resolves up, allowing the doubled note to resolve by contrary motion (Figure 10.26).

FIGURE 10.26 *vii° and V^7*

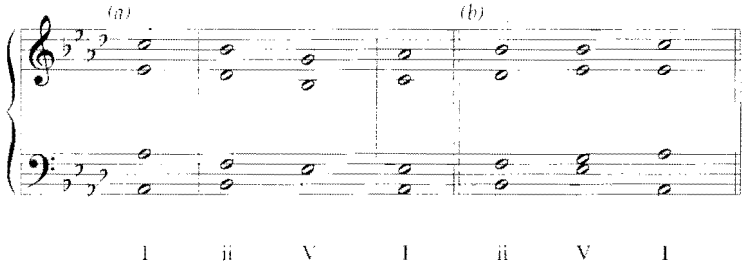


Writing the Supertonic Triad

In the commonly used ii and ii°, the third is usually doubled. This note is the subdominant scale step. Since this triad usually precedes dominant harmony and in first inversion uses the same bass tone as IV (in root position), the supertonic harmony is classified as having a subdominant function.

Progression to and from ii in root position (major only) uses conventional procedures already studied. Figure 10.27*a* is the basic part-writing of the Beethoven example, Figure 10.19.

FIGURE 10.27 *Part-Writing the ii Triad*

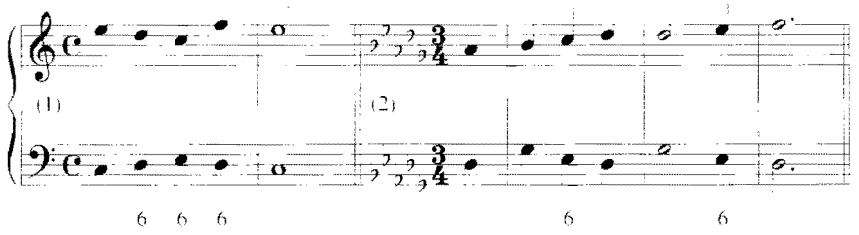


(a) I–ii and ii–V: Contrary motion between upper voices and bass.[6]

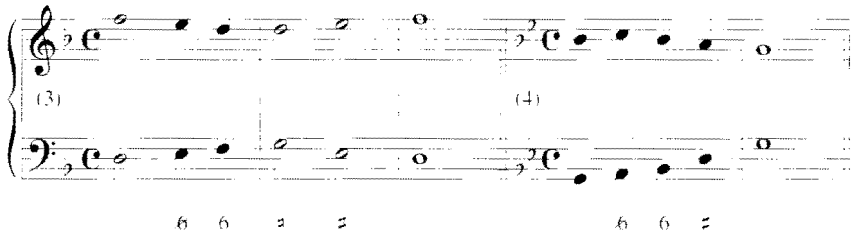
(b) ii–V: Hold common tone; other voices move stepwise.

ASSIGNMENT 10.6 *Part-writing leading-tone and supertonic triads.* These short examples illustrate most of the common uses of these triads. Add inner voices and harmonic analysis.

(a) Leading-tone triads

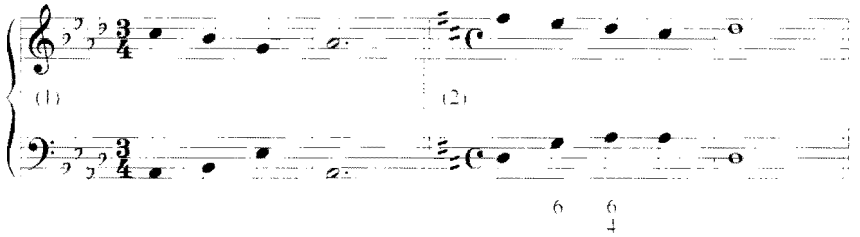


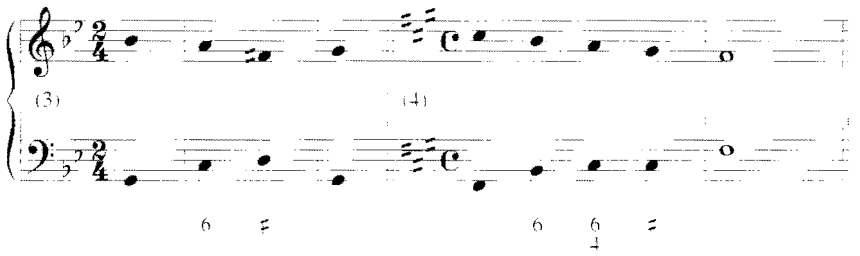
[6] I–ii (soprano and bass ascending) and IV–ii will be discussed in Chapter 14.



In Appendix E: Answers to (1) and (3) are given.
In the Workbook: Answers to Assignment 10.5a are given.

(b) Supertonic triads

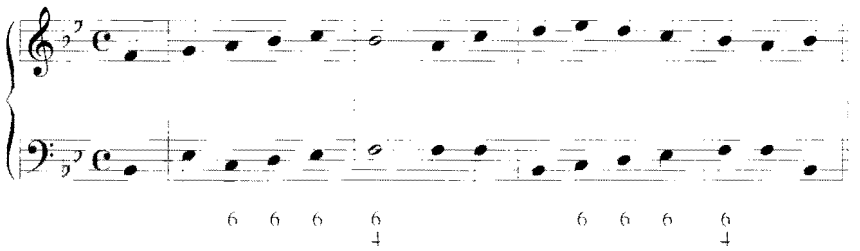




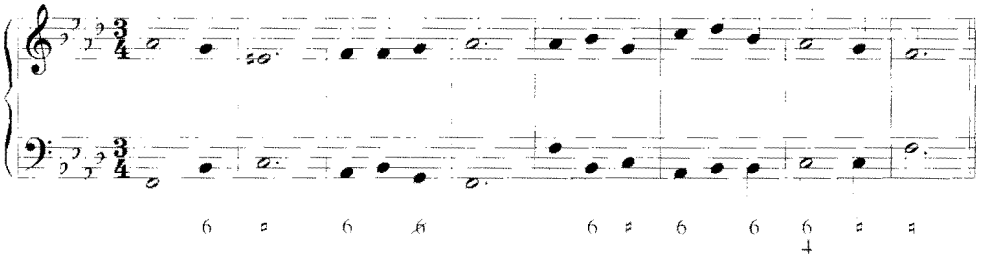
In Appendix E: Answers to (2) and (3) are given.
In the Workbook: Do Assignment 10.6b, c. Answers are given.

ASSIGNMENT 10.7 *Part-writing leading-tone and supertonic triads.*

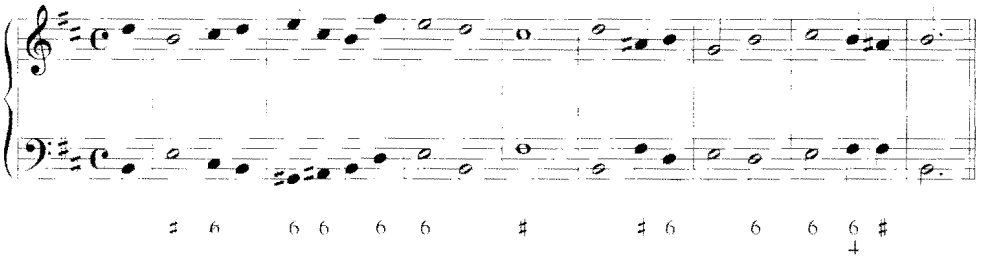
(1)



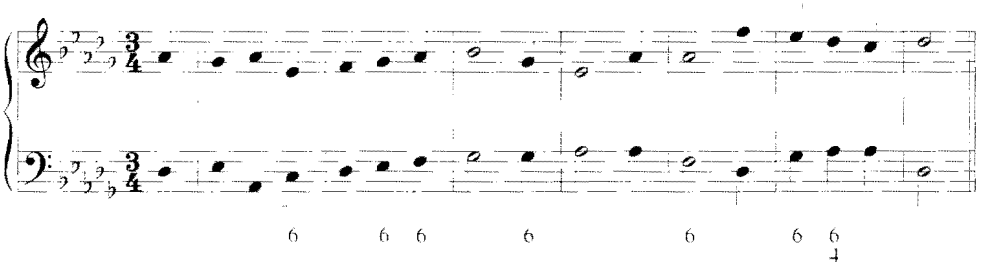
(2)



(3)



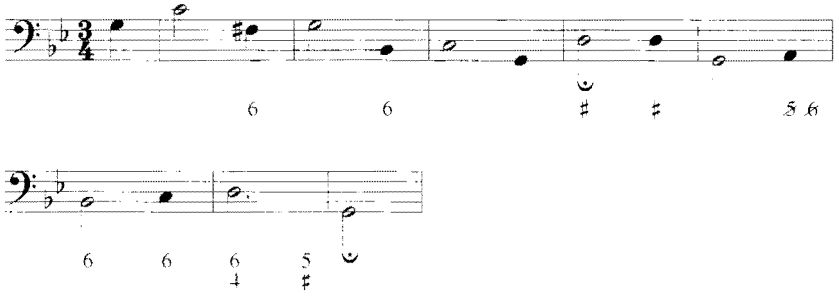
(4) See Figure 10.25 for help.



ASSIGNMENT 10.8 Add soprano, alto, and tenor voices when bass line only is given. Make a harmonic analysis.

(1)

(2) See Figure 10.20 for help with $\frac{5}{3}$ $\frac{6}{3}$.



ASSIGNMENT 10.9 Write the following harmonic progressions in four parts. Choose a time signature and write a progression that is rhythmically interesting.

1. E♭ major — I ii_6 I_6 vii°_6 I IV V I
2. F minor — V i i_6 vii°_6 i ii°_6 V i
3. B major — V I_6 V_6 I I ii_6 V I
4. A♭ major — I IV vii°_6 I ii_6 I^6_4 V I

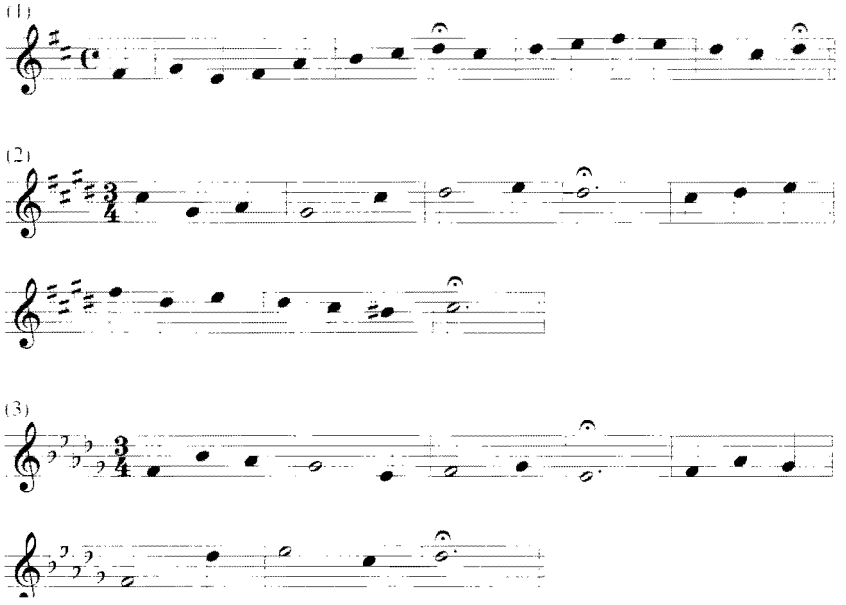
In the following progressions, no inversions are indicated. Choose inversions that will make a good bass line.

5. A major — I I IV vii° I vii° I ii I V I
6. B minor — i iv V i vii° i i V V i ii° i V I
7. D♭ major — V V I IV vii° I ii vii° I ii I V I

Melody Harmonization

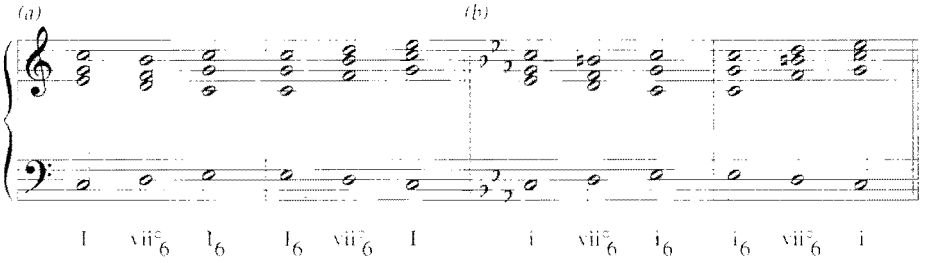
ASSIGNMENT 10.10 Harmonize these melodies, using supertonic and leading-tone triads where appropriate. Use either a two-stave score (piano score) or an open score with C clefs, as assigned. Look for places to use the progressions we have studied.

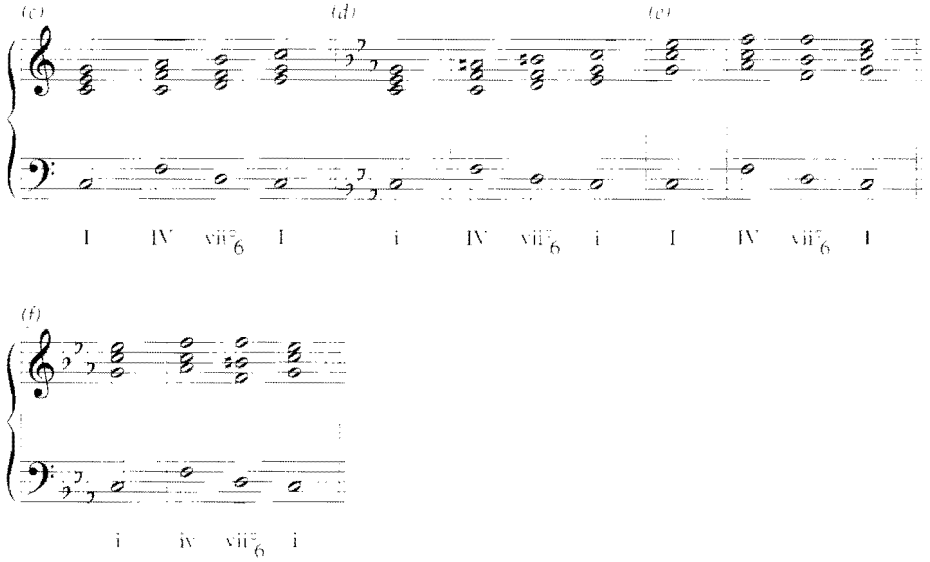
1. $\hat{2}$ and $\hat{4}$ can be harmonized with the supertonic triad, usually in first inversion, when the next chord is V or tonic six-four.
2. When a triad is repeated, one of them might be a good place for a first inversion.
3. Try V–I_6 or V_6–I rather than V–I at places other than the cadence.
4. After IV, use vii°_6 when the melody ascends.
5. Use vii°_6 between two positions of the tonic triad.
6. Use I^6_4 at the cadence when possible.



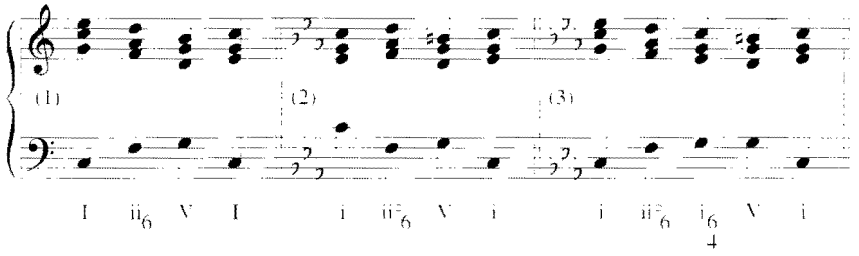
Keyboard Harmony

ASSIGNMENT 10.11 Play these progressions in any major or minor key.

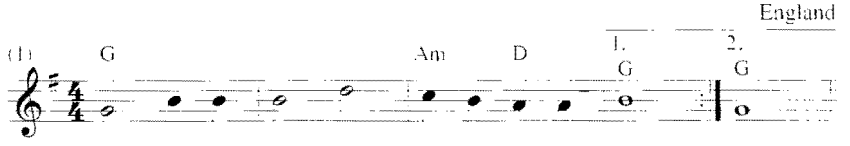


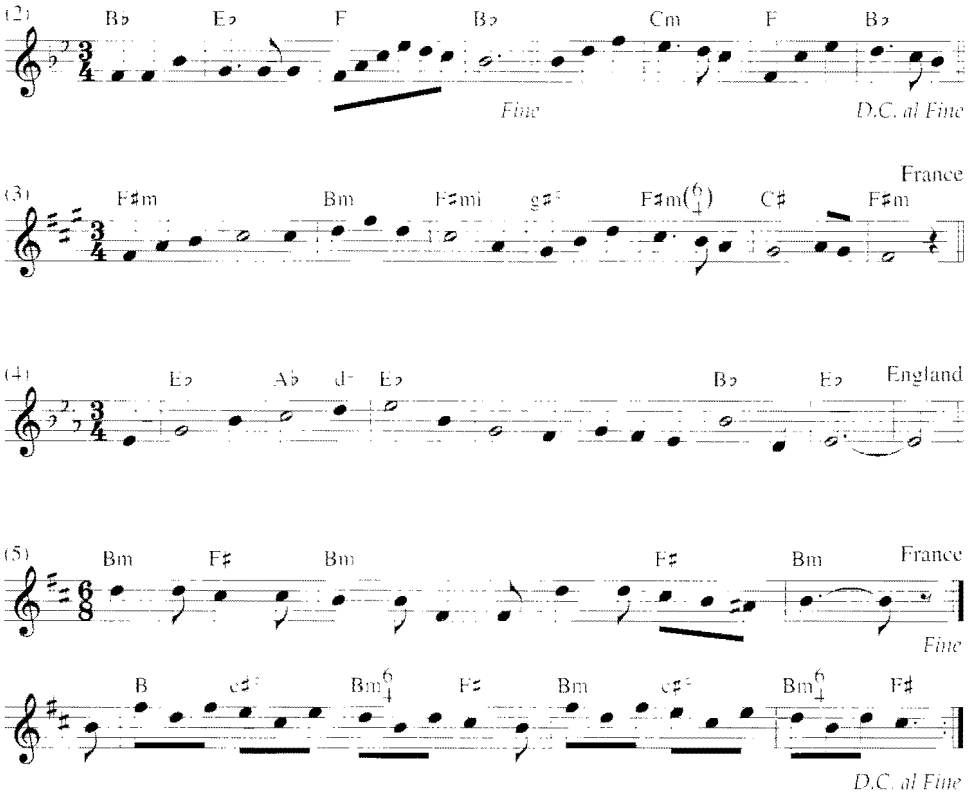


ASSIGNMENT 10.12 Play these progressions in any key. Play (3) in major as well, using ii_6 instead of ii°_6.



ASSIGNMENT 10.13 *Harmonizing a lead sheet melody.* The suggestions in Assignment 10.10 will be just as useful here. Triads marked with a °, such as g°, are diminished triads. Be sure to play these in first inversion. The symbol $\frac{6}{4}$ indicates a place to use the tonic six-four.





Summary

Harmonic progression refers to the order in which chords follow one another. Considering the progressions possible, their use ranges from very frequent to rare. Progressions with their roots descending a fifth are the most common, and a few by other intervals are also common.

A progression not common by itself may be freely used in a series of first inversions or in a harmonic sequence.

The supertonic triads, ii and ii°, usually resolve to the dominant and, therefore, like IV are considered chords of subdominant function.

The leading-tone triad, vii° in major and minor, "leads" to the tonic and therefore functions as a dominant. Because of its similarity to V^7, it is considered by some to be V^7 with its root missing.

vii° is particularly useful between I and I_6, or reverse, and after IV when the melody ascends.

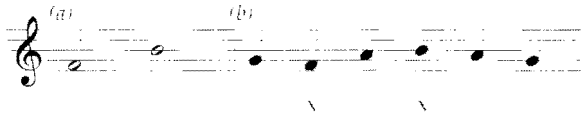
In part-writing, the third is commonly doubled in the ii, ii°, and vii° triads, except that the fifth of vii° in the soprano is usually doubled. The fifth as the soprano note of ii° is uncommon.

Part-writing these chords in a harmonic succession requires no procedures not previously studied.

ARTICLE #10

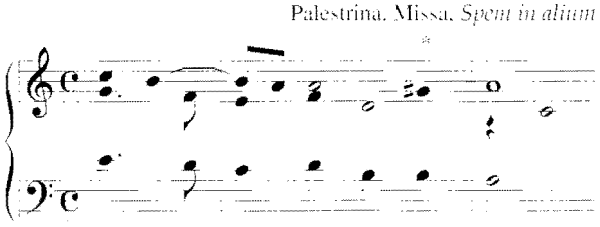
The Devil in Music

This uncomplimentary term (from the Latin *Diabolus in musica*) was applied in medieval times (ca. 1200) to the interval of the tritone. Composers and writers in music theory found it a difficult interval to understand or to use. Although it equally divides the octave (see Figure 10.9), in doing so it causes two different intervals to appear, each made up of the same number of scale steps (three whole steps). These intervals, the diminished fifth and the augmented fourth, lack the stability of the commonly used consonances: the octave, the fifth, and the thirds and sixths. As a consequence, their use in music was severely limited until the seventeenth century. Any melodic use was forbidden, either as a direct skip (*a*) or as the outward limit of a series of notes in one direction (*b*).

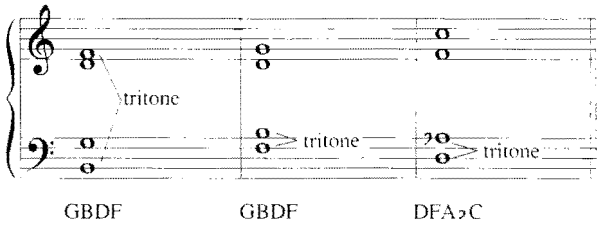


Harmonically, a tritone could appear between any two upper voices in music written for three or more voices. At that time, the consonance or dissonance of a vertical structure was determined by the consonance or dissonance of each upper note in relation to the lowest sounding note. At the asterisk in the following example, we find what looks like the first inversion of G♯ B D (diminished) triad. In pre-seventeenth-century terms, this sonority consists of a sixth above the bass (B up to G♯) and a third above the bass (B up to D). Both intervals are consonant, and therefore the vertical sonority is consonant. The resulting augmented fourth (D up to G♯) was not considered in this process.

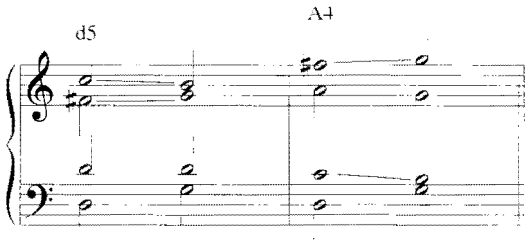
Palestrina, Missa, *Spem in alium*



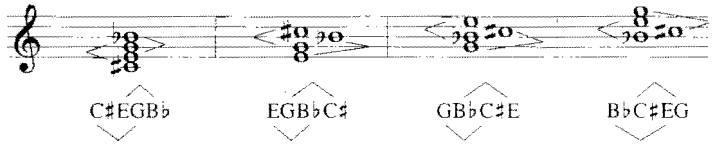
Restrictions against the tritone began to disappear in the seventeenth century, when the tritone emerged as a harmonic interval in its own right, even when found above the lowest sounding note.



The tritone is particularly important in the dominant seventh chord because the resolution of the tritone positively establishes a feeling of key.

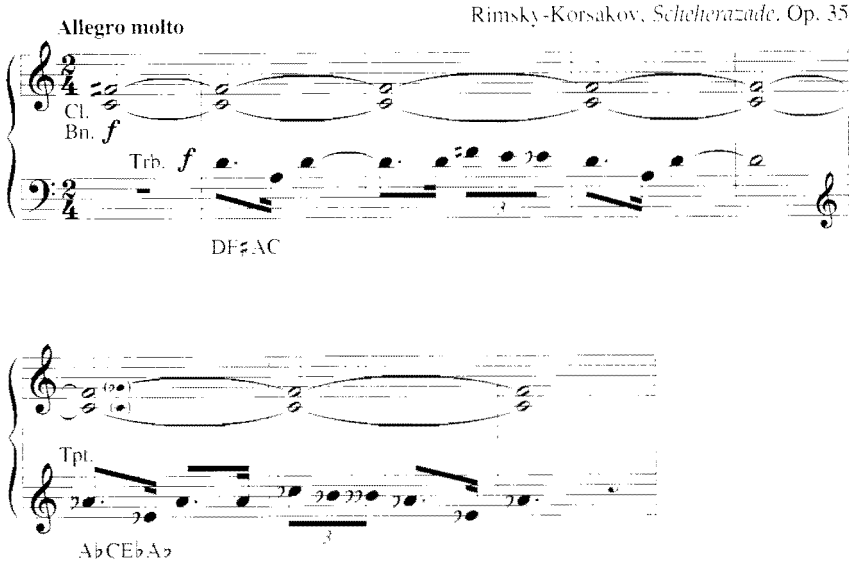


Made up of tritones, the diminished seventh chord became one of the most characteristic sounds of nineteenth-century music. When inverted, the chord continues to produce tritones, a property not exhibited by any other chord. The sound of these simultaneous tritones tends to destroy the feeling of tonality, especially when they are sounded at length or follow one another in succession.



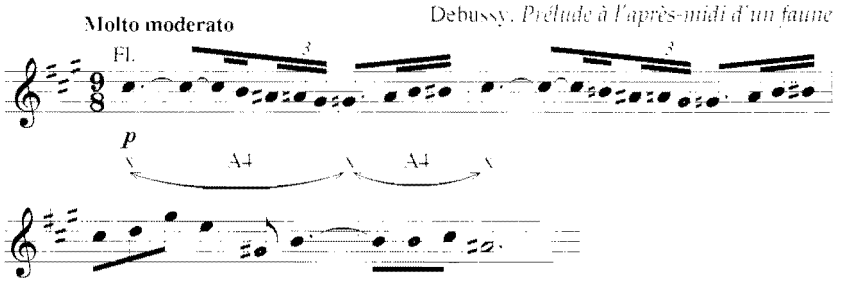
The ambiguity of the tritone in its diminished fifth–augmented fourth relationship (same sound, different spelling) was often capitalized upon by nineteenth-century composers. In the following example, the sustained tritone C–F♯ is first part of a D F♯ A C chord, then as an implied C–G♭, part of the A♭ C E♭ G♭ chord. (Since the tritone is tied throughout the passage, it is obvious that the composer, for performance reasons, has not changed the F♯ to G♭. The interval in parentheses shows the actual harmonic spelling.)

Rimsky-Korsakov, *Scheherazade*, Op. 35

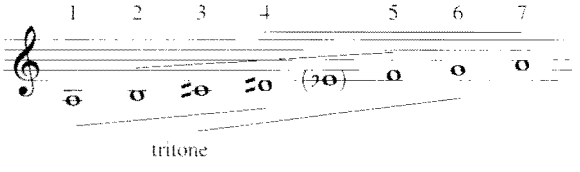


Twentieth-century music, in its quest for means to avoid the strong sense of tonic pervading music of previous eras, makes frequent use of the tritone. The opening of the following example shows the augmented fourth as the outer limits of the melody (C–G).

Debussy, *Prélude à l'après-midi d'un faune*



The ultimate application of the tritone is the whole-tone scale, new in the twentieth century. In this seven-note scale, all whole steps, the interval from any note to its fourth above is a tritone. In the first four measures of Bartók's whole-tone composition *Hagsorok egeszhangokbol*, there are four intervals of the tritone, plus two more when counting the first and last notes of the four-note scale lines.



Bartók, "Hagsorok egeszhangokbol"
("Whole-tone Scale"), from *Mikrokosmos*