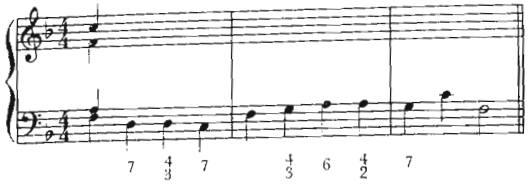
2




*EXERCISE 15-1. See Workbook.*

PART

# IV

# *Chromaticism 1*

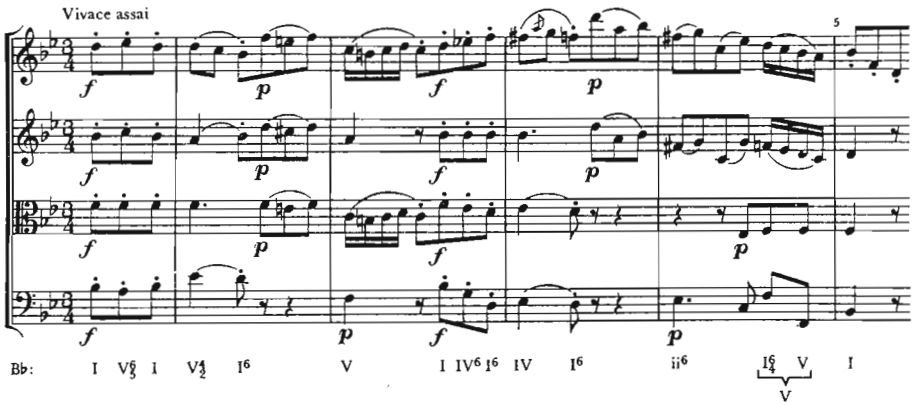
CHAPTER 16

# *Secondary Functions 1*

## CHROMATICISM AND ALTERED CHORDS

The term *chromaticism* refers to the use of pitches foreign to the key of the passage. The only chromaticism we have discussed so far involves chromatic non-chord tones. For instance, Example 16-1 contains several notes not found in the B♭ major scale, but all of them are non-chord tones.

**Example 16-1.** Haydn, Quartet Op. 64, No. 3, I

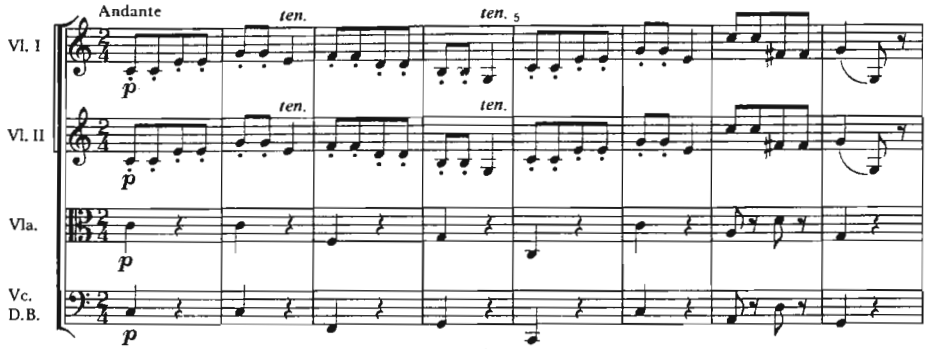



Some people use the term *nonessential chromaticism* to describe the use of chromatically altered tones as NCTs. *Essential chromaticism* refers to the use of tones from outside the scale as members of chords. Such chords are called *altered chords.*

## SECONDARY FUNCTIONS

By far the most common sort of altered chord in tonal music is the *secondary function.* A chord whose function belongs more closely to a key other than the main key of the passage is called a secondary function. Listen to Example 16-2, paying special attention to the ending. Although the two-part texture means that incomplete chords will have to be used, it is clear that the F♯4 in m. 7 is not a NCT. In fact, the last two chords are D and G, and they sound like V-I in the key of G.

**Example 16-2.** Haydn, Symphony No. 94, II




If our ears were to lose track of the original tonic at this point, or if the music were to continue in the key of G, we would analyze this as a change of key (a modulation). However, since we still hear the G chord as a V, and since the next phrase is a repeat of the first one, we label the G chord as V and call the D chord a *V of V* (the symbol is V/V). We say that the D chord has *tonicized* the G chord, has given it special emphasis, but that a change of tonic has not taken place.

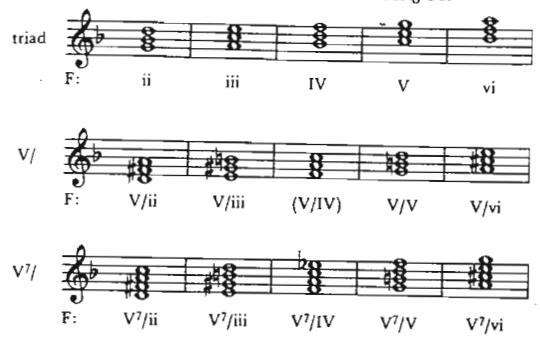
Most secondary functions are either secondary dominants (*V of* and *V⁷ of*) or secondary leading-tone chords (*vii° of, vii°⁷ of,* and *vii°⁷ of*).

## SECONDARY DOMINANT CHORDS

Since tonic triads are always major or minor, it makes sense that only major and minor triads can be tonicized by secondary dominants. This means that you would not expect to find V/ii° in minor or V/vii° in either major or minor. All other diatonic chords (other than I, of course) may be tonicized by secondary dominants. The chart that follows illustrates the possibilities in F major.



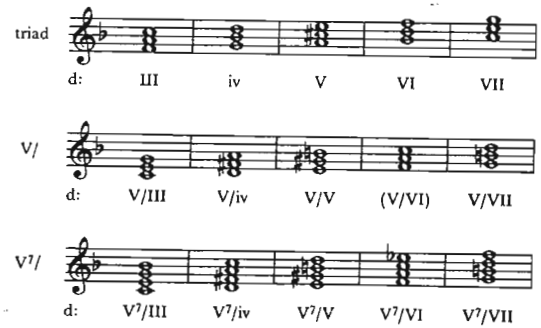
SECONDARY DOMINANTS IN MAJOR




Only one of these chords, V/IV, is identical to a diatonic chord in F. Because V/IV sounds like I, composers most often use V⁷/IV instead of V/IV to make the secondary function clear.

The secondary dominants in d minor are illustrated in the chart below. Here three chords are identical to diatonic chords in d minor. The V/III (= VII) and the V⁷/III (= VII⁷) are both usable, even though they are not altered chords, since VII and VII⁷ usually function as dominants of III anyway. The V/VI, however, would usually be analyzed as III instead of as a secondary dominant.

SECONDARY DOMINANTS IN MINOR



The major or minor triad that is tonicized by a secondary dominant may occur with its 7th, or the tonicized chord may itself be altered to become a secondary dominant. This means, for example, that any of the following progressions might be encountered.

| | |
|---|---|
| V7/ii-ii | V7/ii-V/V |
| V7/ii-ii$^7$ | V7/ii-V7/V |

## SPELLING SECONDARY DOMINANTS

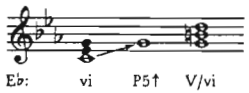
There are three steps involved in spelling a secondary dominant.

1. Find the root of the chord that is to be tonicized.
2. Go up a P5.
3. Using that note as the root, spell a major triad (for V of) or a major-minor seventh chord (for V$^7$ of).

For example, to spell a V/vi in E♭, the steps are the following (Ex. 16-3).

1. The root of vi in E♭ is C.
2. A P5 above C is G.
3. A major triad on G is G-B♮-D.

**Example 16-3.**

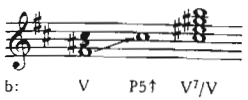



Or, to spell a V7/V in b minor (Ex. 16-4),

1. The root of V in b is F♯.
2. A P5 above F♯ is C♯.
3. A Mm$^7$ on C♯ is C♯-E♯-G♯-B.



**Example 16-4.**




## RECOGNIZING SECONDARY DOMINANTS

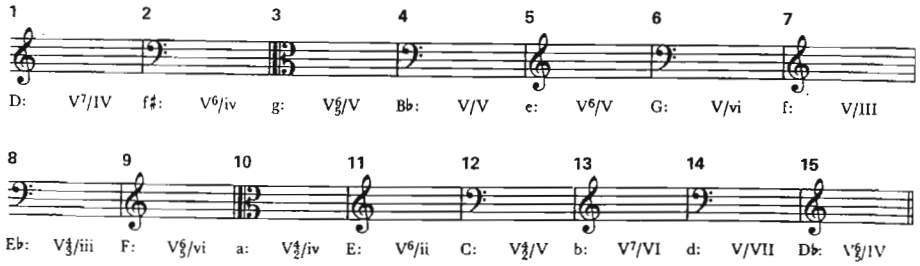
If you encounter an altered chord in a passage, there is a good chance that it will be a secondary dominant. These steps will work in most cases.

1. Is it a major triad or major-minor seventh chord? If not, it is not a secondary dominant.
2. Find the note a P5 below the root of the altered chord.
3. Would a major or minor triad built on that note be a diatonic triad in this key? If so, the altered chord is a secondary dominant.

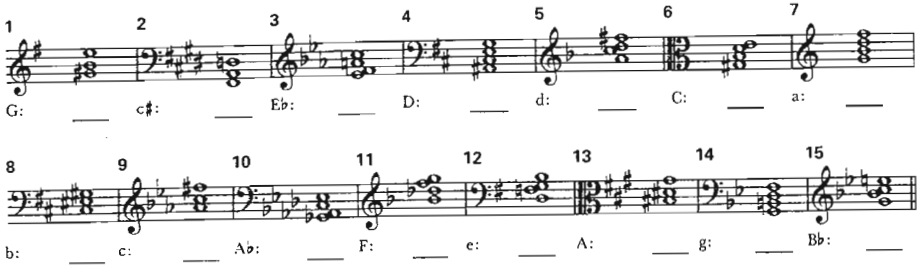
### *SELF-TEST 16-1*

(Answers begin on page 608.)

A. Review how to spell secondary dominants (p. 258). Then notate these secondary dominants in the specified inversions. Include key signatures.



B. Label any chord that might be a secondary dominant according to the steps outlined on page 259. Label all others with an *X*.

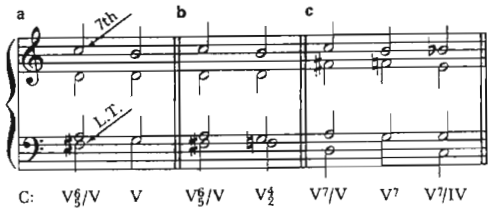



*EXERCISE 16-1. See Workbook.*

## SECONDARY DOMINANTS IN CONTEXT

Secondary dominants generally resolve just as primary dominants do. That is, a $V_5^6/V$ in C will resolve the same way as $V_5^6$ would in the key of G (Ex. 16-5a). The only difference is that sometimes the chord of resolution contains a 7th. In that case, the leading tone slides down a half step to become the 7th of the chord of resolution (Ex. 16-5b). Notice that complete seventh chords alternate with incomplete ones in Example 16-5c. This part-writing principle should be familiar to you from the discussion of circle-of-fifths sequences in Chapter 15 (pp. 246-248).

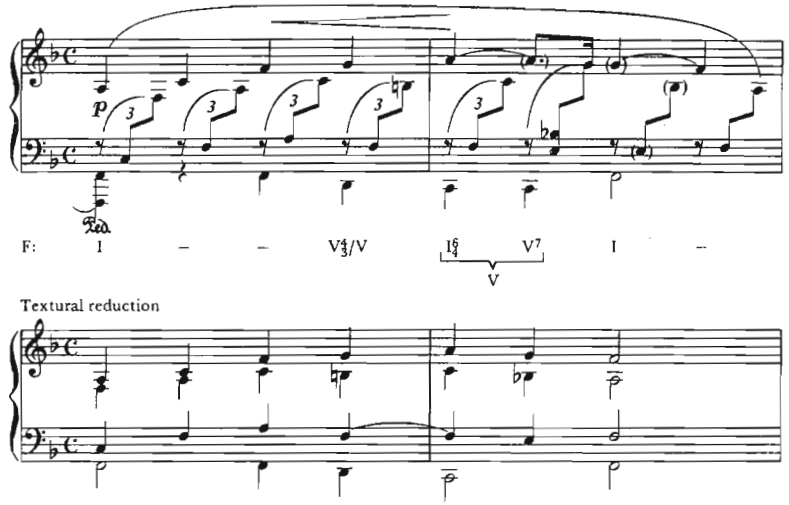
**Example 16-5.**





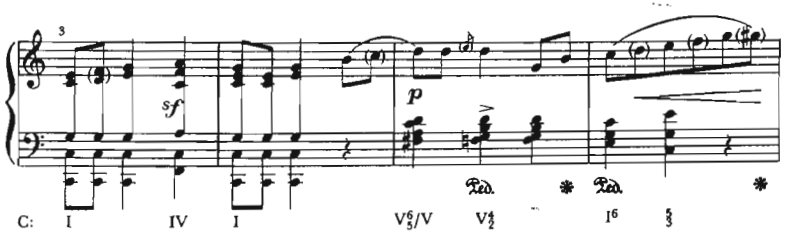

The V7/V is the most frequently encountered secondary dominant. In Example 16-6 the V is delayed by a cadential six-four. This is not an irregular resolution of the V7/V, since, as we know, the $I_4^6$-V together stands for V.

**Example 16-6.** Schumann, *Noveletten*, Op. 21, No. 1



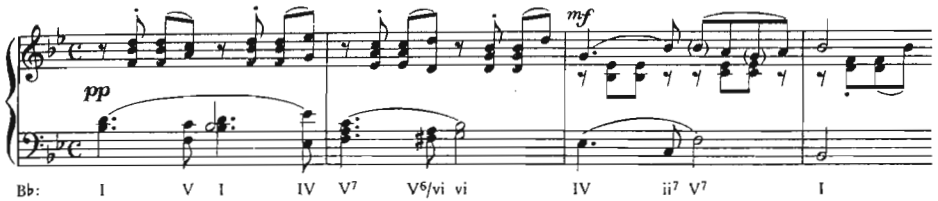

In our discussion of Example 16-5b above, we pointed out that the leading tone of the secondary dominant will move down by half step if the chord that follows contains a 7th. This is illustrated in Example 16-7.

**Example 16-7.** Chopin, Mazurka Op. 68, No. 1



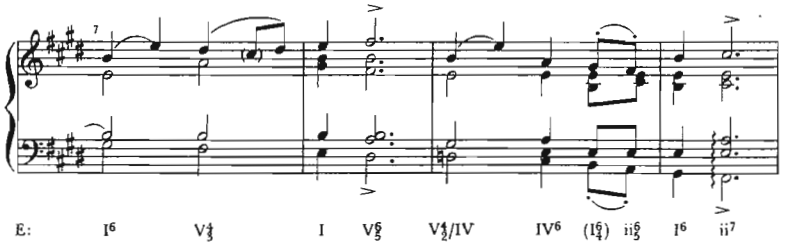
The common deceptive progression V(7)-vi is often given added impetus by inserting a dominant of vi between the V and the vi, as in Example 16-8.

**Example 16-8.** Schumann, *Eintritt*, Op. 82, No. 1




The V7/IV, which is an altered tonic chord, offers yet another way to resolve a V chord deceptively. This is seen in Example 16-9. Notice also the stepwise bass line.

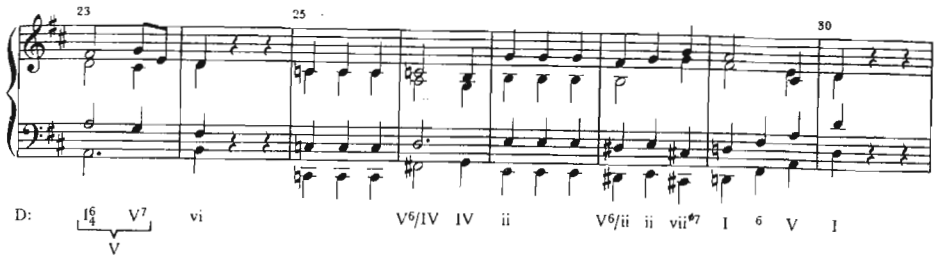
**Example 16-9.** Tchaikovsky, Trio Op. 50, II




A much less smooth introduction to a V7/IV is seen in Example 16-10. Here we see the ending of a phrase that concludes with a deceptive cadence (m. 24). All parts then immediately leap to C♮, which is ♭$\hat{7}$, to state the three-note motive that began the piece. This example also illustrates the V/ii.

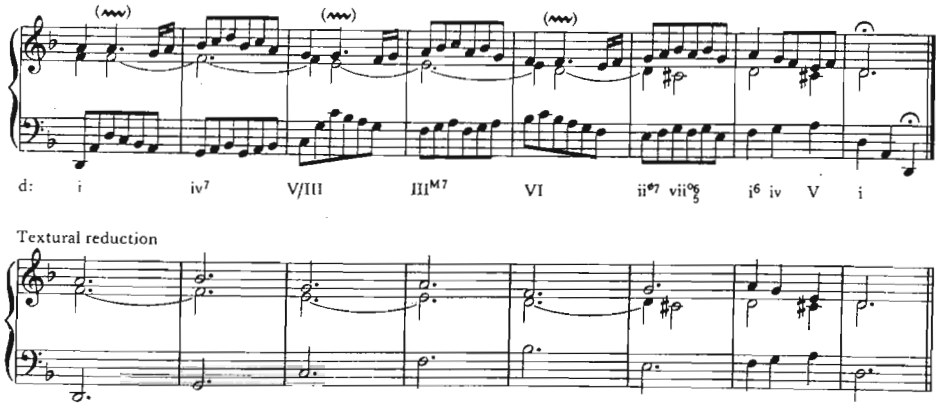


**Example 16-10.** Haydn, Quartet Op. 20, No. 4, I




Examples of dominants of iii in major are not frequently encountered, since the iii itself is the least often used diatonic triad. However, the III in minor, which represents the relative major key, is very often tonicized. Play through Example 16-11, and then compare it to the simple sequence below it. This circle-of-fifths sequence is the background of many passages of tonal music.

**Example 16-11.** Bach, French Suite No. 1, Minuet II



## SUMMARY

*Chromaticism* refers to the use of pitches that are foreign to the key of the passage. Chords that employ chromaticism are called *altered chords,* and the most commonly encountered altered chord in tonal music is the *secondary function.* A secondary function is a chord whose function belongs more closely to a key other than the main key of the passage. Most secondary functions are either secondary dominants (*V of* and *V7 of*) or secondary leading-tone chords (*vii° of, vii°7 of,* and *vii°7 of*).

Secondary dominants can tonicize only major or minor triads, or major or minor triads with a 7th. This means that the vii° chord, for example, cannot be tonicized by a secondary dominant.

To spell a secondary dominant, go up a P5 from the root of the chord to be tonicized and spell a major triad (for V of) or a major-minor seventh chord (for V7 of). To determine if an altered chord that you encounter in analysis might be a secondary dominant, see if it is a major triad or a major-minor seventh chord with a root that is a P5 above a scale degree that usually carries a major or minor triad in that key. If so, the altered chord is a secondary dominant.

Secondary dominants resolve just as primary dominants do, except that the chord of resolution frequently contains a 7th. In that case, the leading tone of the secondary dominant moves down by half step to become the 7th of the chord of resolution.

The V7/V is the most frequently encountered secondary dominant. Two variations on the deceptive progression that employs secondary dominants are V(7)-V7/vi-vi and V(7)-V7/IV. The V(7)/iii in major is seldom used, but the V(7)/III in the minor mode is quite common.



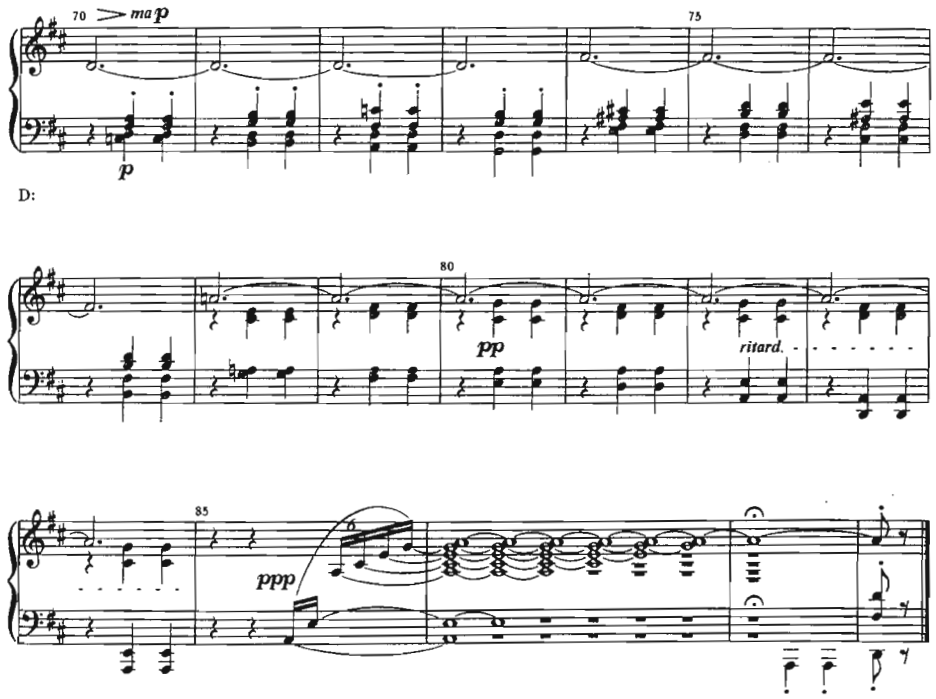
## SELF-TEST 16-2

(Answers begin on page 608.)

A. Analysis

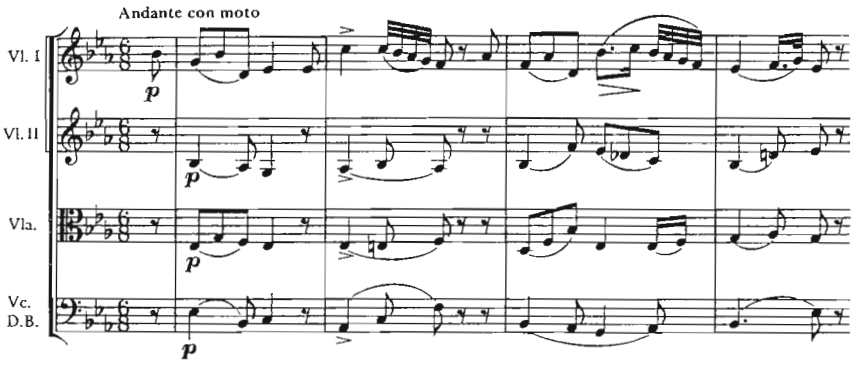
**1.** Analyze with roman numerals. Find the sequence and enclose it in brackets. Although the voice leading is conventional throughout most of this excerpt, parallel 5ths do occur. Find them. Be sure to play this example so that you can appreciate the effect of the last four measures.

Schumann, *Papillons,* Op. 2, No. 12



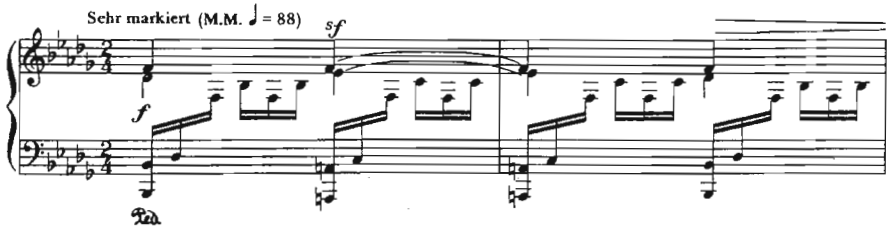
**2.** Label the chords and NCTs.

Schubert, Symphony in B♭, II

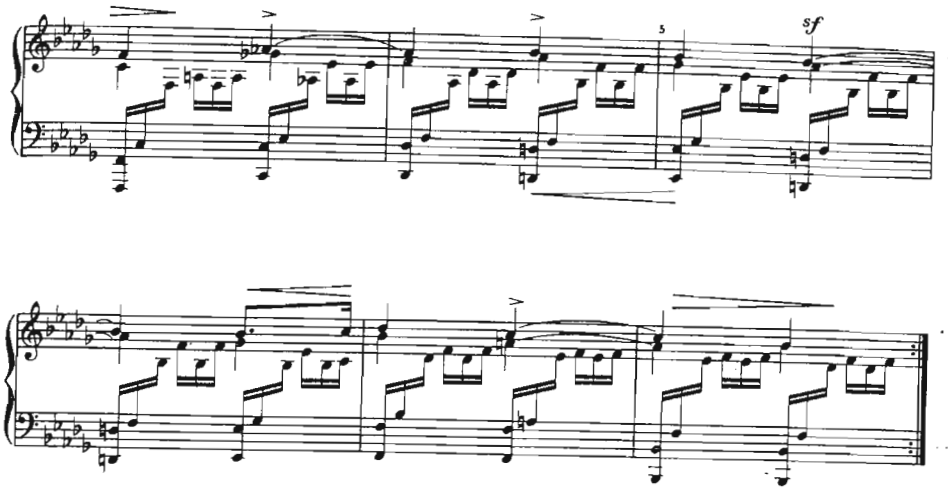



**3.** Analyze chords and NCTs. To what extent is this example sequential? If you play the first half of m. 1 as a chord, you will discover that there are seven different parts in the texture. To what extent are some of these voices doubling another voice at the octave? Except for this, are there any parallel 8ves to be found?

Schumann, *Romanze*, Op. 28, No. 1

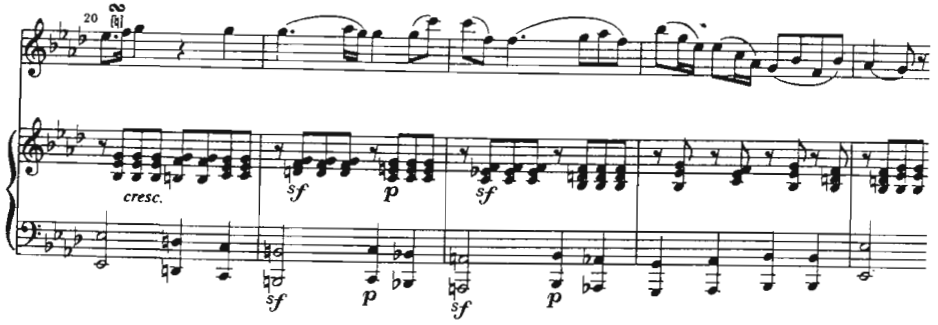




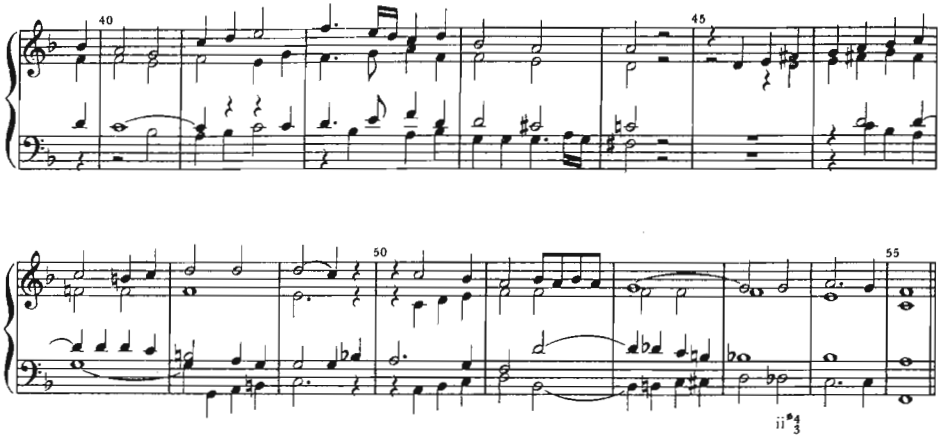

**4.** Analyze chords and NCTs. To what extent is this example sequential?

Mozart, Violin Sonata K. 481, II



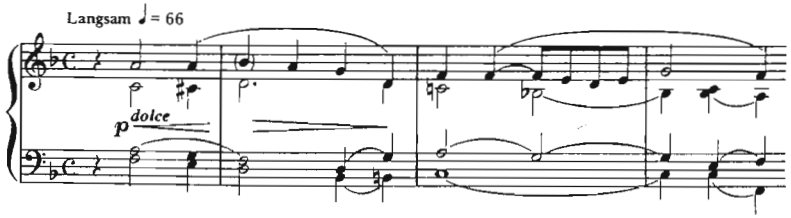
**5.** This passage, from the beginning of Verdi's *Requiem*, is a beautiful example of *a cappella* writing. It features a circle-of-fifths progression involving a series of secondary dominants. Label all chords and NCTs. (The $ii^{\circ 4}_{3}$ in m. 53 is an example of mode mixture, the subject of Chapter 21.)

Verdi, *Messa da Requiem*, "Requiem aeternam"




**6.** This excerpt is the introduction to a piece for chorus and piano. Label chords and NCTs.

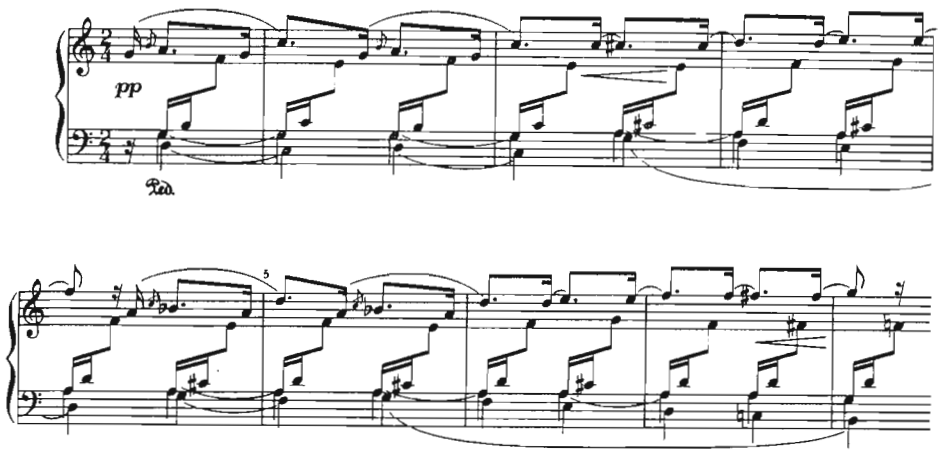
Schumann, "Beim Abschied zu singen," Op. 84



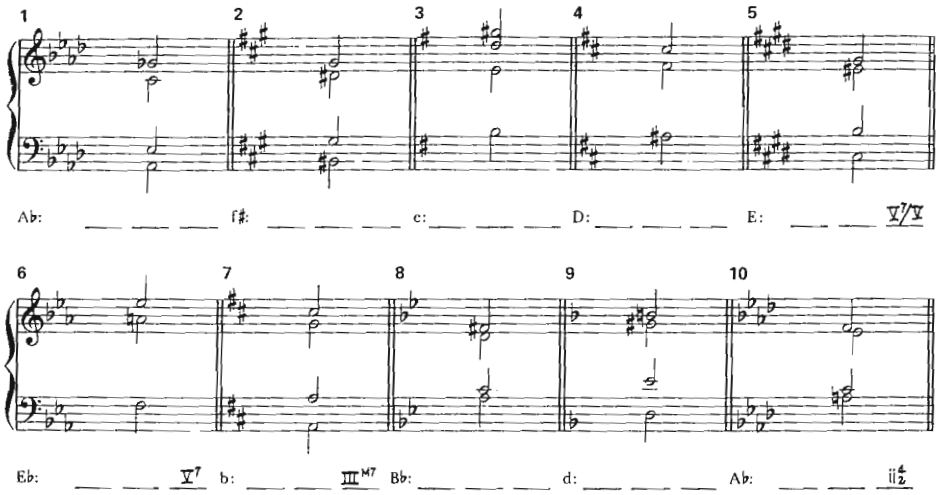



**7.** Analyze chords and NCTs, but ignore the grace notes for the purpose of your analysis. Study the four voices that accompany the melody. Do they follow conventional voice-leading principles? What about the melody? Does it contribute an independent fifth voice, or is it sometimes doubling an accompanying line?

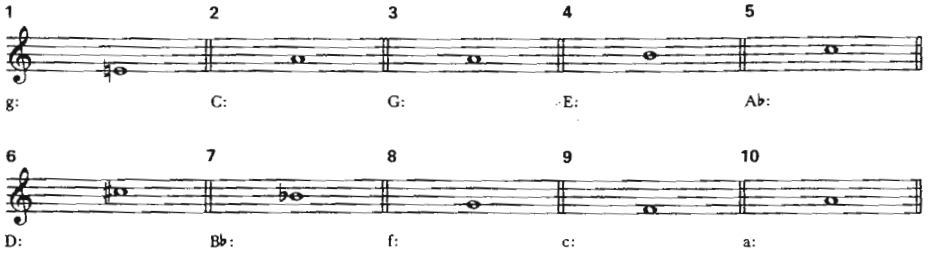
Schumann, *Arabesque*, Op. 18



B. For each of the following problems, first analyze the given chord. Next, find a smooth way to lead into the chord. While there are many possibilities, it will often work to use a chord whose root is a P5 above the root of the secondary dominant. Experiment with other relationships also. Then resolve each chord properly, taking special care with the leading tone and the 7th resolutions. Analyze all chords.

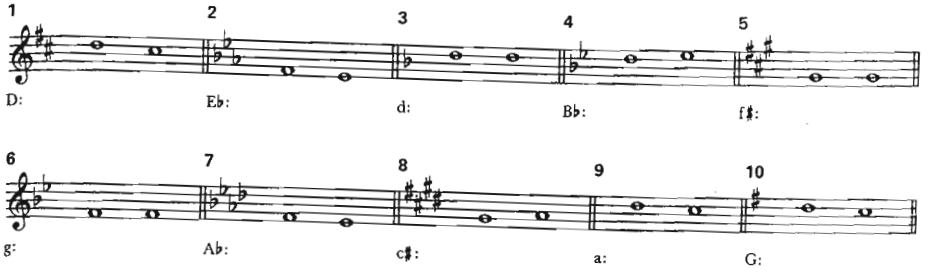



C. Below each note list the secondary V and $V^7$ chords that could harmonize that note. You may find it helpful to refer to the charts on page 257.

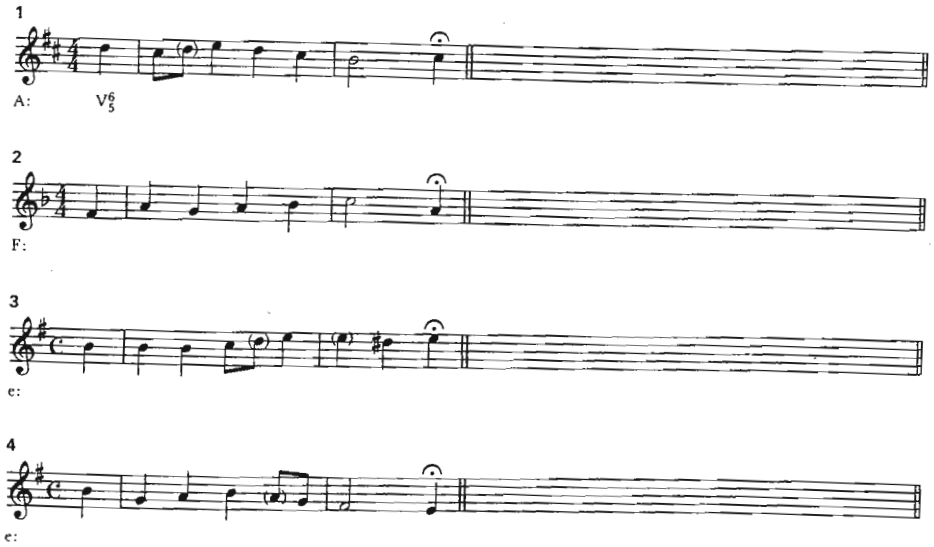




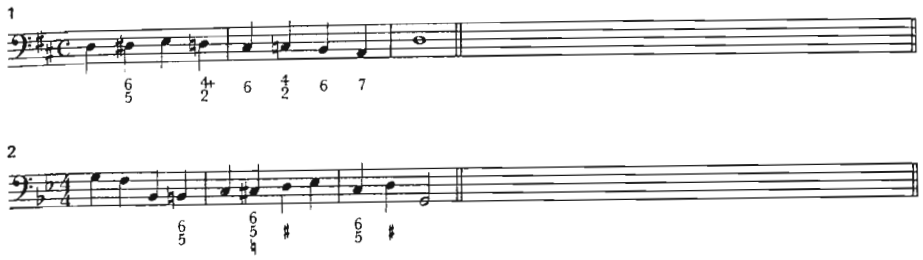

D. Provide roman numerals to show how the first note could be harmonized as a secondary dominant. The second note should be harmonized by the tonicized chord.




E. Harmonize each chorale phrase for SATB chorus. Include one or more secondary dominants in each phrase and activate the texture with some NCTs. Note that the key of the phrase does not always agree with the key signature.



F. Analyze the harmonies specified by each figured bass, and make a setting for SATB chorus.




*EXERCISE 16-2. See Workbook.*

CHAPTER 17

# *Secondary Functions 2*

## SECONDARY LEADING-TONE CHORDS

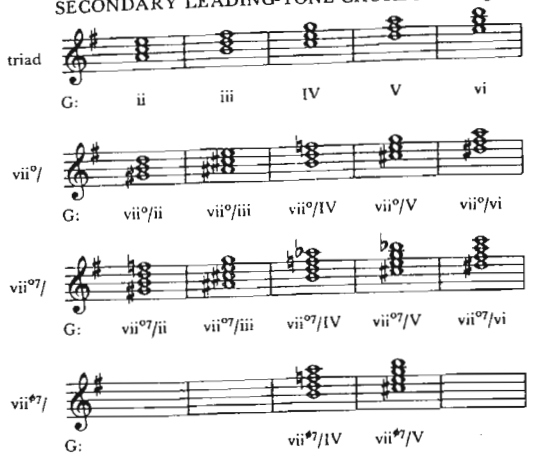
The V(7) and vii°(7) chords have similar functions in tonal music (review p. 115), the main difference being that V(7), which contains a P5 above the root, sounds like a more substantial sonority. The same generalizations hold true for secondary functions, which means that any chord that can be tonicized by a V(7) can also be tonicized by a vii°(7).

One small complication arises when a leading-tone seventh chord (as opposed to a leading-tone *triad*) is used as a secondary function. Should the resulting chord be a vii°7/ or a vii ø7/? Almost all examples follow these principles:

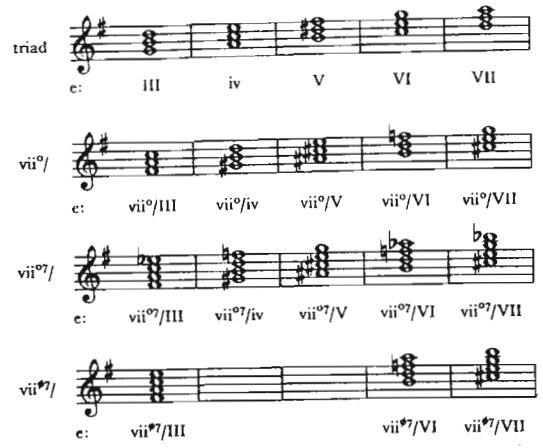
1. If the triad to be tonicized is minor, use vii°7/.
2. If the triad to be tonicized is major, use either vii ø7/ or vii°7/, although the fully diminished version appears to be used more often.

The tables below list all of the secondary leading-tone chords in major and minor. While all of these chords are theoretically possible, leading-tone chords of ii, IV, iv, V, and vi are more common than the others. One chord, the vii°7/III in minor, is identical to a diatonic triad (ii°), and the vii ø7/III is identical to a diatonic seventh chord (ii ø7). The functions of these chords can be made clear only by the context. You may also notice that there is no vii ø7/V in the minor mode, even though the V chord is major. This is because the key that V represents is drawn from the natural minor, which means that the key of the dominant in minor is a minor key. For this reason, vii ø7/V is not used in minor.

SECONDARY LEADING-TONE CHORDS IN MAJOR




SECONDARY LEADING-TONE CHORDS IN MINOR






## SPELLING SECONDARY LEADING-TONE CHORDS

The procedure for spelling secondary leading-tone chords is not difficult and can be summarized as follows.

1. Find the root of the chord that is to be tonicized.
2. Go down a m2.
3. Using that note as the root, spell a diminished triad (for vii° of), a diminished seventh chord (for vii°7 of), or a half-diminished seventh chord (for vii ø7 of).

For example, to spell a vii°7/vi in E♭,

1. The root of vi in E♭ is C.
2. A m2 below C is B.
3. A °7 chord on B is B-D-F-A♭.

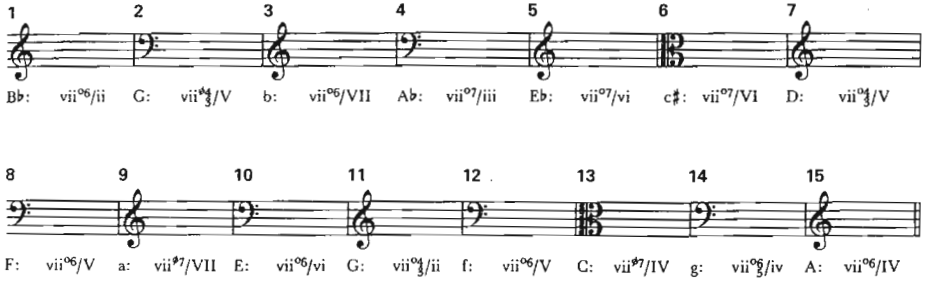
## RECOGNIZING SECONDARY LEADING-TONE CHORDS

If you find an altered chord in a passage and it is not a V(7)/, there is a good chance it will be a secondary leading-tone chord. These steps will work in most cases.

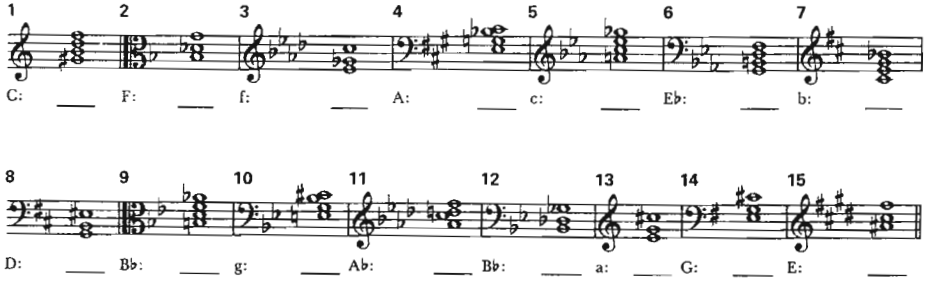
1. Is the chord a diminished triad or a diminished seventh or half-diminished seventh chord? If not, it is not a secondary leading-tone chord.
2. Find the note a m2 above the root of the altered chord.
3. Would a major or minor triad built on that note be a diatonic triad in this key? If so, the altered chord is probably a secondary leading-tone chord.

*SELF-TEST 17-1*
(Answers begin on page 615.)

A. Review how to spell secondary leading-tone chords (p. 275). Then notate these secondary leading-tone chords in the specified inversion. Include key signatures.




B. Label any chord that could be a secondary leading-tone chord according to the steps outlined on page 275. Label all others within an *X*.




*EXERCISE 17-1. See Workbook.*



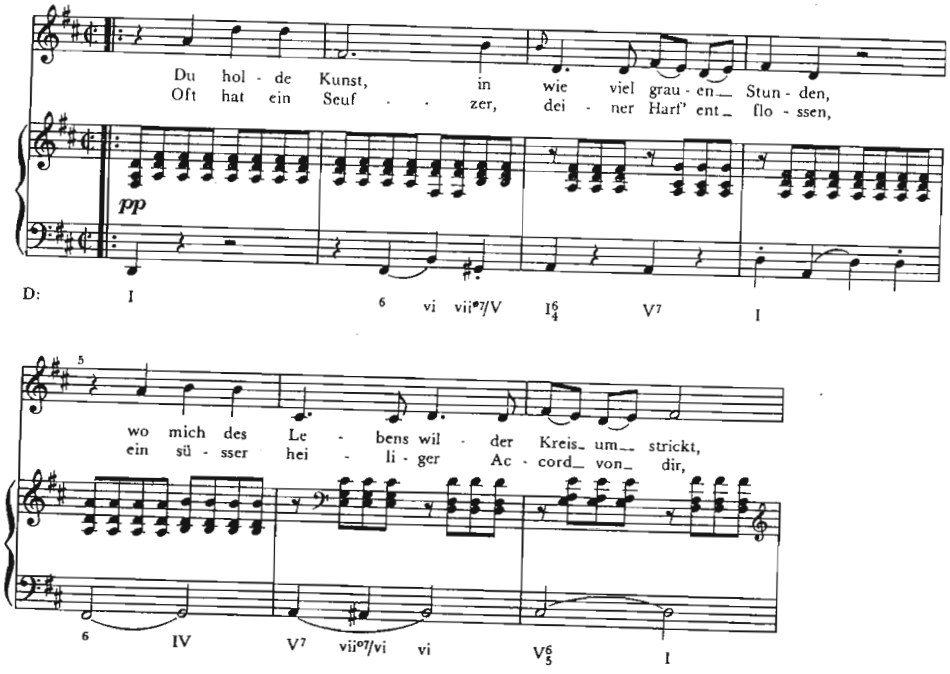
## SECONDARY LEADING-TONE CHORDS IN CONTEXT

Secondary leading-tone chords resolve in the same way as do primary leading-tone chords—leading tone up, 7th down—but be careful not to double $\hat{7}$ in resolving a vii°7/V or a vii°7/V. Smooth voice leading is usually, but not always, a feature of the progressions. A few examples will give you the idea.

In Example 17-1, Schubert intensifies the motion toward the first cadence by means of a vii°7/V. As with the V/V, the motion to a $I^6_4$ is not considered an irregular resolution, since the $I^6_4$ only delays the V chord.

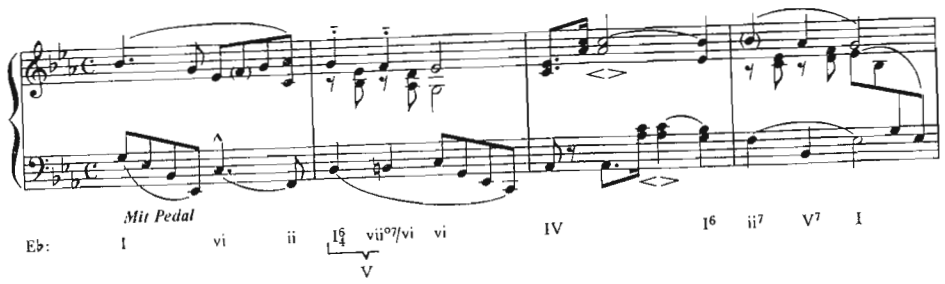
We noted on page 262 that the V(7)-vi deceptive progression is often embellished by inserting a V(7)/vi between the V and the vi. Just as common in this context is the vii°7/vi, as in the second phrase of Example 17-1.

**Example 17-1.** Schubert, "An die Musik," Op. 88, No. 4.



In Example 17-2 we encounter still another variant of the deceptive progression. Here the cadential $I^6_4$ in m. 2 is followed not by a V but a vii°7/vi.

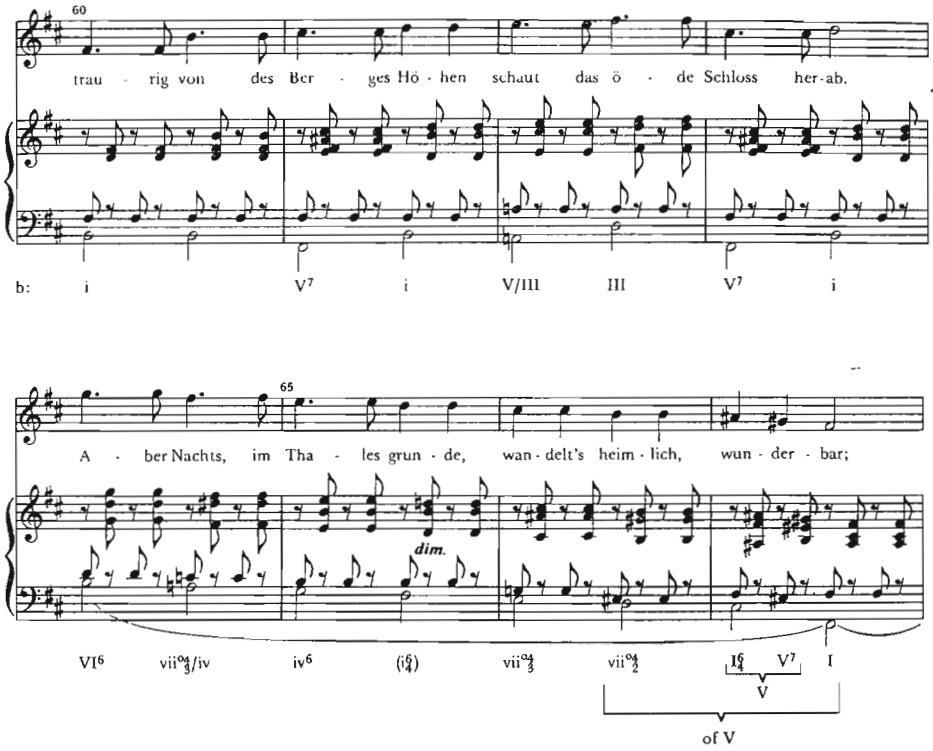
**Example 17-2.** Schumann, "Herberge," Op. 82, No. 6





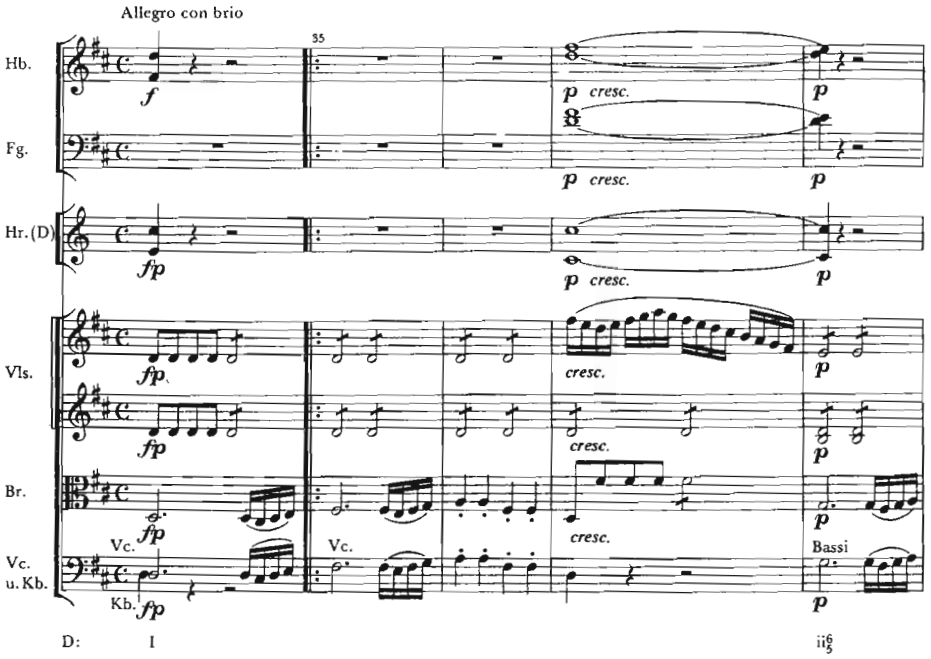

A $vii^{o4}_3$/iv and a $vii^{o4}_2$ of V both appear in Example 17-3. There is a cadential six-four in m. 67, but there is not a real modulation to F♯ here. You can prove this for yourself by playing through the example. You will almost certainly hear the last chord as V, not I.

**Example 17-3.** Schumann, "Die feindlichen Brüder," Op. 49, No. 2

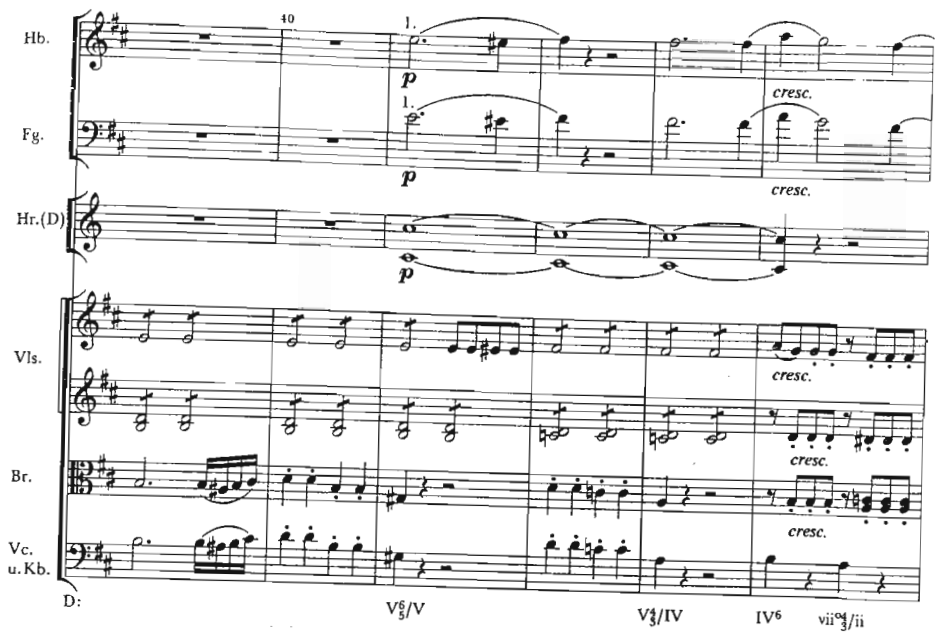


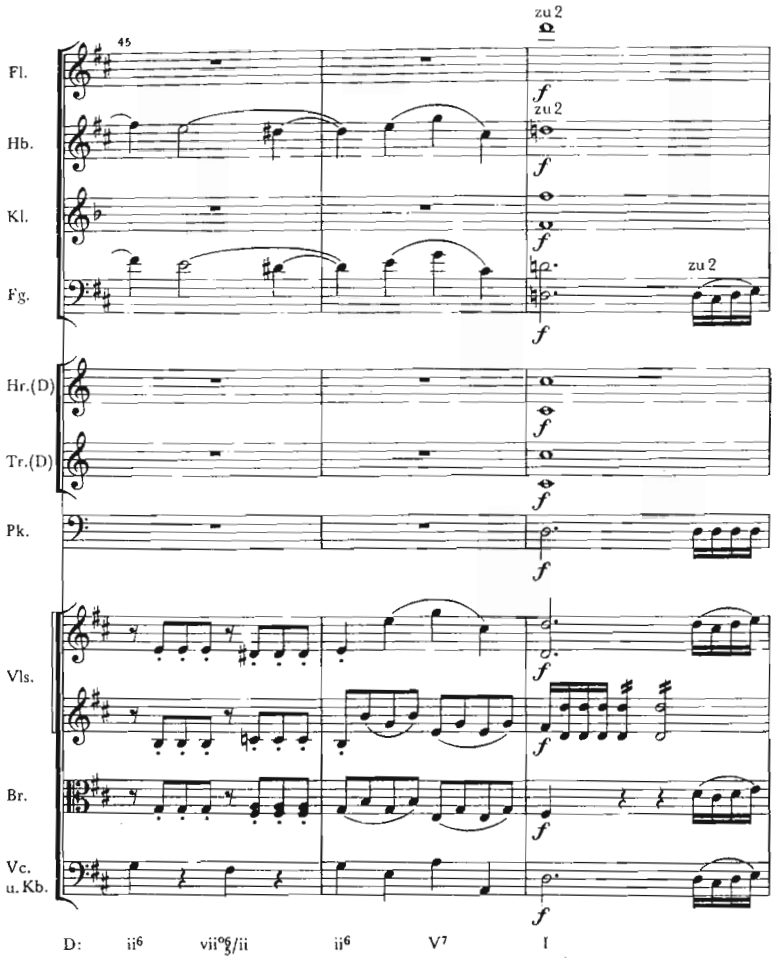
Example 17-4 is interesting in several respects. Notice that the $V^6_5/V$ in m. 41 is followed not by a V, as expected, but by a $V^4_3/IV$ (we have chosen the A in m. 43 as the bass of the $V^4_3/IV$). This and other unexpected resolutions of secondary functions will be discussed more fully later in this chapter. The $V^4_3/IV$ itself resolves normally, as do the $vii^{o4}_3/ii$ and the $vii^{o6}_5/ii$, except for some liberties taken with the viola part.

**Example 17-4.** Beethoven, Symphony No. 2, Op. 36, I










## SEQUENCES INVOLVING SECONDARY FUNCTIONS

Sequential patterns often use secondary functions. One that is especially common is the circle-of-fifths sequence, but with one or more secondary functions (V/ or vii°/) substituting for diatonic chords. Below is a short circle-of-fifths sequence, with possible substitutions shown for the first three chords.

| | | | | |
|---|---|---|---|---|
| Diatonic circle of fifths in C | e$^7$(iii$^7$) | - a$^7$(vi$^7$) | - d$^7$(ii$^7$) | - G$^7$(V$^7$) - C(I) |
| V7/substitutes | E$^7$(V7/vi) | - A$^7$(V7/ii) | - D$^7$(V7/V) | |
| vii°7/substitutes | g♯°$^7$(vii°7/vi) | - c♯°$^7$(vii°7/ii) | - f♯°$^7$(vii°7/V) | |

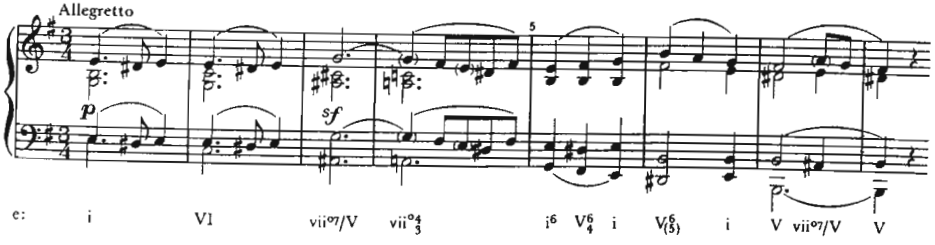
By choosing one chord from each of the first three columns in the chart above, we can make up some variations on the circle-of-fifths progression.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Diatonic version | e$^7$ | - | a$^7$ | - | d$^7$ | - | G$^7$ - C |
| Variation | E$^7$ | - | a$^7$ | - | D$^7$ | - | G$^7$ - C |
| Variation | E$^7$ | - | c♯°$^7$ | - | d$^7$ | - | G$^7$ - C |
| Variation | g♯°$^7$ | - | A$^7$ | - | f♯°$^7$ | - | G$^7$ - C |

An instance of substitutions of this sort is seen in Example 17-5. There is a circle-of-fifths progression in mm. 2-5 that is essentially a VI-ii°-V-i progression, with two °7 chord substitutions:

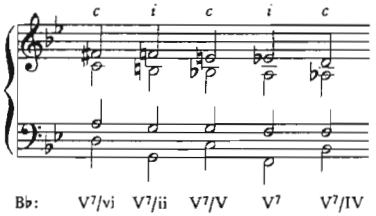
| | | | |
|---|---|---|---|
| Diatonic circle of fifths in e | C (VI) | - f♯°(ii) | - B (V) - e (i) |
| vii°7/substitutes | | a♯°$^7$ (vii°$^7$/V) | d♯°$^7$ (vii°$^7$) |

**Example 17-5.** Beethoven, Piano Sonata Op. 14, No. 1, II



When a series of major-minor seventh chords is used in a circle-of-fifths sequence, certain voice-leading problems come up. For one thing, as you learned on page 260, each leading tone will resolve down by chromatic half step to become the 7th of the next major-minor seventh chord. Also, as you may recall from page 247, if the chords are in root position in a four-part texture, incomplete seventh chords must alternate with complete seventh chords. These points are illustrated in Example 17-6.

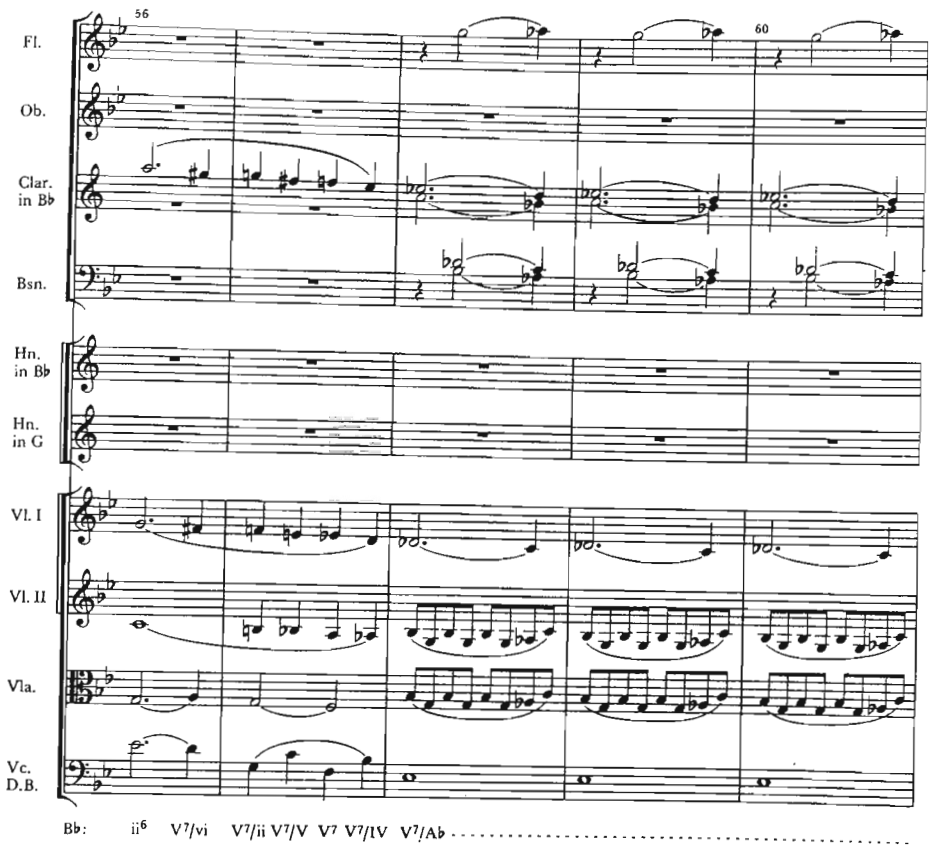
**Example 17-6.**

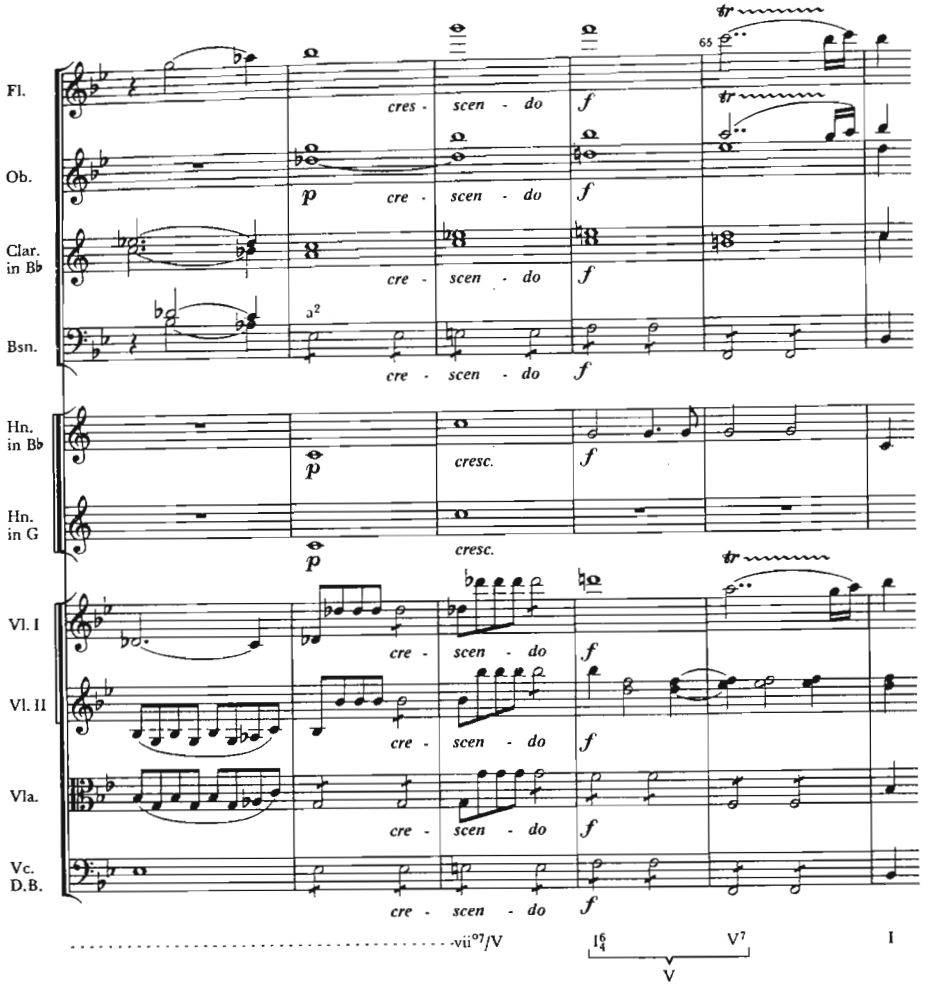



The voice leading in Example 17-6 is the precise voice leading Mozart uses in Example 17-7. However, he goes a step "too far," to an E♭7 in M. 58, implying a resolution to A♭. A change of key from B♭ to A♭ would be quite unexpected here. For five measures Mozart prolongs the suspense, until the E♭ in the bass is finally bent up to E♮, creating a vii°7/V in B♭. This leads back to a PAC in B♭. Notice also the $A♭^6_4$ chords (pedal six-fours) that occur in mm. 58-61, adding to the listener's anticipation of A♭ as the goal. In studying this example, remember that the basses on the bottom staff sound an octave lower than written.



**Example 17-7.** Mozart, Symphony No. 40, K. 550, I







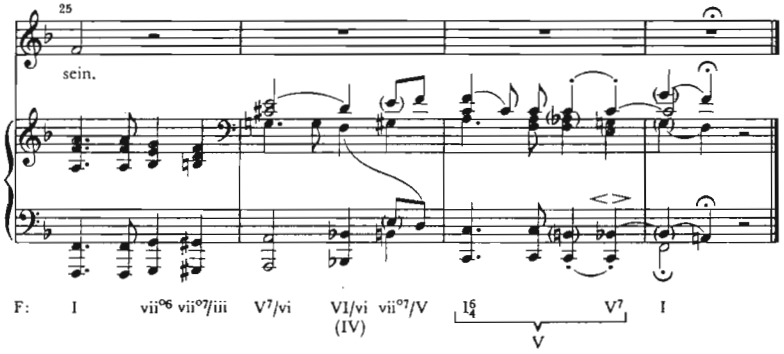

## DECEPTIVE RESOLUTIONS OF SECONDARY FUNCTIONS

While you will find that most secondary V(7) and vii°(7) chords resolve as expected, you may encounter many interesting exceptions. One that is especially common is the resolution of a V7/ up to the vi (or VI) of the chord that was being tonicized. For instance, in the key of C:

| | | |
|---|---|---|
| Chords | $D^7$ | e |
| Analysis | V7/V | vi/V (iii) |

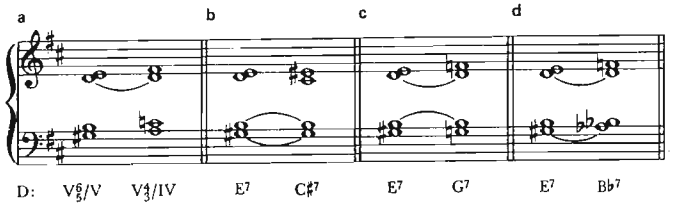
A beautiful example of a deceptive resolution occurs at the end of one of Schumann's songs (Ex. 17-8). Notice that the seventh of the vii°7/V in m. 26 is spelled enharmonically (G♯ instead of A♭) because it is going to ascend to the A before resolving to the G in the V chord. (Incidentally, does the beginning of Ex. 17-8 remind you of a familiar Christmas carol?)

**Example 17-8.** Schumann, "Auf dem Rhein," Op. 51, No. 4



Another kind of deceptive resolution was seen in Example 17-4, above, in which a $V^6_5/V$ was followed by a $V^4_3/IV$. One of the reasons this progression "works" here is that it features smooth voice leading, summarized in Example 17-9a. Even smoother is the connection between two dominant seventh chords a m3 apart (Ex. 17-9b and 17-9c) or, surprisingly, a tritone apart (Ex. 17-9d). If you play through Examples 17-9b, c, and d, you will probably find them convincing, even though it may be hard to imagine at this point how some of these progressions could occur in tonal music.

**Example 17-9.**



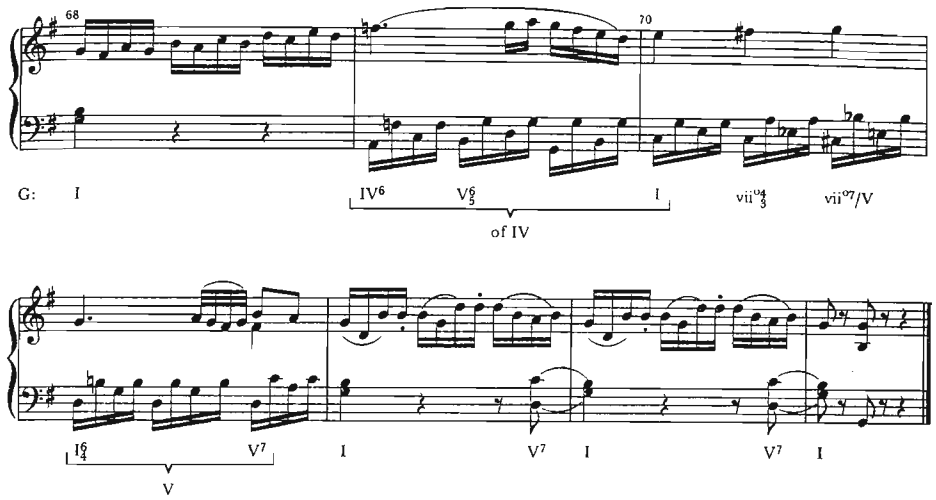

## OTHER SECONDARY FUNCTIONS

We have discussed secondary dominants, secondary leading-tone chords, and, in the preceding section, secondary submediants. Other secondary functions do occur, but less commonly. We tend to hear a change of key when we encounter several chords that are drawing our attention away from the original tonic. But a short progression of chords will generally not be enough to accomplish a change of key, and it is in such passages that other secondary functions occasionally occur.

Listen to Example 17-10. While one could argue in favor of a quick change of key to C in mm. 69-70, it is unlikely that we would really lose track of G as the tonal center so quickly. In this case, $IV^6/IV$ would seem to be a better analysis than $IV^6$ in the key of C.



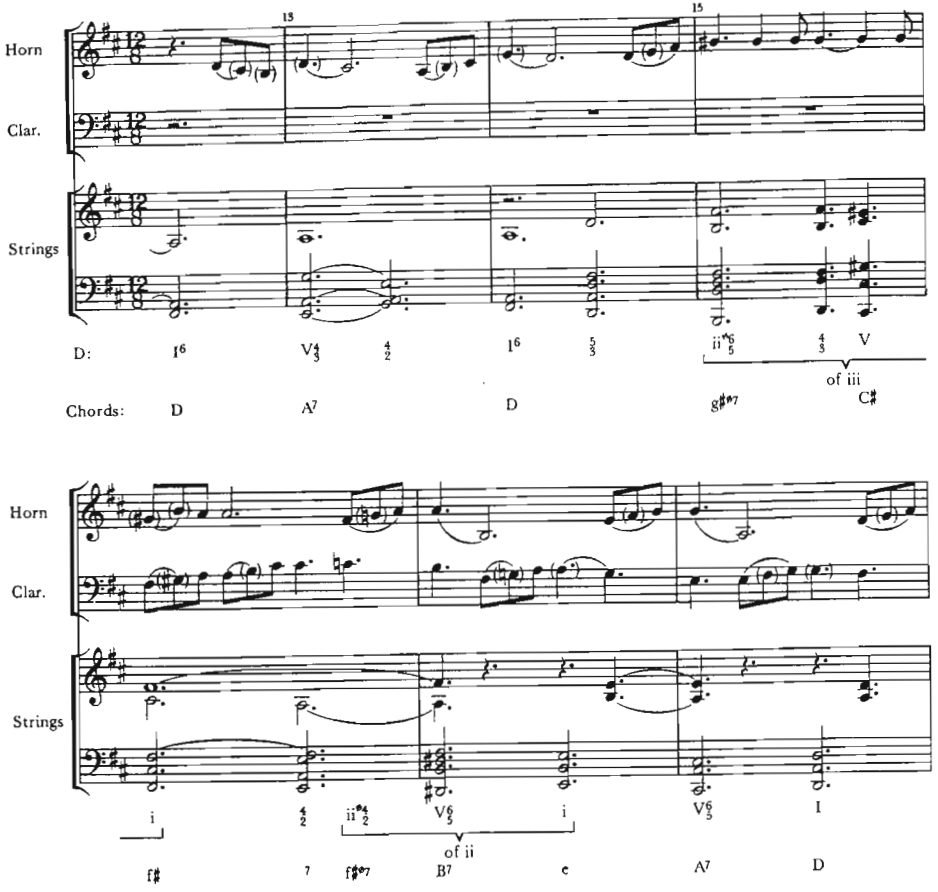
**Example 17-10.** Mozart, Sonata K. 545, II




Example 17-11 is considerably more complicated, but it is worth the effort. The basic outline of the progression is: I-V-I-iii-ii-V-I, but the iii and ii chords are elaborated by ii-V-i progressions of their own. Underlying all of this is an unusually long circle-of-fifths progression that involves the root of every chord in the excerpt except the first: A-D-G♯-C♯-F♯-B-E-A-D. In spite of the harmonic complexity, the passage flows seamlessly, part of a famous theme that surely must be listened to, if you don't know it already.

Finally, notice that although the chords that are the point of this discussion—the $ii^{o7}/iii$ and the $ii^{o7}/ii$—are spelled the same as a $vii^{o7}/V$ and a $vii^{o7}/IV$, respectively, we can tell from the context that they are secondary $ii^{o7}$chords, not secondary $vii^{o7}$chords.

**Example 17-11.** Tchaikovsky, Symphony No. 5, Op. 64, II
(Instruments sound where written)






## *SUMMARY*

Any chord that can be tonicized by a secondary dominant can also be tonicized by a secondary leading-tone chord. The vii°/ and vii°7/ chords may be used to tonicize major or minor triads, but the viiø7/ may tonicize only major triads. However, a major chord which is never tonicized by viiø7/ is the V chord in minor.

To spell a secondary leading-tone chord, go down a m2 from the root of the chord that is to be tonicized and spell a diminished triad (for vii° of), a diminished seventh chord (for vii°7of), or a half-diminished seventh chord (for viiø7of). To determine if an altered chord that you encounter in analysis might be a secondary leading-tone chord, see if it is a diminished triad, a diminished seventh chord, or a half-diminished seventh chord with a root that is a m2 below a scale degree that usually carries a major or minor triad in that key. If so, the altered chord is probably a secondary leading-tone chord.

Secondary dominant or leading-tone chords are frequently substituted for diatonic chords in circle-of-fifths sequences. A substituted secondary dominant will have the same root as the diatonic chord for which it substitutes, while a substituted secondary leading-tone chord will have a root a M3 higher.

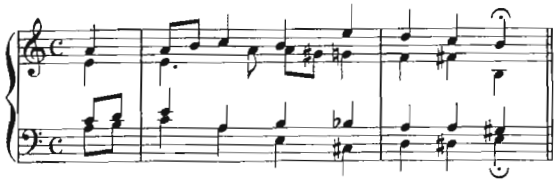
The vii°7/vi is used in two more variants of the deceptive progression: V7-vii°7/vi-vi and $I^6_4$-vii°7/vi-vi. In addition, secondary dominants may themselves resolve deceptively, usually to the vi (or VI) of the chord being tonicized. Secondary functions other than V, vii°, and vi also occur occasionally.

*SELF-TEST 17-2*
(Answers begin on page 615.)

A. Analysis

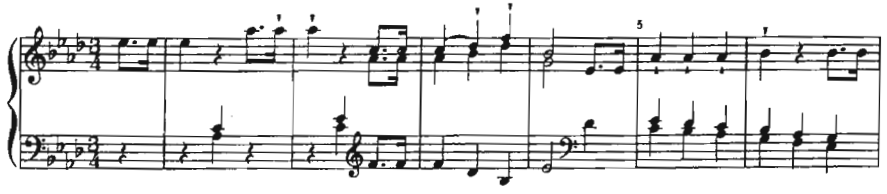
**1.** Label chords and NCTs.

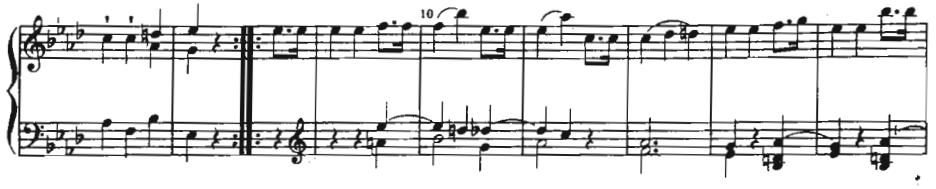
Bach, "Warum betrübst du dich, mein Herz"



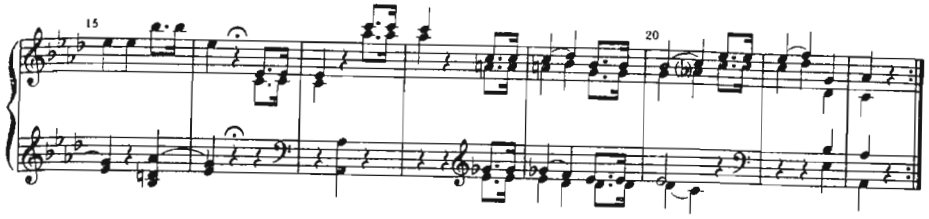
**2.** Label chords and NCTs. Review pages 283-284, then find two circle-of-fifths progressions that contain more than three chords. Remember that a leading-tone chord may substitute for a chord in the circle-of-fifths.

Haydn, Sonata No. 43, Minuetto I



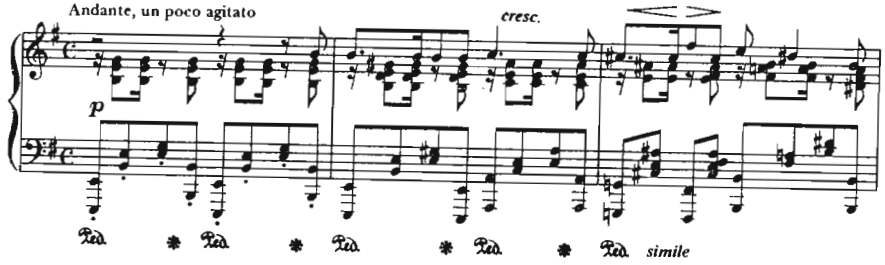



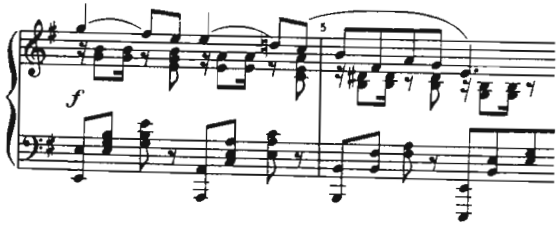



**3.** Label chords and NCTs. Remember that the bass notes continue sounding until the pedal is lifted. The last eighth note in the melody is a rather unusual NCT. Discuss how it might be analyzed.

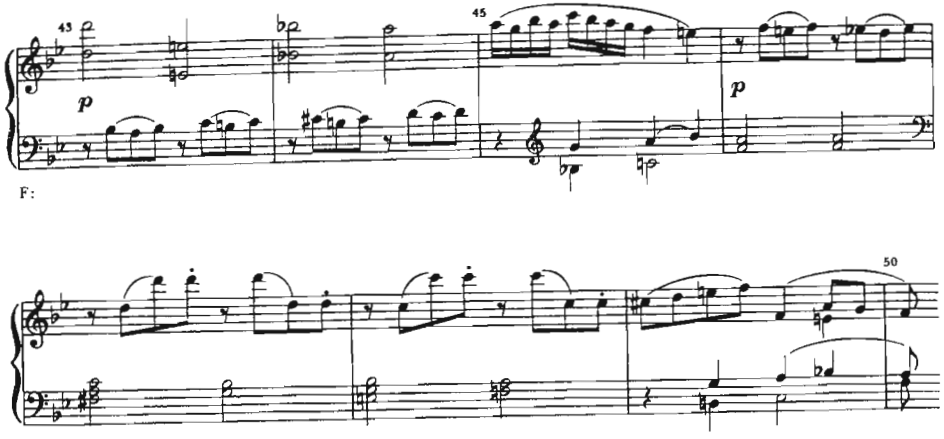
Mendelssohn, *Song without Words*, Op. 102, No. 1



**4.** Label chords and NCTs. Analyze the chords in m. 47 in two ways: once in the key of F, once in some key hinted at in m. 46

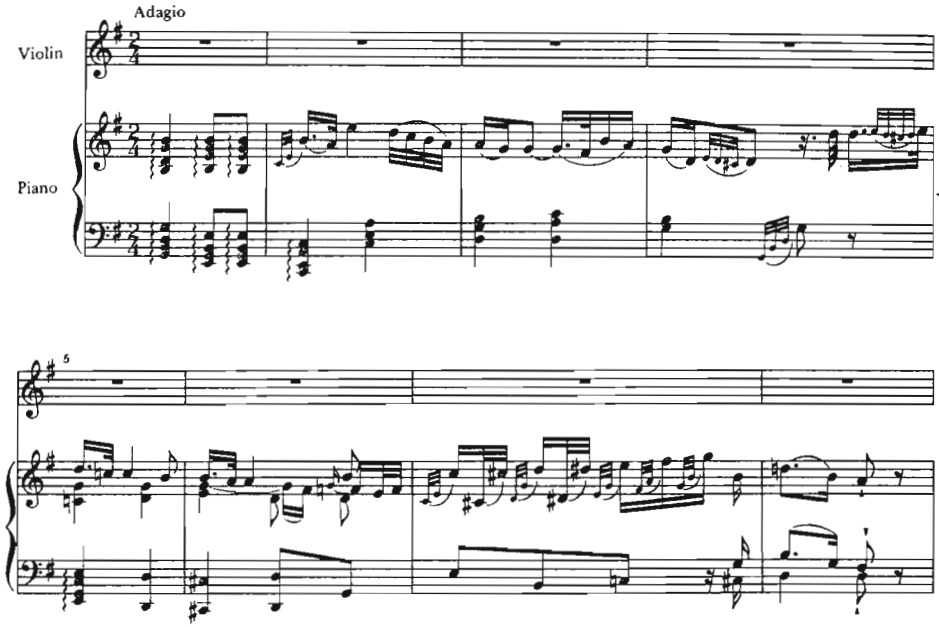
Mozart, Sonata K. 333, I





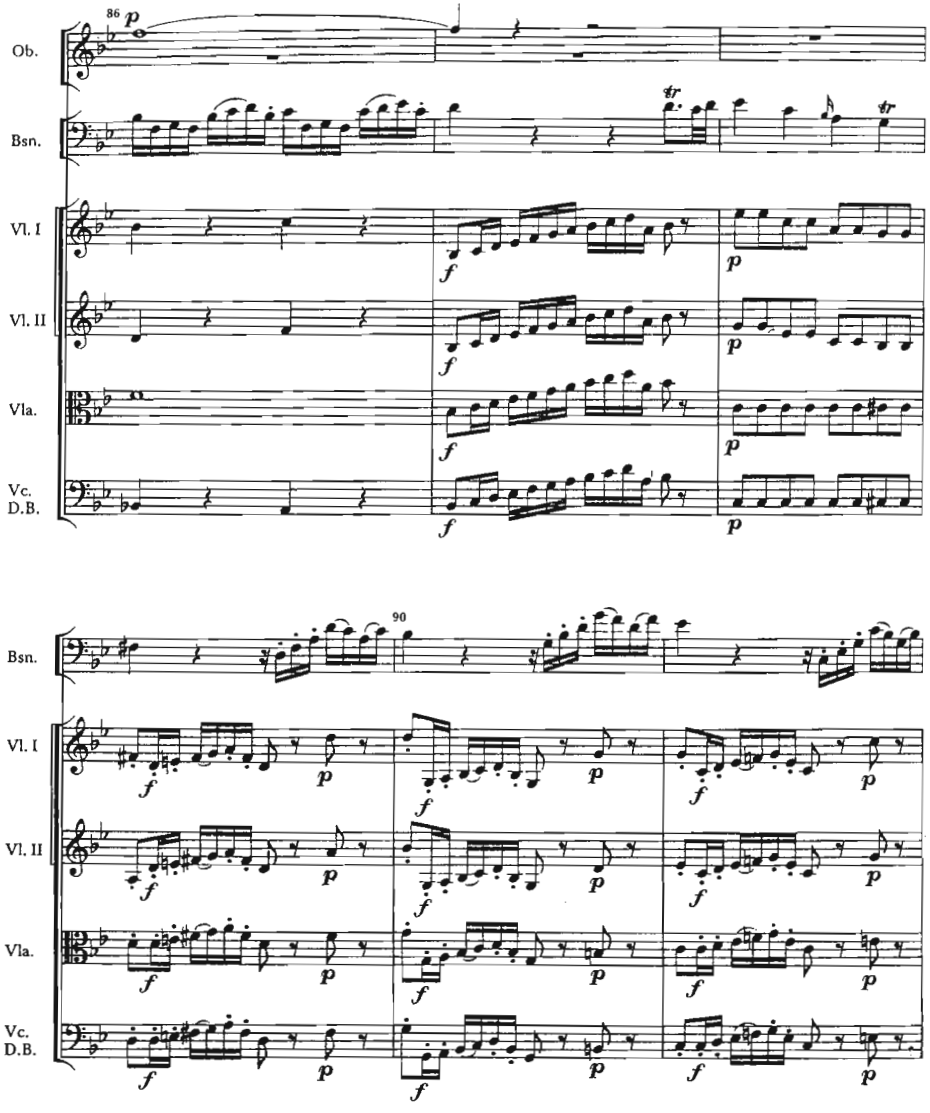

**5.** Label chords and NCTs. Explain why this excerpt is not a period. Do not include the grace notes in your analysis.

Mozart, Violin Sonata K. 379, I

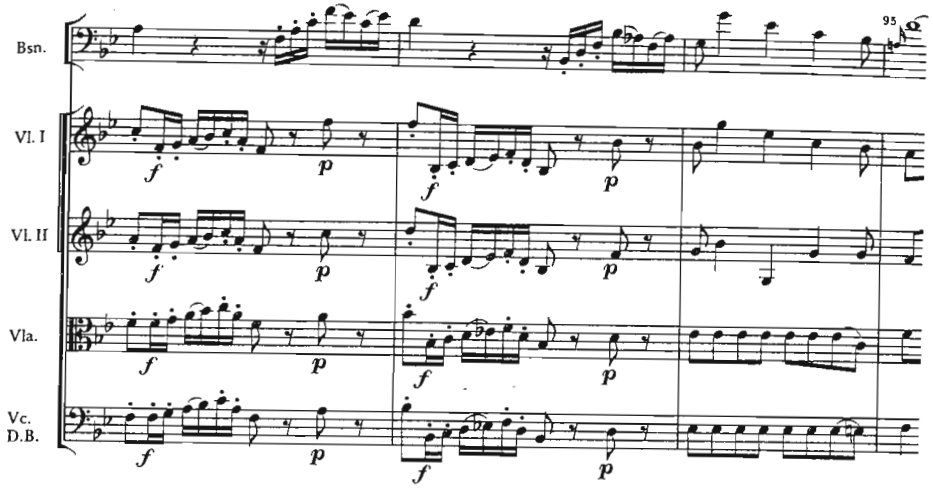



**6.** Label the chords with roman numerals. Label NCTs in the bassoon part only. Analyze the chords from the middle of m. 88 to the middle of m. 90 in some key other than B♭. Bracket the longest circle-of-fifths progression you can find.

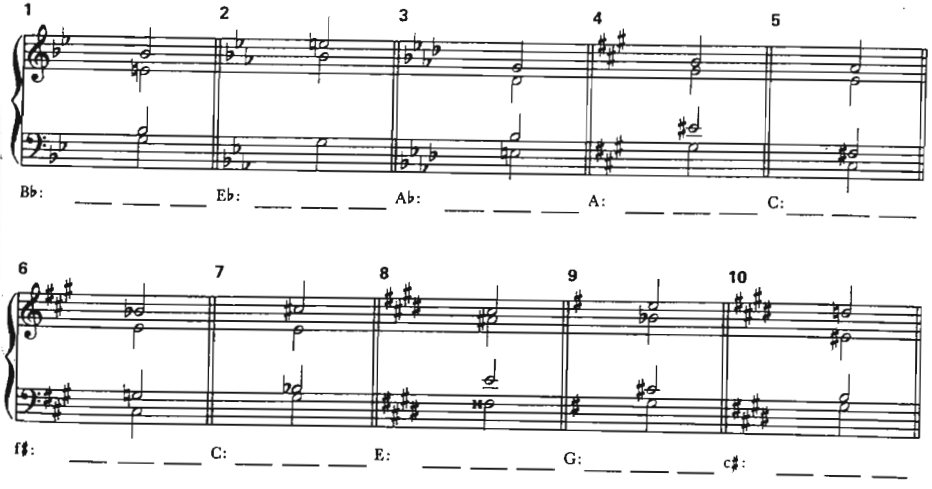
Mozart, Bassoon Concerto K. 191, I



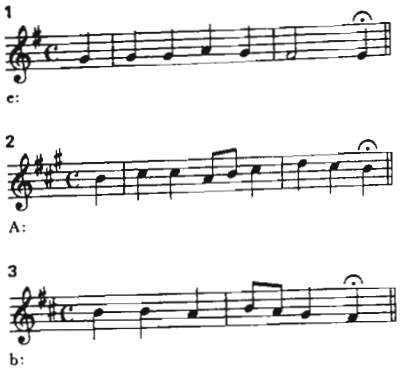


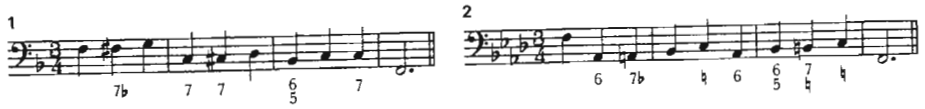

B. For each of these problems, first analyze and resolve the given chord, being especially careful with the chord 7th and the leading tone. Then find a smooth way to lead into the given chord. Analyze all chords.



C. Harmonize each of these chorale phrases for SATB chorus. Include at least one secondary leading-tone chord or incorporate some other aspect discussed in this chapter in each harmonization.




D. Analyze the harmonies specified by each figured bass, then make an arrangement of each for SATB chorus.




*EXERCISE 17-2. See Workbook.*

CHAPTER 18

# *Modulations Using Diatonic Common Chords*

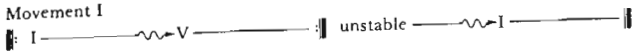
## MODULATION AND CHANGE OF KEY

Almost all compositions from the tonal era begin and end in the same key. Sometimes the *mode* will be changed, usually from minor to major, but the *keynote* (tonic note) remains the same. A piece that begins in c minor and ends in C major is still in C. Even multimovement works begin and end in the same key if the movements are intended to be performed together as a unit. (An interesting exception to this is the song cycle.) The principle also holds for single movements from multimovement works (sonatas, symphonies, song cycles, and so on), although the interior movements will often be in different keys. We will use the term *change of key* for such situations, as in, "There is a change of key from C major in the first movement to F major in the second movement."

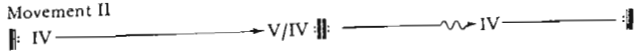
*Modulation* is another matter. A modulation is a shift of tonal center that takes place *within* an individual movement. For while a tonal work or movement begins and ends in the same key, other tonalities generally will be hinted at, referred to, or even strongly established. The longer the work, the more time is likely to be devoted to tonalities other than the tonic and the more keys are likely to be touched upon.

The tonal structure of a composition is closely related to its overall form. For example, a Classical piano sonata might have the following tonal structure. The crooked arrows represent modulations, and roman numerals represent other keys in relation to the tonic.

Movement I




Movement II



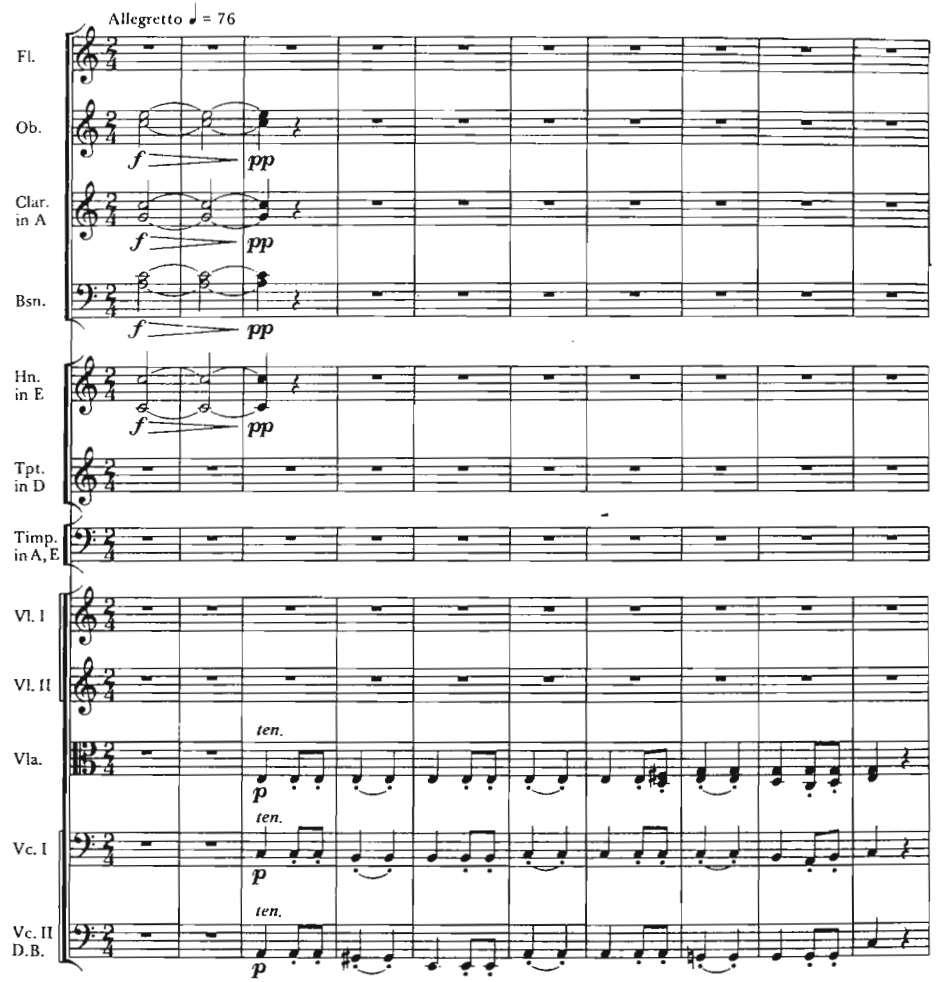

Movement III


## MODULATION AND TONICIZATION

The line between modulation and tonicization (using secondary functions—V/V and so forth) is not clearly defined in tonal music, nor is it meant to be. One listener may find that a very short passage tonicizing a new tonality is enough to make a convincing modulation. For instance, you may have heard some of the excerpts in Chapters 16 and 17 as modulations, while other listeners might not have. Listen to Example 18-1. At the end of the excerpt, do you hear C or A as tonic? You could analyze this passage as *tonicizing* C or as *modulating* to C major. The difference in the analyses would not be an important one. There is no right or wrong here—there are just the interpretations of different listeners.



**Example 18-1.** Beethoven, Symphony No. 7, Op. 92, II



It seems clear, however, that composers have always hoped the sophisticated listener (surely a minority of the audience) would manage to follow the modulations aurally. If not, many important effects would be lost. For example, if a composer has brought back a tune in another key when we had expected it to return in tonic, the composer expects us to be surprised. Otherwise, why bother? The fact that such effects may be lost on many listeners should not keep us from trying to appreciate what the composer is doing.

## KEY RELATIONSHIPS

Two keys that sound the same but that are spelled differently are called *enharmonically equivalent keys.* C♯ major and D♭ major are enharmonically equivalent. If a composer for some reason respells C♯ as D♭, no modulation has occurred, since the keynote is unchanged.

If a major key and a minor key have the same tonic tone, they are called *parallel keys.* The parallel minor of C major is c minor. Since parallel keys share the same tonic, we do not use the term modulation when talking about movement from one key to its parallel. The term *change of mode* (or mutation) is used instead.

If a major key and a minor key share the same key signature, they are called *relative keys.* The relative minor of C major is a minor. The term modulation *is* appropriate here, because movement from one tonic to another is involved. Modulations between relative keys are common, especially from minor to relative major.

Most modulations in tonal music are between *closely related keys.* Two keys are said to be closely related if there is a difference of no more than one sharp or flat in their key signatures. Since this definition applies to both major and minor keys, it includes the relative major or minor key, where there is no difference at all in the key signatures. Here are the keys closely related to C major and c minor.

| *Starting Key: C major* | | |
|---|---|---|
| 1♯ | G | e |
| 0♯, 0♭ | Ⓒ | a |
| 1♭ | F | d |

| *Starting Key: c minor* | | |
|---|---|---|
| 2♭ | g | B♭ |
| 3♭ | ⓒ | E♭ |
| 4♭ | f | A♭ |



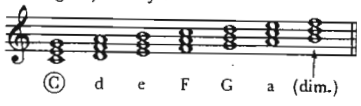
Another way to find the keys closely related to some starting key is to take the keys represented by the tonic, subdominant, and dominant triads and their relatives. In minor use the natural minor scale in determining the closely related keys.

| *Starting Key: C major* | | |
|---|---|---|
| Dominant | G | e |
| Tonic | Ⓒ | a |
| Subdominant | F | d |

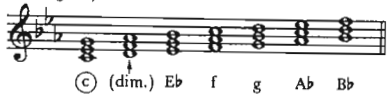
| *Starting Key: c minor* | | |
|---|---|---|
| Dominant | g | B♭ |
| Tonic | ⓒ | E♭ |
| Subdominant | f | A♭ |

Still another method is to take the keys represented by the diatonic major and minor triads (only) of the home key. Again, use natural minor for the minor keys. The diatonic major and minor triads are also those that can be tonicized by secondary dominant or secondary leading-tone chords.

Starting Key: C major




Starting Key: c minor




If you compare the three methods above, you will see that each approach yields the same result. There are always five keys closely related to the starting key. Use whichever method seems easiest to you.

All key relationships that are not enharmonic, parallel, relative, or closely related are called *foreign relationships,* and such pairs of keys are said to be *distantly related.* Some relationships are more foreign than others. Often we describe foreign key relationships in terms of simpler relationships used in the composition. Thus a modulation from C major to D major might be described as a modulation to the dominant of the dominant; one from C major to E♭ major might be called a modulation to the relative major of the parallel minor.

### *CHECKPOINT*

1. Is movement from E major to e minor a modulation? Explain. If not, what is it called? What about a♯ minor to b♭ minor?
2. Compare and contrast *modulation* and *change of key*.
3. Name the five kinds of key relationships (discussed on pp. 302-303).
4. Describe three ways to find the five keys closely related to some starting key.

### *SELF-TEST 18-1*

(Answers begin on page 622.)

A. Name the relative key in each case.

**1.** D ____ **2.** b♭ ____ **3.** f♯ ____ **4.** C♭ ____ **5.** F ____
**6.** d♯ ____ **7.** E ____ **8.** f ____ **9.** E♭ ____ **10.** g♯ ____

B. Name all the closely related keys to the given key. Be sure to use upper case for major, lower case for minor.

**1.** B♭: ____ ____ ____ ____ ____
**2.** D♭: ____ ____ ____ ____ ____
**3.** c: ____ ____ ____ ____ ____
**4.** a♯: ____ ____ ____ ____ ____
**5.** c♯: ____ ____ ____ ____ ____
**6.** A: ____ ____ ____ ____ ____

C. Name the relationship in each case (enharmonically equivalent, parallel, relative and closely related, closely related, or foreign).

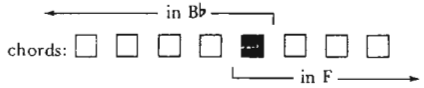
**1.** G/f _____ **6.** C♭/G♭ _____
**2.** B/E _____ **7.** d/D _____
**3.** a♯/b♭ _____ **8.** E♭/D♭ _____
**4.** c/A♭ _____ **9.** B♭/g _____
**5.** f♯/A _____ **10.** c♯/F♯ _____



*EXERCISE 18-1. See Workbook.*

## COMMON-CHORD MODULATION

Most modulations are made smoother by using one or more chords that are common to both keys. This common chord (or chords) serves as a hinge or pivot linking the two tonalities. In the diagram below, the shaded rectangle represents the common chord in a modulation from B♭ to F.




While any pair of closely related keys will have at least one diatonic triad in common, this is not always the case with foreign key relationships. Modulation to a foreign key often requires the use of an altered chord as a common chord; techniques for such modulations are presented in Chapter 19.

To discover the potential common chords between two keys, simply run through the diatonic triads found in the first key to see if they also occur in the second key. For example, there are four triads in common between B♭ and F.

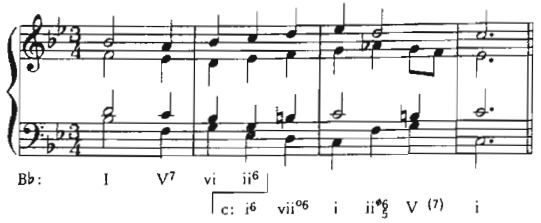
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| First key, B♭ | I | ii | iii | IV | V | vi | vii° |
| Triads in B♭ | B♭ | c | d | E♭ | F | g | a° |
| Triads in F | B♭ | C | d | e° | F | g | a |
| Second key, F | IV | V | vi | vii° | I | ii | iii |

In minor keys, we usually consider the chord types commonly found on each scale degree: i, ii°, III, iv, V, VI, vii° (less frequently, other chords that occur in minor, such as IV and v, are used as common chords). This yields two common chords between B♭ major and c minor.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| First key, B♭ | I | ii | iii | IV | V | vi | vii° |
| Triads in B♭ | B♭ | c | d | E♭ | F | g | a° |
| Triads in c | b° | c | d° | E♭ | f | G | A♭ |
| Second key, c | vii° | i | ii° | III | iv | V | VI |

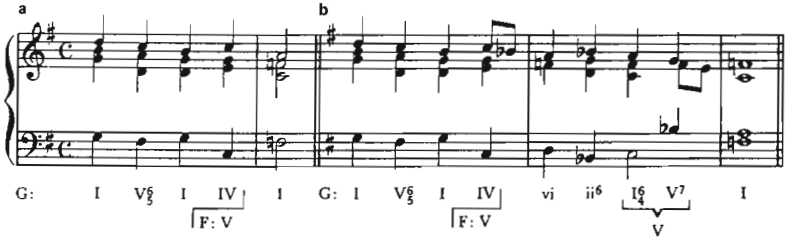
Example 18-2 illustrates a modulation from B♭ major to c minor, using the ii in B♭ as the common chord. Notice the symbol used to show the common-chord modulation.

**Example 18-2.**




When you are composing a modulation, you will find that the V or vii° in either key is often the least successful choice as common chord. As Example 18-3a illustrates, such a modulation can sound too abrupt. The modulation will be smoother if the V-I progression in the new key is delayed by several chords, especially through the use of a deceptive progression, a cadential six-four, or both, as in Example 18-3b.

**Example 18-3.**




The smooth voice leading in the outer voices of Example 18-3b also contributes to making this modulation to a foreign key convincing and successful.



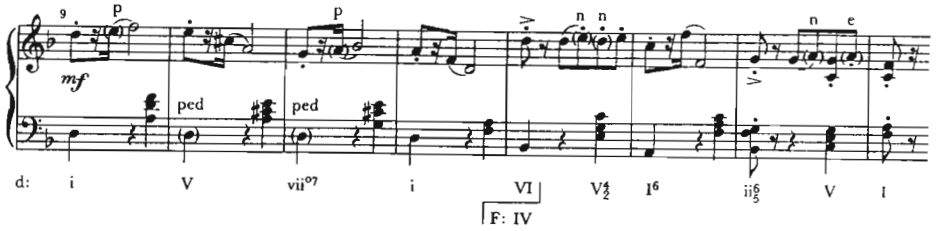
## ANALYZING COMMON-CHORD MODULATION

In analyzing modulations, the procedure to follow is this.

1. Listen to the passage carefully.
2. Find the first chord that seems to be functioning more naturally in the second key than in the first one. (This step is often open to differing interpretations.)
3. Back up one chord. If there is a diatonic common chord, it should be in this position.

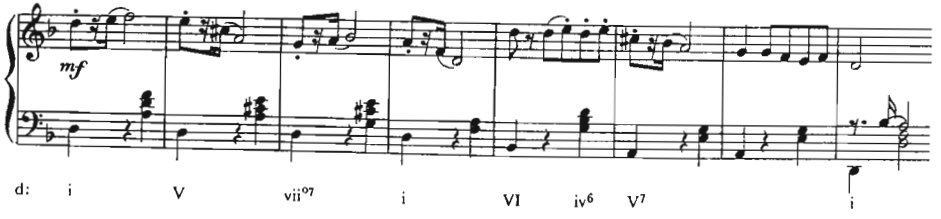
In Example 18-4 the C7 chord at the end of m. 13 functions as $V_2^4$ in F, but only as a secondary dominant in d. This is the chord that signals the modulation. Backing up one chord to the beginning of the measure brings us to the common chord, B♭ (VI = IV).

**Example 18-4.** Tchaikovsky, Mazurka Op. 39, No. 10



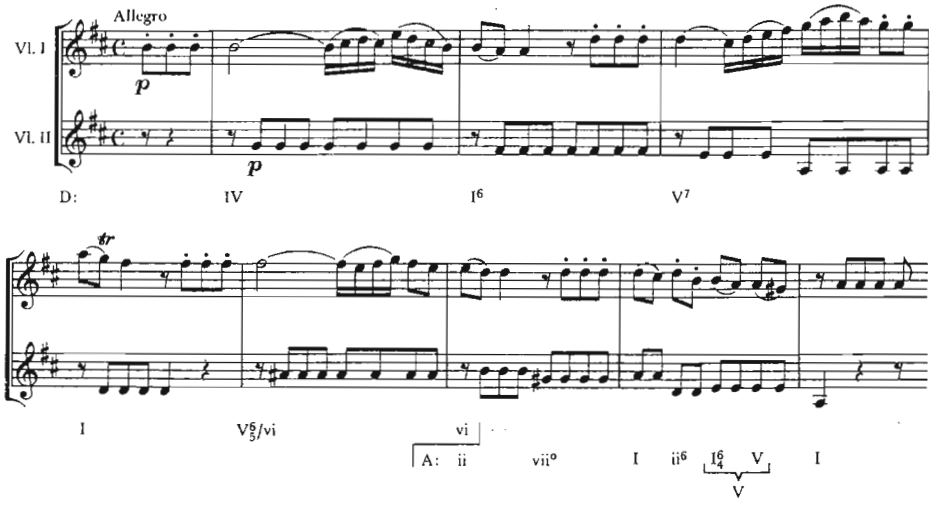

Example 18-4 is "recomposed" in Example 18-5 to illustrate the fact that the common chord itself does not signal the modulation but just smooths it out. In Example 18-5 the B♭ chord is followed not by a modulation to F but by a cadence in d.

**Example 18-5.**



The i-III modulation (as in Ex. 18-4) is a very common one. It can be found in most pieces in minor. In major keys the most common modulation is I-V. Example 18-6 illustrates a I-V modulation in a two-part texture. The g♯ diminished triad (or incomplete $E^7$) functions more naturally in A than in D and is preceded by the common chord.

**Example 18-6.** Haydn, Symphony No. 73, I

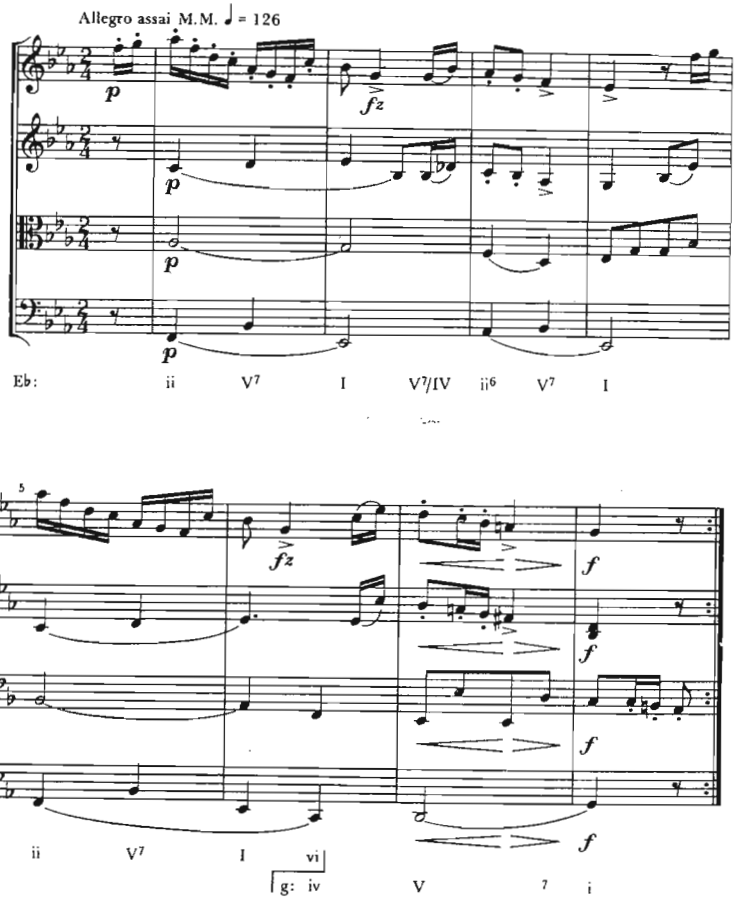



Incidentally, you may hear some of the examples and exercises in this chapter as tonicizations instead of true modulations. Analyze them as modulations anyway for practice in locating common chords.

While I-V and i-III are the most frequently encountered modulations, all other closely related modulations do occur. In Example 18-7, the tonality moves briefly from I to iii. Notice that there is no change of key signature here. Indeed, the key signature of the main tonality is usually maintained throughout the work, no matter how many modulations occur.



**Example. 18-7.** Dvořák, Quartet Op. 51, IV



## SUMMARY

A modulation is a shift of tonal center that takes place within an individual movement. A tonicization is like a short modulation, and listeners frequently will disagree as to whether or not a particular passage really modulates.

*Enharmonically equivalent keys* sound the same but are spelled differently. If major and minor keys have the same tonic note, they are called *parallel keys*. A *change of mode* (or mutation), but not a modulation, occurs when music moves between two parallel keys. If two major and minor keys share the same key signature, they are called *relative keys*. Two keys are said to be *closely related* if their key signatures differ by no more than one accidental. All key relationships that are not enharmonic, parallel, relative, or closely related, are called *foreign relationships*, and such pairs of keys are said to be *distantly related*.

*Common-chord modulations* use one or more chords that are diatonic to both keys as a kind of hinge or pivot linking the two tonalities. While any two closely related keys will have at least one diatonic triad in common (and therefore available as a common chord), this will not necessarily be true of two distantly related keys.

To discover the potential common chords between two keys, list the diatonic triads found in the first key to see if they also occur in the second key. To analyze a common-chord modulation, find the first chord that functions more convincingly in the second key than in the first, then back up one chord. If there is a diatonic common chord between the two keys, this should be where it is found.



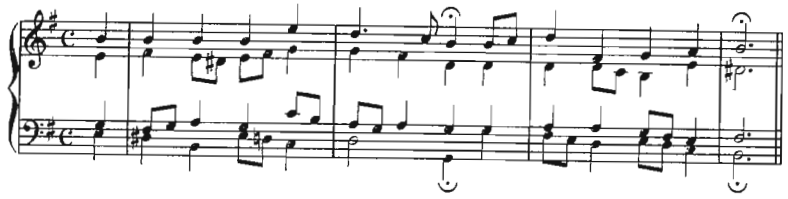
## SELF-TEST 18-2

(Answers begin on page 622.)

A. Analysis.

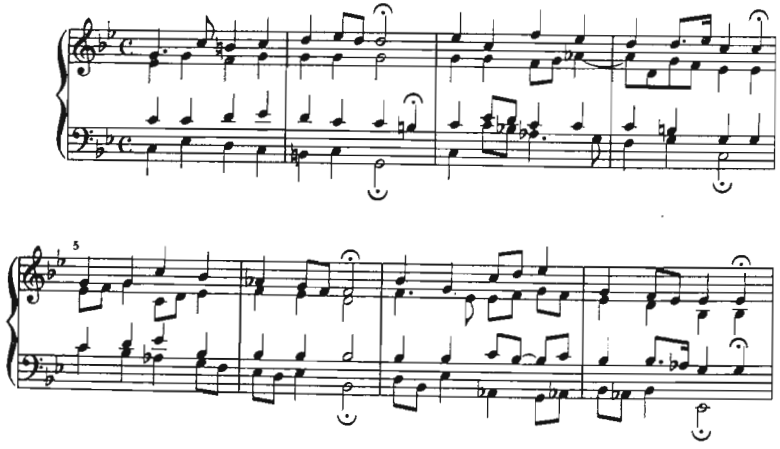
**1.** This excerpt begins and ends in e, with a modulation to the relative major in between. Label chords and NCTs, showing the common chords as demonstrated in this chapter.

Bach, "Keinen hat Gott verlassen"



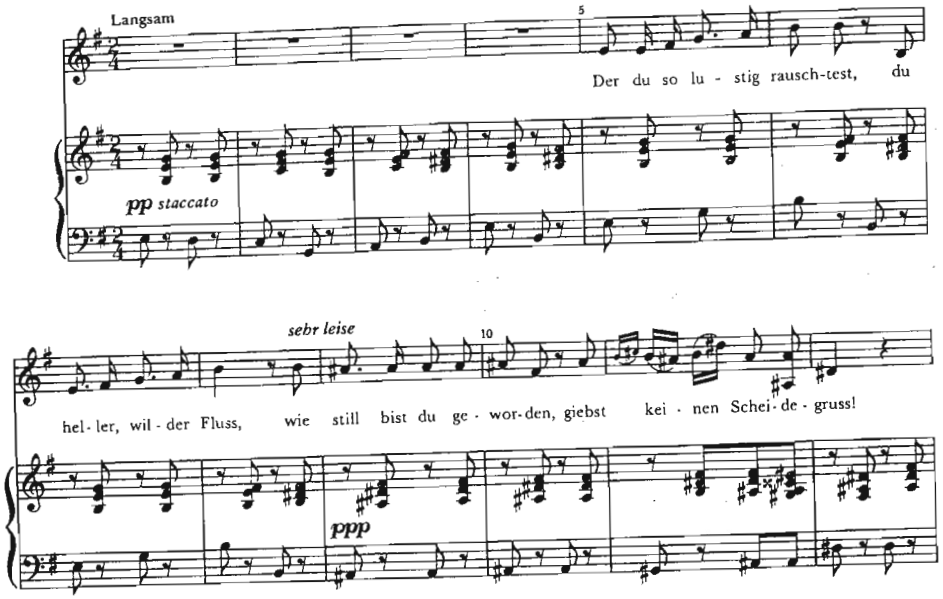
**2.** Label chords and NCTs. Why is it unlikely that Bach was thinking of the sonority on the last eighth of m. 7 as a seventh chord?

Bach, "Jesu, Jesu, du bist mein"



**3.** This song firmly establishes e minor at the beginning and then briefly modulates to a foreign key. Label chords and NCTs. (You will probably not be able to analyze this modulation if you do not play it slowly on the piano.)

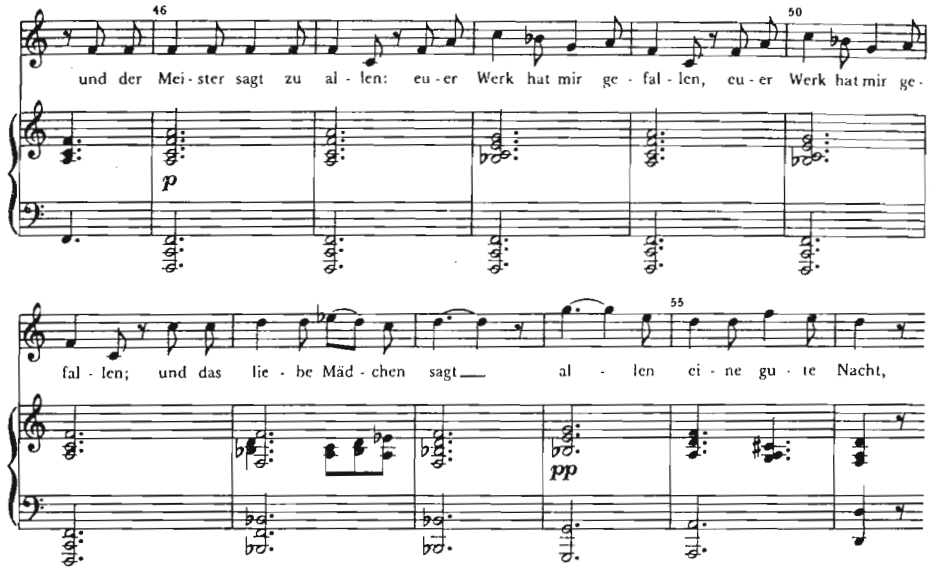
Schubert, "Auf dem Flusse," Op. 89, No. 7





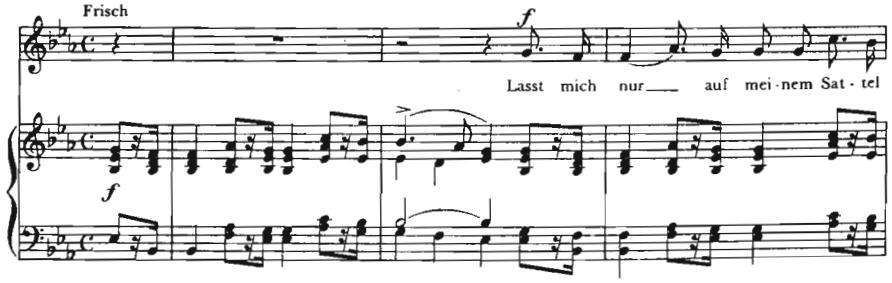

**4.** Label chords and NCTs. Remember this is an excerpt; don't be fooled by the key signature.

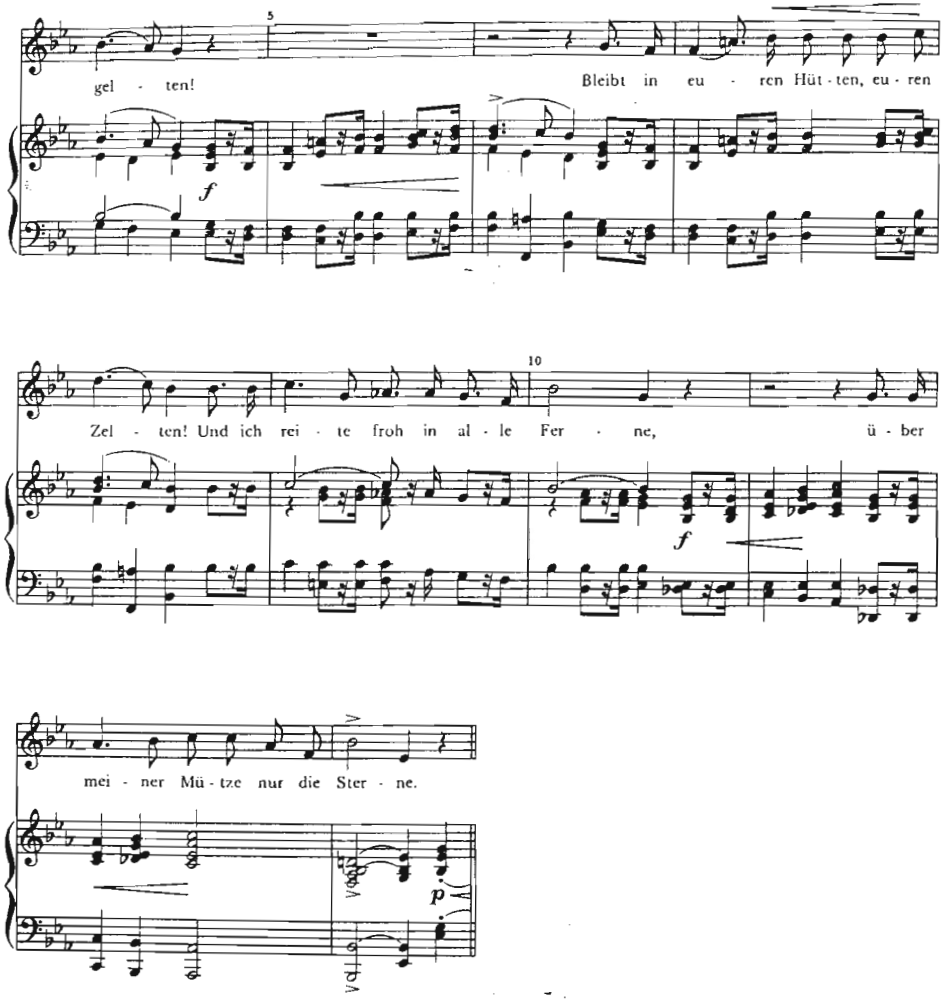
Schubert, "Am Feierabend," Op. 25, No. 5




**5.** Label chords and NCTs. Find the longest circle-of-fifths harmonic progression in the excerpt. To what extent does that progression generate a sequence in the melody and bass lines?

Schumann, "Freisinn," Op. 25, No. 2








B. Fill in the name of the new key on the second line of each exercise.

**1.** B♭: I V I ii$^6$ V vi
____ : ii V$^4_3$ I V$^7$ I

**2.** f♯: i V VI iv$^6$
____ : ii$^6$ V vi IV V I

**3.** d: i V$^6_5$/iv iv V$^4_2$ i$^6$
____ : iv$^6$ (i$^6_4$) ii$^{o6}_5$ V$^4_2$ i$^6$ vii$^{o6}$ i

**4.** A: I V vi ii$^6$ vii$^{o6}$
____ :ii$^{o6}$ i$^6_4$ V i
V

**5.** E♭ I V$^4_3$ I$^6$ IV
____ : I vii$^{o6}$ I$^6$ V$^4_2$ I$^6$ ii$^6$ V I

C. List the diatonic triads that could serve as common chords between each pair of keys. In minor keys, assume the usual chord qualities: i, ii°, III, iv, V, VI, vii°.

| | | | | | | |
|---|---|---|---|---|---|---|
| Example: | First key: | C: | I | iii | V | vi |
| | Triads: | | C | e | G | a |
| | Second key: | G: | IV | vi | I | ii |

**1.** First key, A♭:

Triads:

Second key, D♭:

**2.** First key, c:

Triads:

Second key, f:

**3.** First key, a:

Triads:

Second key, F:

**4.** First key, G:

Triads:

Second key, D:

**5.** First key, c♯:

Triads:

Second key, E:

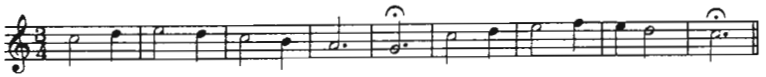
**6.** First key, D:

Triads:

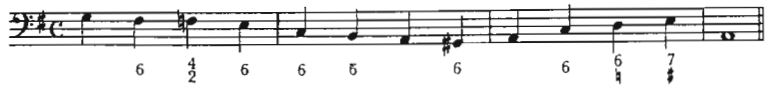
Second key, f♯:

D. Make choral settings of Part B progressions 1 (SATB) and 2 (SAB). Activate the texture with NCTs and/or arpeggiations. Arrange the metric structure so that the last chord comes on a strong beat.

E. Harmonize the following chorale tune for SATB chorus. The first phrase should modulate to V; the second should return to I.



F. Analyze the chords specified by this figured bass, then make an arrangement for SATB chorus.




*EXERCISE 18-2. See Workbook.*

# CHAPTER 19 *Some Other Modulatory Techniques*

## ALTERED CHORDS AS COMMON CHORDS

In Chapter 18 we discussed modulations using chords that are diatonic in both keys as common chords. While diatonic common-chord modulation is probably the most frequently used modulatory technique, there are many others. This chapter will present a few of them.

In Chapter 18 we listed a three-step procedure for the analysis of modulations. These steps bear repeating here.

1. Listen to the passage carefully.
2. Find the first chord that seems to be more directly related to the second key than to the first one.
3. Back up one chord. If there is a diatonic common chord, it should be in this position.

The phrase "if there is a diatonic common chord" may have suggested to you that altered chords may sometimes be used as common chords. For example, consider the modulation represented below:

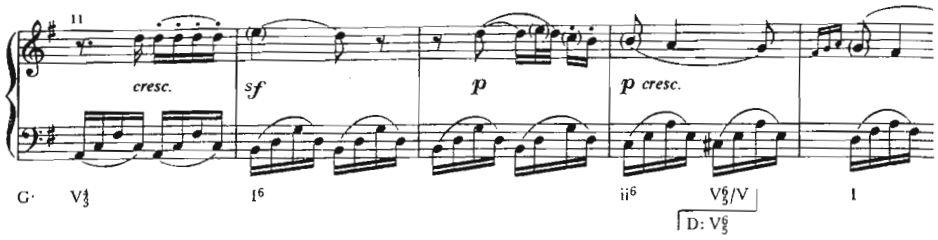
Key of G: ——→

. . . $D^7$ G a $A^7$ D . . .

Key of D: ——→

Here the first chord that is more directly related to D than to G is the $A^7$ ($V^7$ in D). But the a minor triad that precedes it cannot serve as a common chord, since it makes no sense in the context of D major. Instead, the $A^7$ is itself the common chord, functioning as $V^7/V$ in G. This modulation is illustrated in Example 19-1.

**Example 19-1.** Beethoven, Sonata Op. 14, No. 2, I




Secondary V(7) and vii°(7) chords can be used as common chords. The chord might be a secondary function in the first key, in the second key, or in both keys. Sometimes the secondary function coincides with the *point of modulation* (the first chord in the new key), as in Example 19-1, while at other times the secondary function precedes it.

A number of other altered chords, to be discussed in Chapters 21 and 22, frequently serve as the common chord in a modulation, as examples in those chapters will illustrate. An additional common-chord technique involving enharmonic reinterpretation of the common chord is the principal topic of Chapter 25.

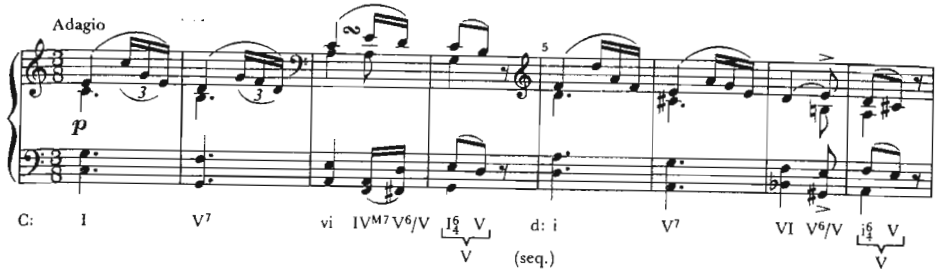
## SEQUENTIAL MODULATION

It is not uncommon for a modulation to come about through the use of a sequence. This is a simple device: the composer merely states something at one pitch level and then states it again immediately at another pitch level. But the modulating sequence, instead of being diatonic, tonicizes a different pitch. Often a common chord could be analyzed in such a modulation, but the sequence is equally important in establishing the new tonal center.

Example 19-2 is a clear instance of a sequential modulation. The first phrase, in C major, is transposed with little change up to d minor to create the second phrase. Sequences up by step are very frequently encountered.

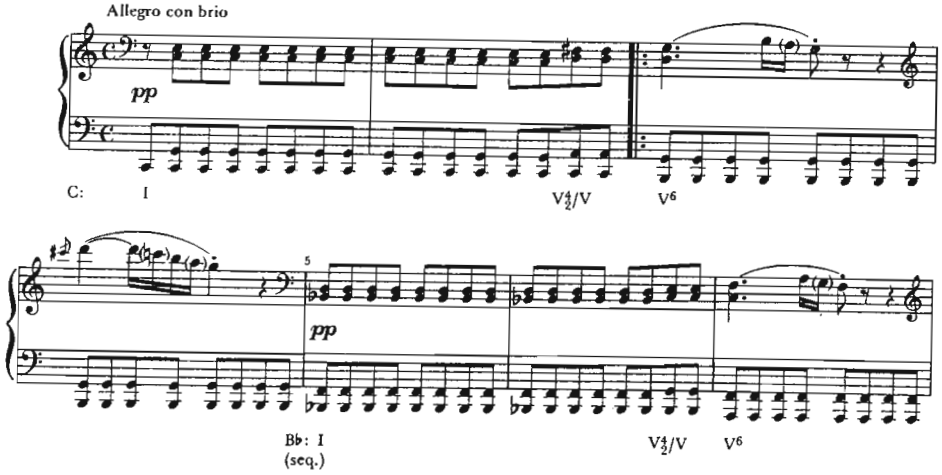


**Example 19-2.** Schubert, Sonata in E Major, III




While the sequential motion in Example 19-2 is up by step, that in Example 19-3 is down by step, from C major to B♭ major.

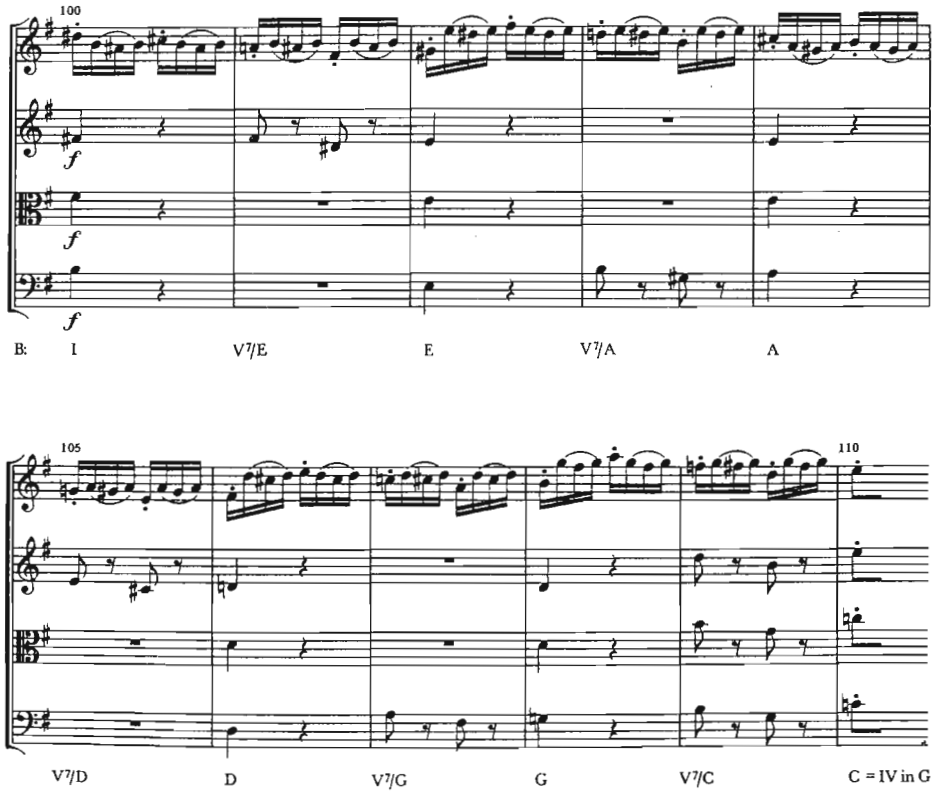
**Example 19-3.** Beethoven, Sonata Op. 53, I




Keep in mind that many modulations are of short duration and might more properly be called tonicizations. Both Example 19-2 and 19-3 return to the first key immediately after the sequence.

Another common pattern for sequential modulation is the circle of fifths. The circle-of-fifths sequences we have studied so far have been diatonic (such as vi-ii-V-I), with occasional secondary functions thrown in. But the circle of fifths can be used to get from one key to another. In Example 19-4 Haydn moves from B major to the IV of G major through the progression B-E-A-D-G-C, each chord except the last becoming a $V^7$ of the chord that follows. The sequence could have been stopped earlier, or it could have been carried past C to F, B♭, and so on, options that are basically open in any sequential modulation.

**Example 19-4.** Haydn, Quartet Op. 3, No. 3, IV

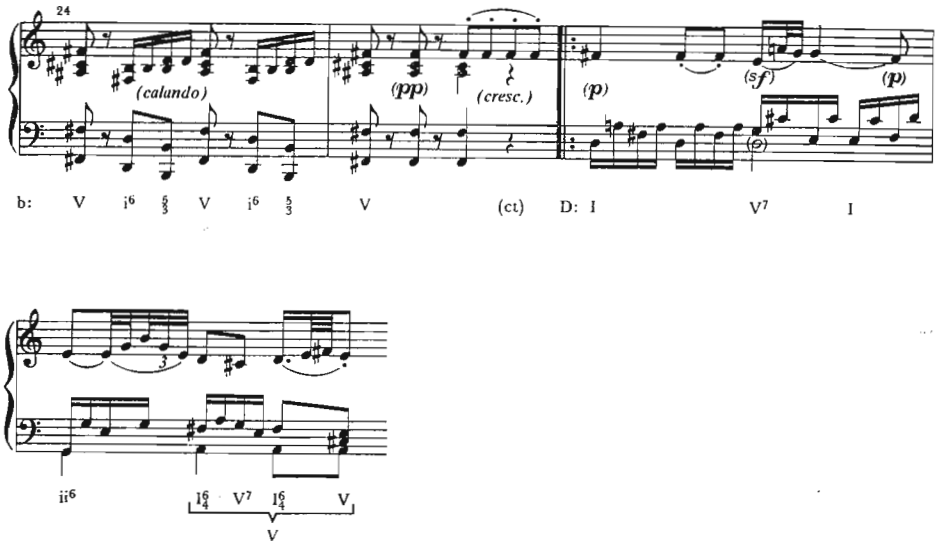





## MODULATION BY COMMON TONE

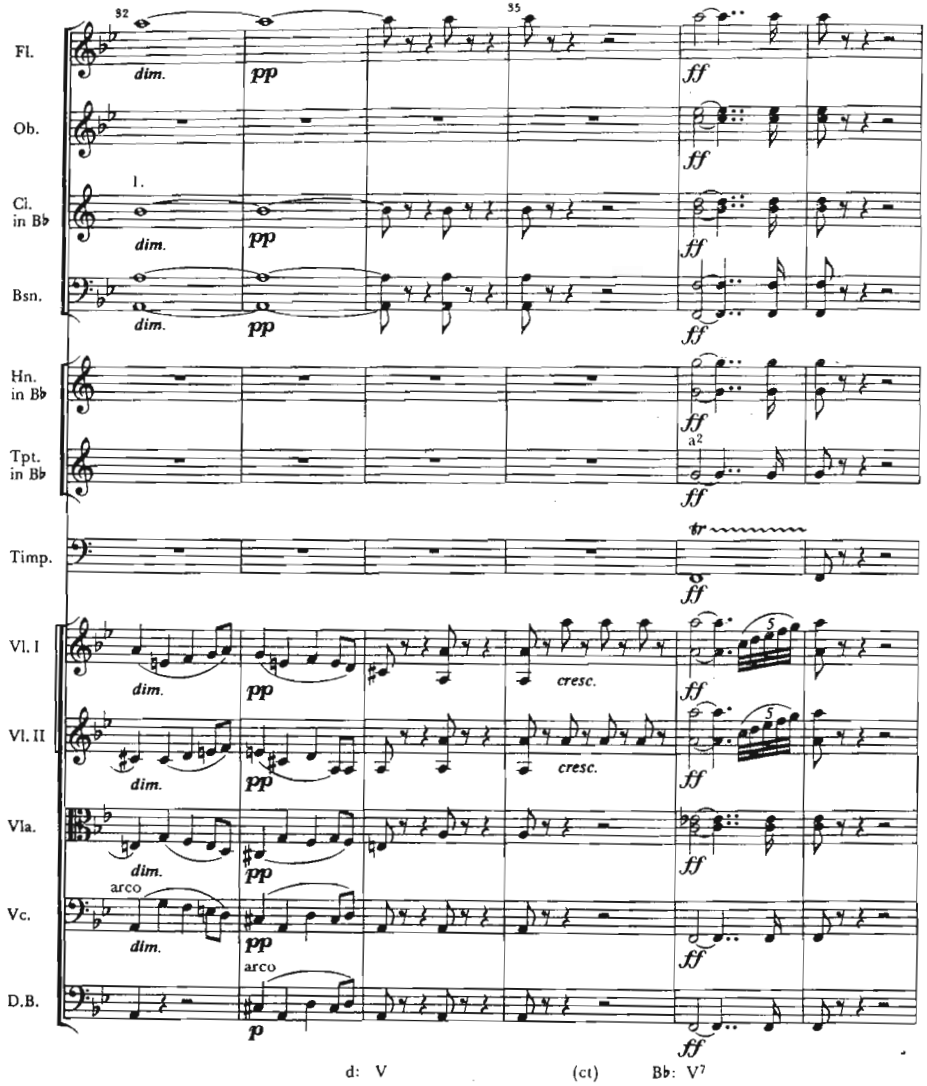
In some modulations the hinge between the two keys is not a common chord but a common tone. Unlike the common-chord modulation, where the progression usually makes the modulation smooth and undramatic, common-tone modulations often announce themselves clearly to the listener by isolating the common tone. This is the case in Example 19-5, where the note F♯ joins the keys of b minor and D major.

**Example 19-5.** Mozart, Fantasia K. 475

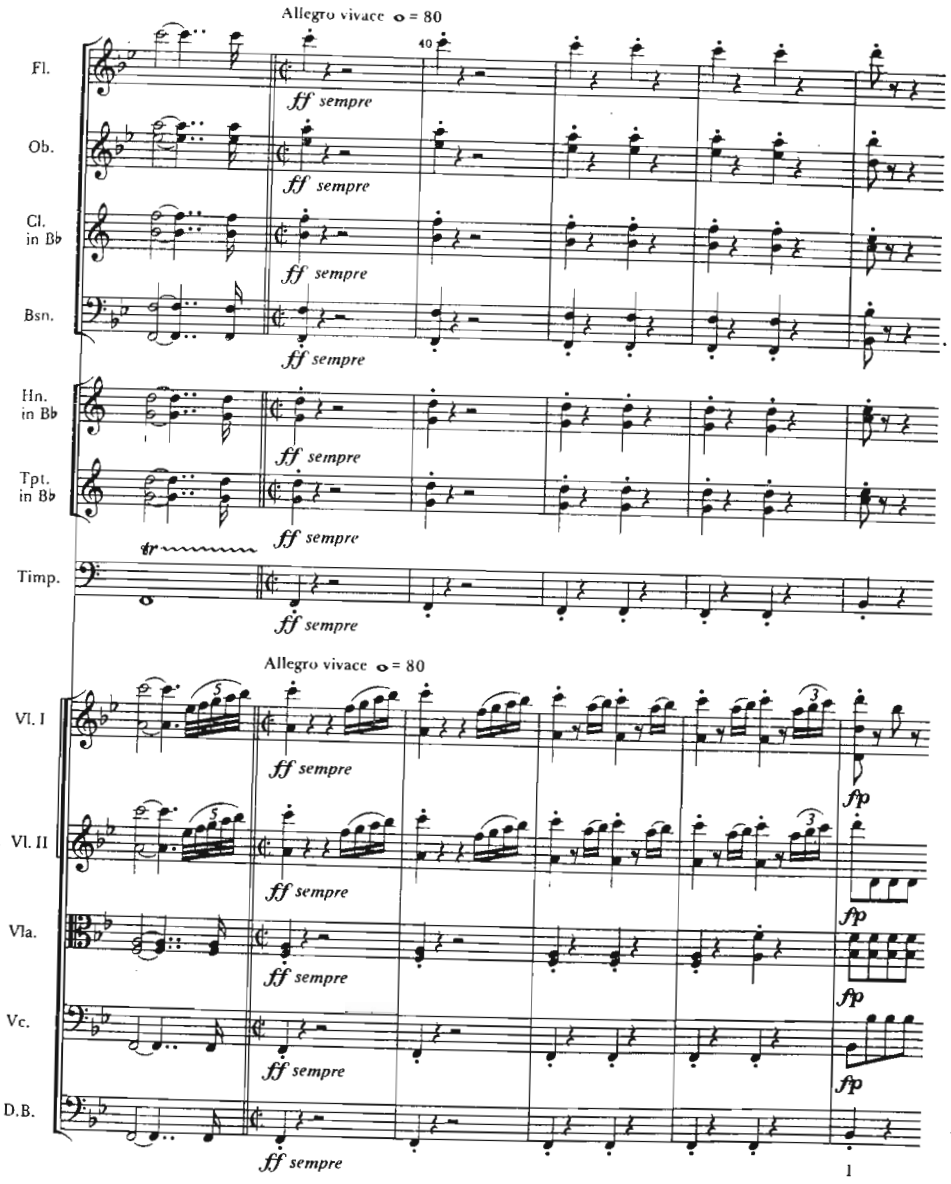



Even more dramatic is Example 19-6, which occurs at the end of the slow introduction to Beethoven's Symphony No. 4. Here an A links a pianissimo V in d minor with a fortissimo $V^7$ in B♭ major.

**Example 19-6.** Beethoven, Symphony No. 4, Op. 60.1





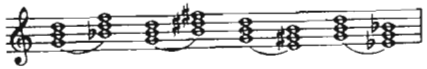



The two chords linked by the common tone in a common-tone modulation usually exhibit a *chromatic mediant relationship*, which has the following characteristics.

1. The roots of the chords are a m3 or M3 apart. Sometimes the m3 or M3 is spelled enharmonically.
2. They are either both major triads or both minor triads (or, in the case of seventh chords, the triad portions of the chords are both major or both minor).

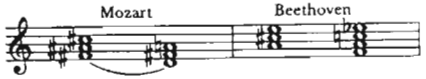
Some examples of chromatic mediant relationships are illustrated in Example 19-7.

**Example 19-7.**



The chromatic mediant relationships that were used by Mozart and Beethoven in Examples 19-5 and 19-6 are shown in Example 19-8.

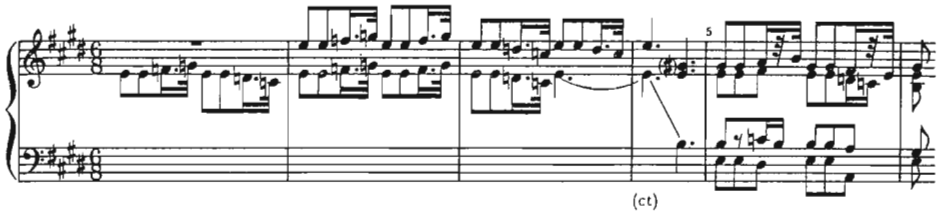
**Example 19-8.**






In both the Mozart and the Beethoven examples the two keys involved were closely related. But the chromatic mediant relationship used in common-tone modulations makes it easy to modulate to foreign keys as well. In Example 19-9 Brahms begins a movement from a symphony with a melody that emphasizes E, C, and G—the notes of a C major triad. The listener may expect the music to continue in C major, but in the fourth measure the note E is isolated, after which it becomes the tonic of E major. C major and E major are in a chromatic mediant relationship to each other.

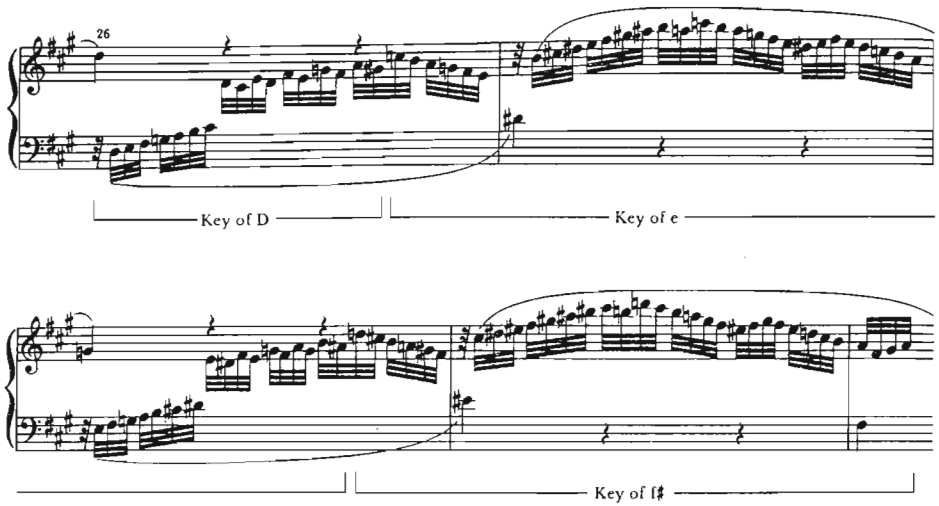
**Example 19-9.** Brahms, Symphony No. 4, Op. 98, II (piano arrangement)




## MONOPHONIC MODULATION

Sometimes a modulation is carried out by a single vocal or instrumental line. This is done by introducing and emphasizing the tones that are found in the second key but not in the first. While harmonies are more or less clearly implied in a monophonic modulation, it is often best just to label the keys, as we have done in Example 19-10.

**Example 19-10.** Mozart, Sonata K. 576, II



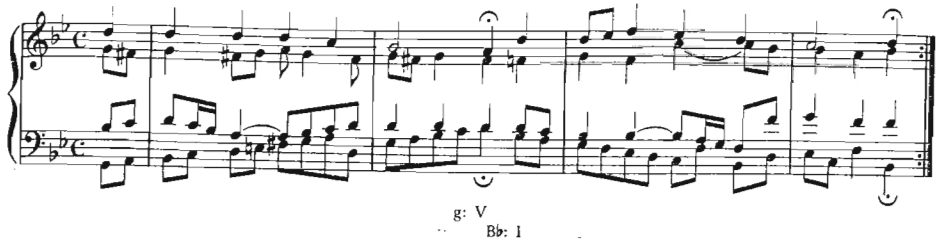

This passage is also sequential, but it is not an example of a sequential modulation. The pattern in mm. 26-27 (D to e) is moved up a step (e to f♯), but the modulation is not caused by the sequence itself.

## DIRECT MODULATION

Sometimes modulations occur without any attempt to smooth them over through the use of common chords or common tones. Such modulations most frequently occur between phrases, so this kind of direct modulation is often called a *phrase modulation*. A typical example from a chorale appears in Example 19-11.



**Example 19-11.** Bach, "Für Freuden, lasst uns springen"

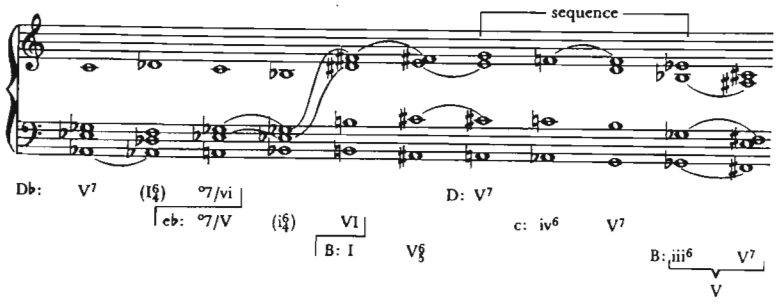



Most phrase modulations could also be analyzed as common-chord or common-tone modulations, or both, as is the case here: the I in B♭ could be analyzed as a III in g minor, while the D4 in the tenor provides a common tone between the V in g minor and the I in B♭ major. Such analyses are not incorrect, but we prefer the term "phrase modulation" because it more accurately reflects the way we hear this excerpt—as one phrase ending in g minor and another beginning in B♭ major, with little effort being made to bridge the gap.

Some direct modulations occur *within* the phrase. However, this kind of modulation is not frequently encountered, and you should try to eliminate all of the other possibilities for explaining the modulation before labeling it as a direct modulation.

Example 19-12 shows a textural reduction of the kind of difficult modulatory passage that you may occasionally encounter. Play through the example slowly (you will definitely need to hear the example), observing the analysis below.

**Example 19-12.** Mozart, Fantasia K. 475, mm. 6-16 (simplified)



The first two tonicizations (these are too short to be called modulations), D♭→e♭ and e♭ →B, are achieved by common chords. Next a short sequence hints at D major (or minor) and c minor. The key of B then emerges as the goal of the passage. In a larger sense, the sequence connects the $V_5^6$ in B to the root position $V^7$ in B, which makes the sequence somewhat less important harmonically than the rest of the passage. The fleeting tonicizations of D and c would be considered direct, since no other reasonable explanation is available.

## SUMMARY

While diatonic common-chord modulations are the type most frequently encountered, other kinds of modulation do exist. For example, a chord that is an *altered chord* in one or both keys may serve as the common chord. The only altered chords we have studied so far are secondary functions, but we will study others in later chapters. Another possibility is the *sequential modulation*, in which the transposition of a pattern causes the change of tonal center. In a *modulation by common tone*, a single tone serves as the common element between the two keys. The chords joined by the common tone usually exhibit a *chromatic mediant* relationship. A single unharmonized line establishes the new tonal center in a *monophonic modulation*. A modulation that uses no common chords or common tones is a *direct modulation*. Since most direct modulations occur between phrases, this kind of modulation is often called a *phrase modulation*.



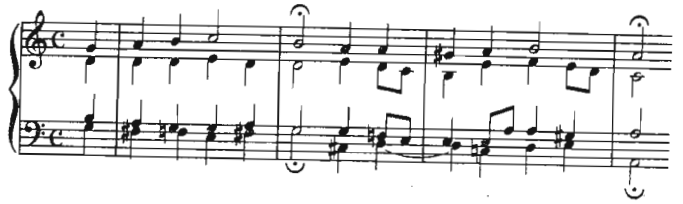
## SELF-TEST 19-1

(Answers begin on page 629.)

A. Analysis.

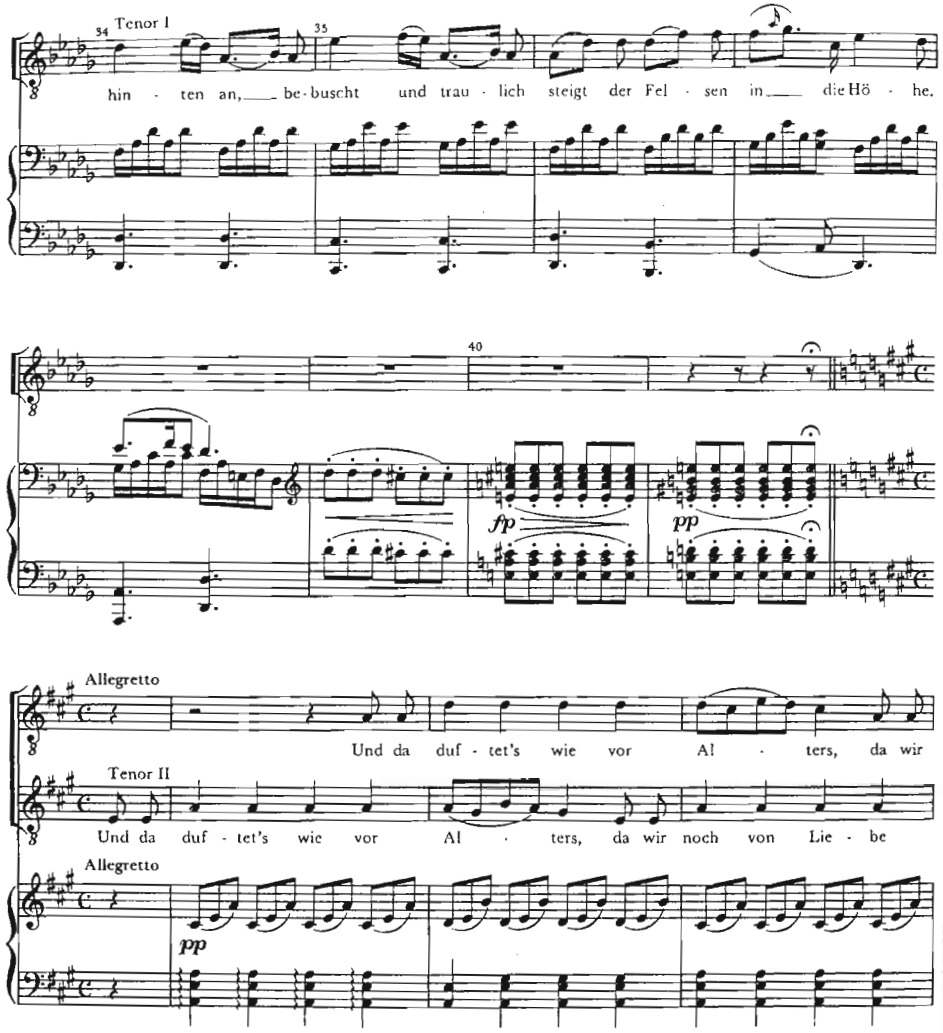
**1.** Analyze chords and NCTs. In addition, label the approach to the 7th of each seventh chord (review p. 220).

Bach, "Die Nacht ist kommen"



**2.** This excerpt begins in D♭ major and ends in A major. Are these two keys in a chromatic mediant relationship? Listen to the excerpt carefully to determine the modulatory technique employed. Label all chords and NCTS.

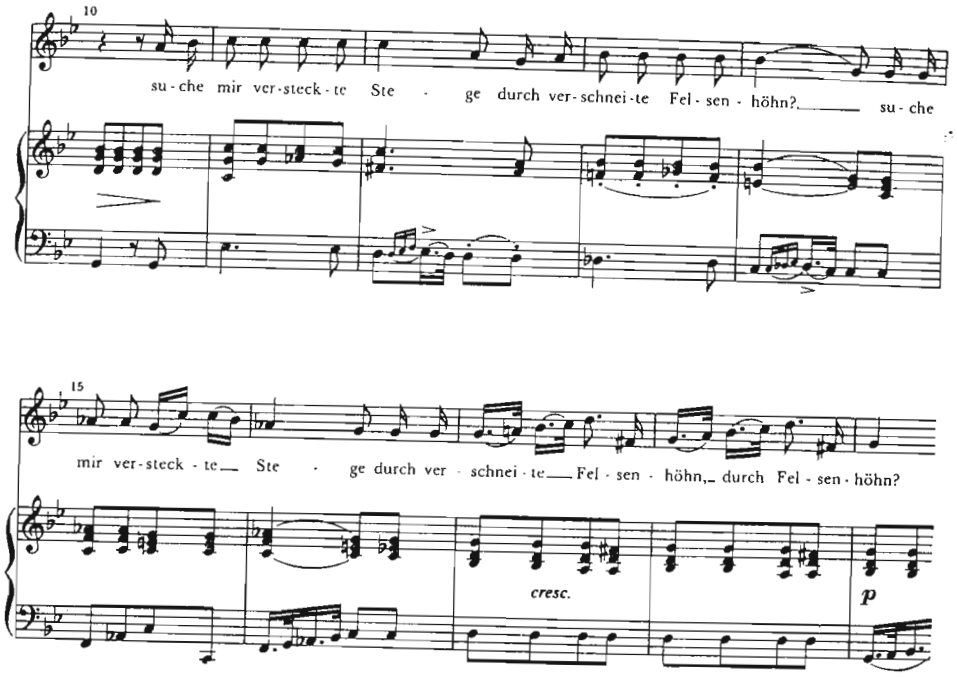
Schubert, "Im Gegenwartigen Vergangenes," D. 710





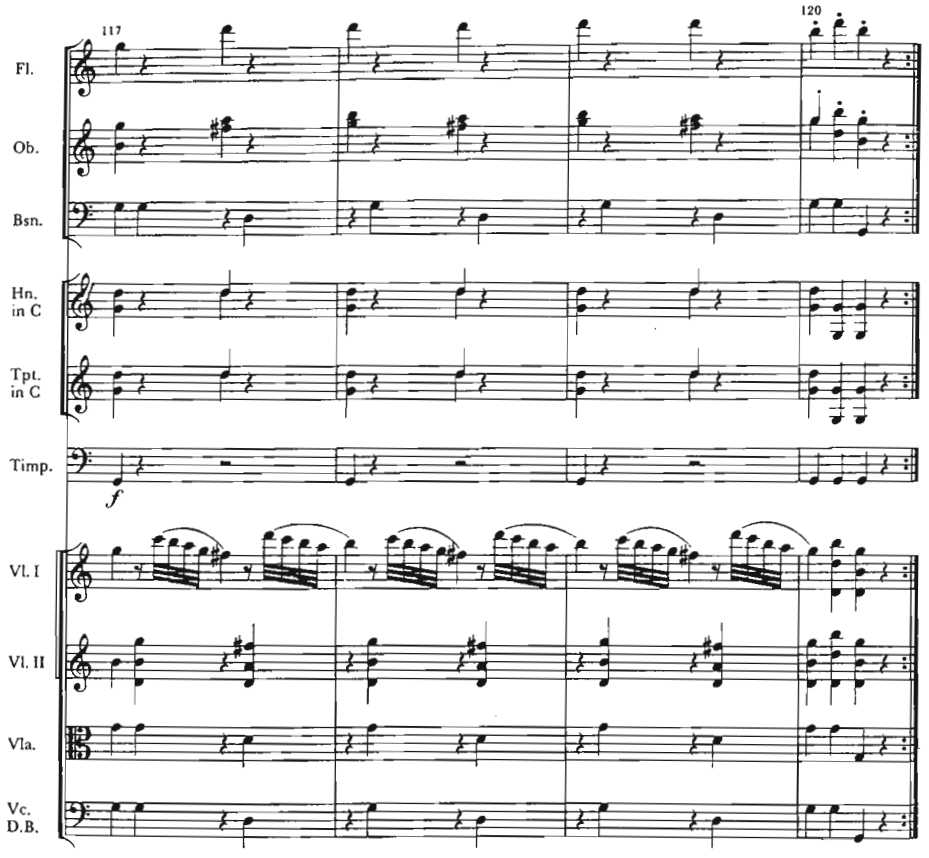

**3.** In this excerpt mm. 10-12 and 17-19 are all in the same key. Label the chords in those measures with roman numerals. Label the chords in mm. 13-16 with roman numerals in another key. Listen to mm. 11-14. How is the second key achieved? The return to the first key comes with the last chord in m. 16. What would be the best way to describe this kind of modulation?

Schubert, "Der Wegweiser," Op. 89, No. 20

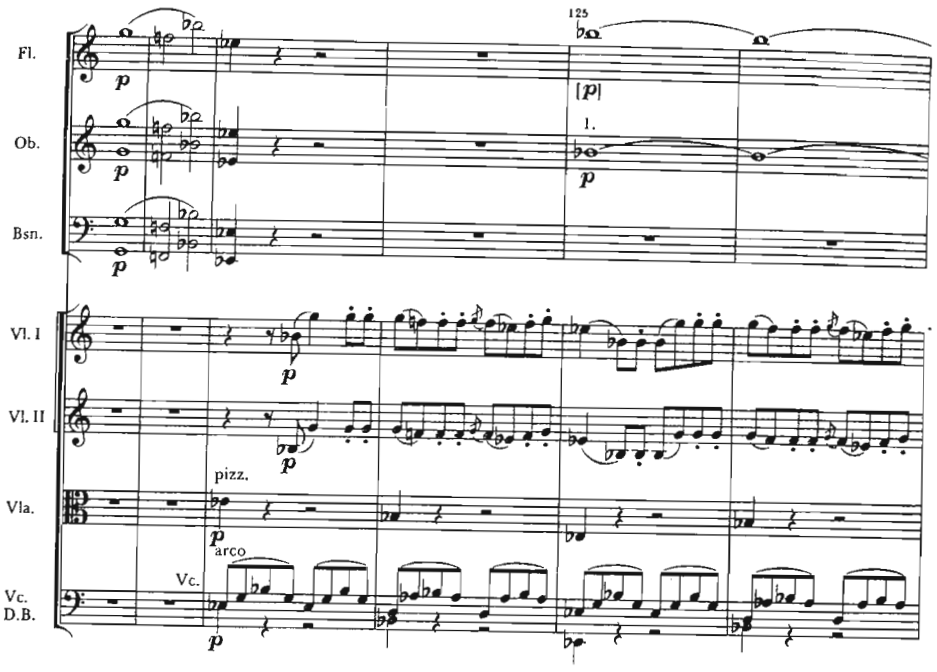


**4.** Name the two keys established in this excerpt. How is the modulation accomplished? What is the relationship between the two keys?

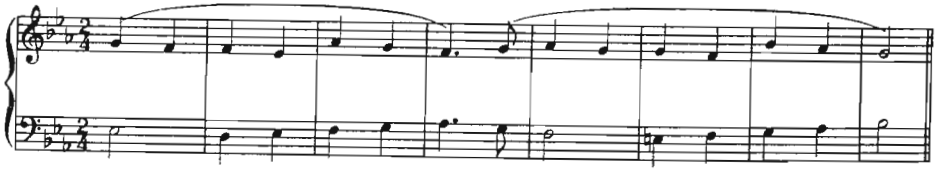
Mozart, Symphony No. 41, K. 551, I



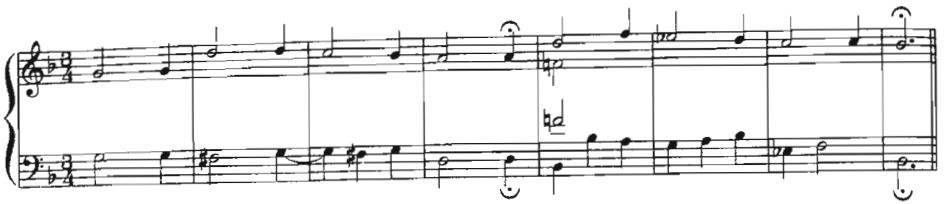



B. Analyze the harmonies implied by the soprano-bass framework below. Then add alto and tenor parts. Identify the modulatory technique used.



C. Follow the same instructions as for part B, but enliven the texture with NCTs and arpeggiations.



g:

*EXERCISE 19-1. See Workbook.*

CHAPTER 20

# *Binary and Ternary Forms*

## FORMAL TERMINOLOGY

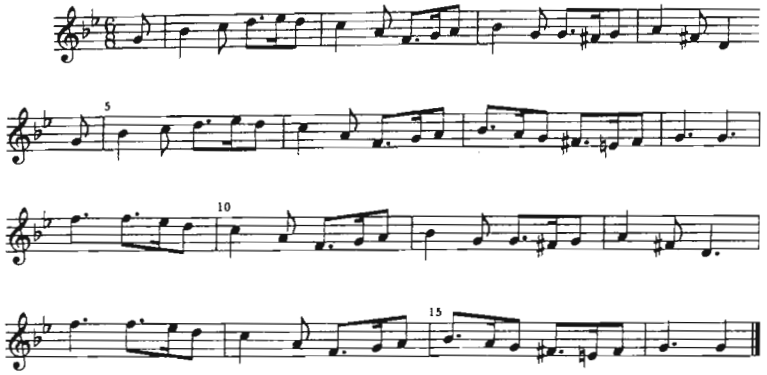
In Chapter 10 you learned the terminology of period forms—such terms as *phrase, contrasting period,* and *parallel double period.* These terms are widely used and have generally accepted meanings. The terms we introduce in this chapter are also widely used, but writers on musical form disagree on some important aspects of their meanings. In addition, some writers recognize and name subcategories and modifications of the formal types discussed in this chapter. While our approach attempts to find a common ground among the various systems, you should be aware that any book on musical form that you might read will disagree with our definitions to some extent.

## BINARY FORMS

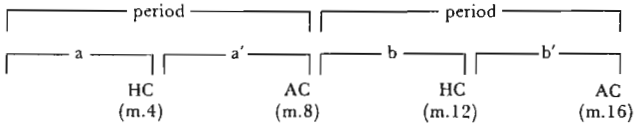
The word *binary* has to do with the concept of twoness. You are probably familiar with binary arithmetic, in which only two digits are used. In music a *binary form* is one that consists of two approximately equivalent sections. "Approximately equivalent" means that we would not use the term binary for a piece just because it has an introduction; the introduction is obviously not equivalent to the main body of the work.

Periods and double periods are binary forms, but we do not usually use the term binary for them, either, because a term like parallel period is more informative. But in Example 20-1 we see a familiar tune whose four phrases do not add up to a double period.

**Example 20-1.** "Greensleeves"



A diagram of the phrase structure reveals two parallel periods.

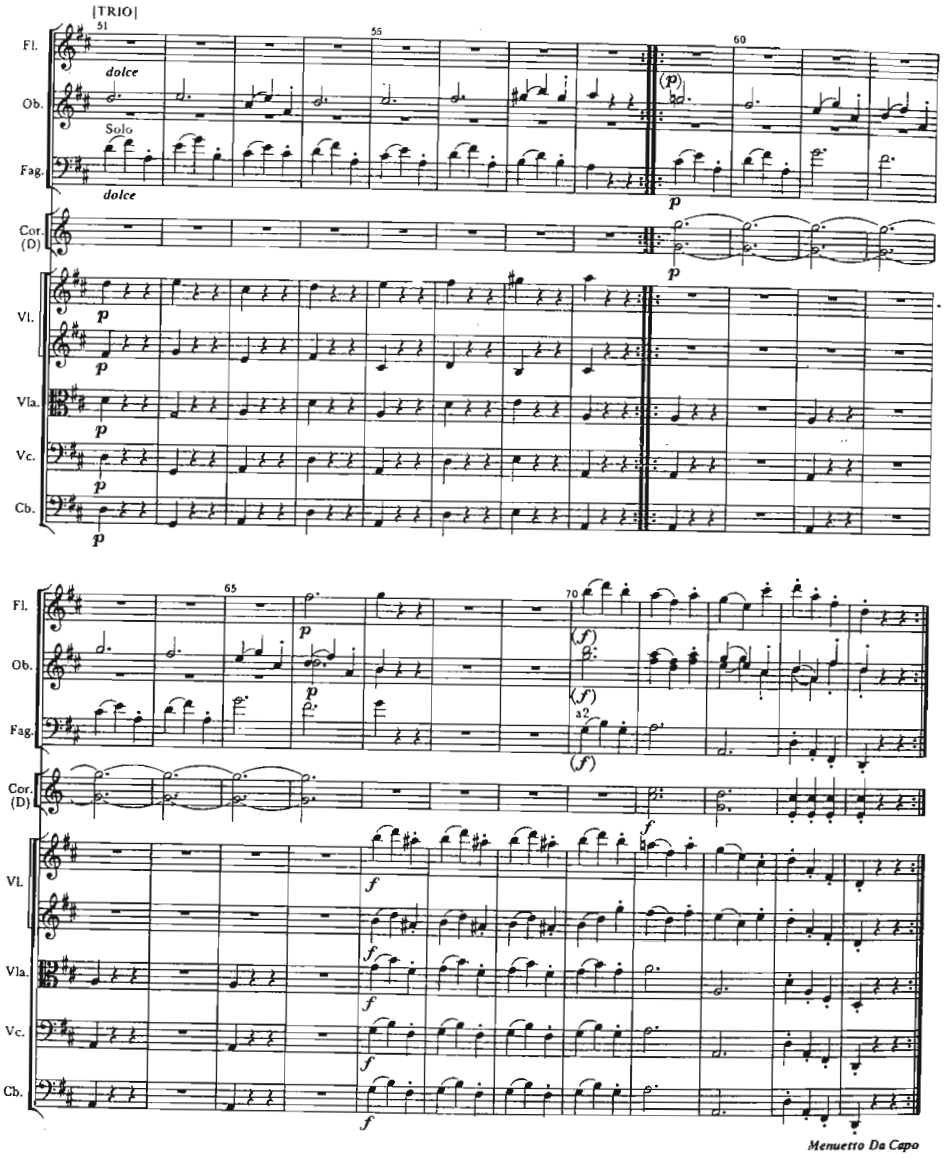



While the structure is not a double period (because of the two authentic cadences), it is a binary form. Furthermore, "Greensleeves" is in *sectional* binary form, because the first part ends with tonic harmony. If the first part of a binary form ends with something other than a tonic triad in the *main key* of the form, it is called a *continuous* binary form. The distinction between sectional and continuous forms is an important one, involving tonal independence in the first case and large-scale tonal drive in the second.

Example 20-2 illustrates a continuous binary form, since the first section ends on the dominant.



**Example 20-2.** Haydn, Symphony No. 73, III



Notice in this example that the second section is largely constructed from the two main motives of the first section. But there is no area of contrast followed by a clearly stated return of the opening material, so the example is not in ABA form. Instead, like most binary examples, it lies somewhere between AA′ and AB, the second section containing elements both of contrast and continuation. This is also true of "Greensleeves" (Ex. 20-1), where the endings of phrases 3 and 4 were identical to the endings of phrases 1 and 2.

The Haydn example (Ex. 20-2) repeats each of the two sections exactly. Repetition does not usually change our formal analysis. The trio is a continuous binary form whether both, one, or no repeats are taken. However, movements or themes that consist of two repeated sections are so commonly encountered that a special term, *two-reprise*, is often used for them. To be thorough, then, we would say that Example 20-2 is a two-reprise continuous binary form. Incidentally, composers sometimes write out the repeats instead of using repeat signs, but we would still use the term two-reprise. Schumann and Chopin were especially fond of writing out repeats.

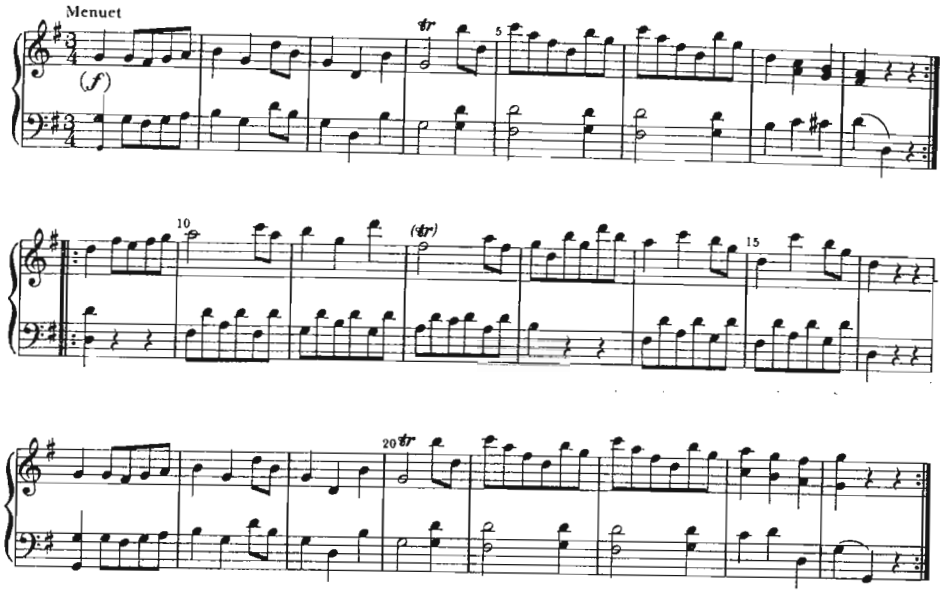
## TERNARY FORMS

The idea of statement-contrast-return, symbolized as ABA, is an important one in musical form. The ABA or *ternary form* is capable of providing the structure for anything from a short theme to a lengthy movement of a sonata or symphony. The B section of a ternary form can provide contrast with the A sections by using different melodic material, texture, tonality, or some combination of these.

The minuet from an early Haydn keyboard sonata is seen in Example 20-3. Notice that this example is a two-reprise structure, that part one ends on the dominant (m. 8), and that all of part one returns (mm. 17-24), with an adjustment of the cadence to allow an ending on the tonic triad. Therefore, this minuet is an example of two-reprise continuous ternary form.

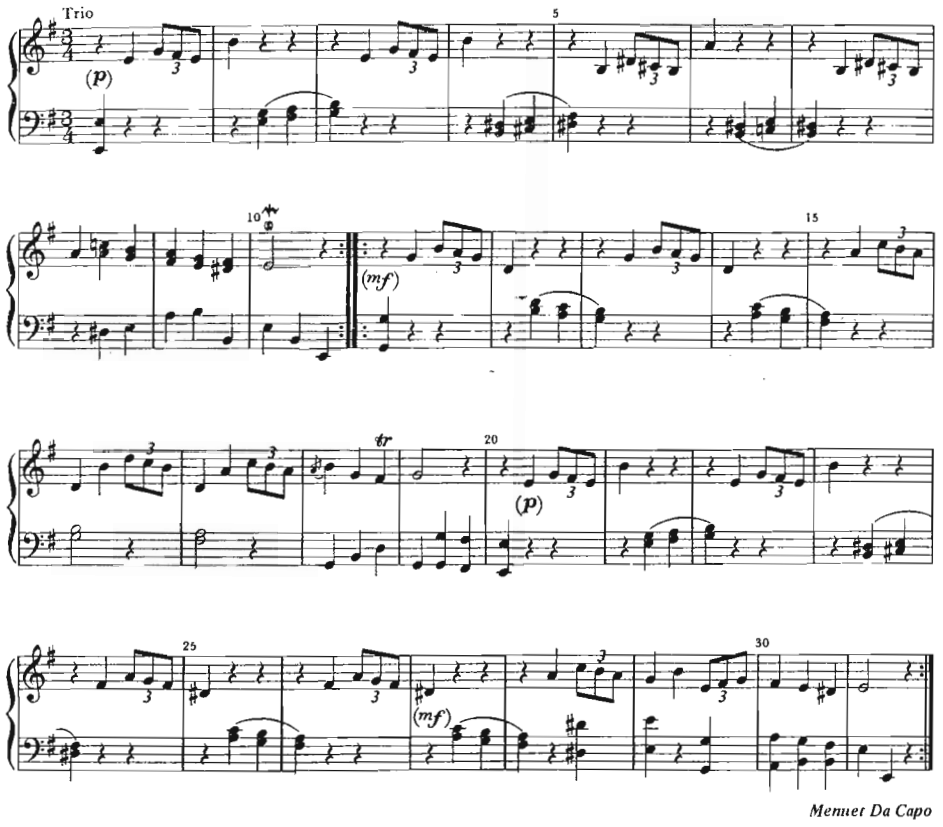


**Example 20-3.** Haydn, Sonata No. 11, III, Minuet




In short ternary forms the B section often is clearly based upon the A material. This was true of the Haydn minuet throughout the B part, but especially in the first few measures. The next example is the trio that completes the movement begun in Example 20-3. Again there is a two-reprise structure, but here the A section ends in tonic (m. 10). The B part (mm. 1-19) is based upon the A material, but some of the figures are inverted (compare mm. 1-2 with mm. 11-12), and it is in the key of the relative major. The return of A at m. 20 is quite obvious to the listener, although this A section is slightly longer than the original and considerably varied, and even includes some of the inverted figures from B. The form is two-reprise sectional ternary.

**Example 20-4.** Haydn, Sonata No. 11, III, Trio






As with most minuets and trios, Haydn's minuet (Ex. 20-3) is played both before and after the trio (Ex. 20-4), so that the entire movement is itself a sectional ternary form.

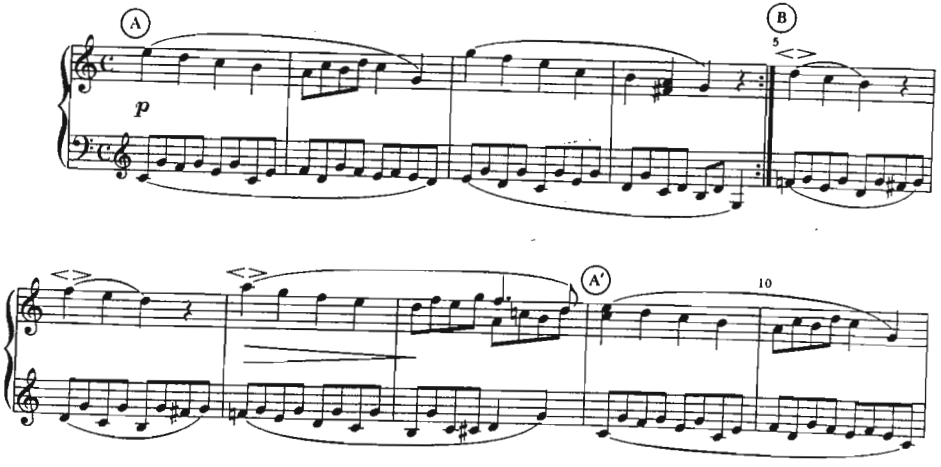
At first glance, Example 20-5 may appear to be a five-part form.

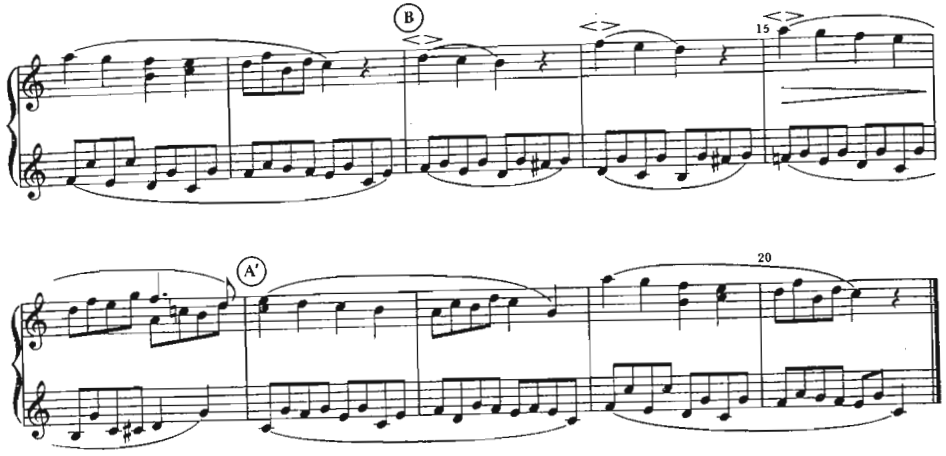
A B A′ B A′

But we see upon closer inspection that Schumann has only written out the second repeat of a two-reprise continuous ternary form.

A B A′
V

**Example 20-5.** Schumann, "Melody," Op. 68, No. 1





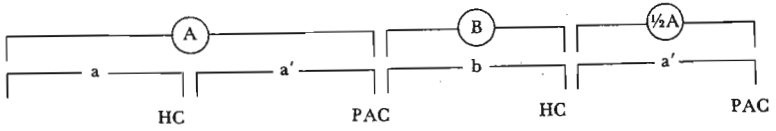

Many "standard" American popular songs are in sectional ternary form with the first A section repeated ("The Lady Is a Tramp," "Moonlight in Vermont," etc.).

## ROUNDED BINARY FORMS

Frequently the last part of what appears to be a ternary form returns only half of the first A section.

A B ½A

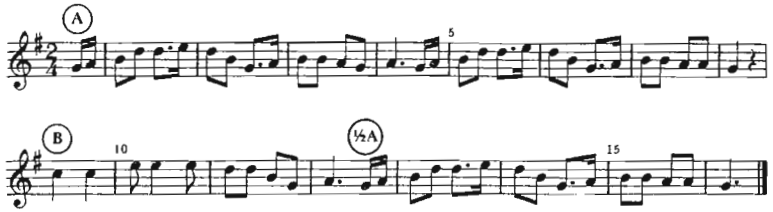
The term that some writers use for this form is *rounded binary*. Often the phrase structure of sectional rounded binary example will be:



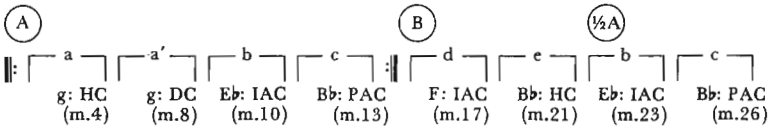



This is the form of many traditional tunes, such as "Oh, Susannah" (Ex. 20-6).

**Example 20-6.** "Oh, Susannah"

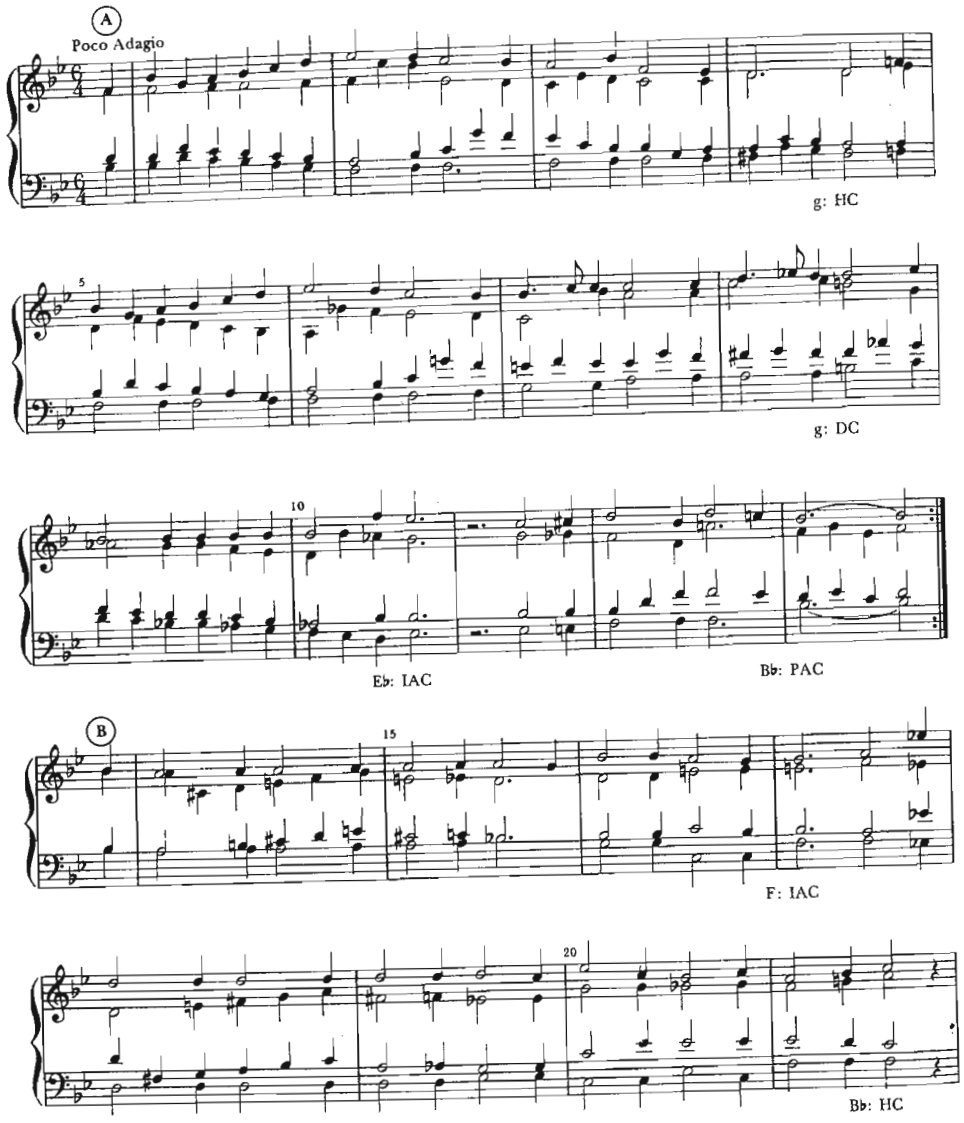



A more difficult example of rounded binary is seen in Example 20-7. The overall form is still AB½A, but the phrase structure involves several tonicizations.

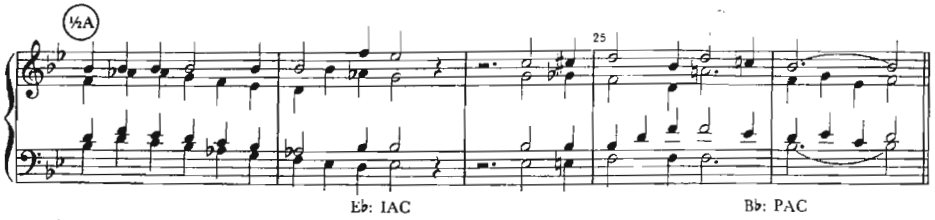



Since the A section ends with the tonic triad, this, like "Oh, Susannah," is a sectional rounded binary form.

**Example 20-7.** Brahms, "Ruf zur Maria," Op. 22, No. 5






Notice that "Ruf zur Maria" is not a two-reprise form, since only the first part is repeated. The form AAB, which this resembles, is a very old musical form called *bar form*. Perhaps AAB½A, as in "Ruf zur Maria," could be called a rounded bar form, but we will use sectional rounded binary instead.

## OTHER FORMAL DESIGNS

Binary and ternary forms, especially the latter, provide the structure for many pieces and movements from multimovement works. The typical minuet and trio, for example, is sectional ternary, because the minuet is played both before and after the trio.

| A | B | A |
|---|---|---|
| Minuet | Trio | Minuet |

The minuet itself is generally a two-reprise ternary or a two-reprise rounded binary, as is the trio.

Slow movements are also often in ternary form. For example, the second movement from Brahms's Symphony No. 1 is in ternary form. It makes use of *transitions*, which are passages that connect different themes or tonal centers, and a *coda*, which is a special concluding section.

| Section: | A | trans. | B | trans | A | Coda |
|---|---|---|---|---|---|---|
| Tonality: | E | mod. | c♯ | mod. | E | E |
| | (I) | | (vi) | | (I) | (I) |
| Measures: | 1-27 | 28-38 | 39-57 | 57-66 | 67-100 | 101-128 |

Many other musical forms are beyond the scope of this text, but two of the more important forms will be discussed briefly here.

*Sonata form* (or sonata-allegro form) is usually found as the first movement of a sonata, string quartet, symphony, or similar work, although other movements may also be in sonata form. Early examples of sonata form resemble two-reprise continuous ternary form.

| | Exposition | | | Development | Recapitulation | | |
|---|---|---|---|---|---|---|---|
| | ‖: A | trans. | B :‖ | Working out of old material. Introduction of new material. | A | trans. | B :‖ |
| Major key: | I | mod. | V | unstable | I | unstable | I |
| Minor key: | i | mod. | III | unstable | i | unstable | i |

The A and B in the diagram stand for themes or groups of themes that appear in different keys in the exposition but in tonic in the recapitulation. The repeats are seen less often in nineteenth-century music than in eighteenth-century music, while lengthy introductions and codas are more commonly found. The number of themes presented in the two key areas also tends to be larger in the later music.

*Rondo form* is found most frequently as the final movement of a sonata, string quartet, or symphony, although slow movements are also sometimes in rondo form. There are three common types.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Five-part rondo | A | B | A | C | A | | |
| | I | V | I | x | I | | |
| Five-part rondo (variant) | A | B | A | B | A | | |
| | I | V | I | ? | I | | |
| Seven-part rondo | A | B | A | C | A | B | A |
| | I | V | I | x | I | I | I |

The *x* in the diagrams above symbolizes some key other than I or V, while ? means that a number of common possibilities exist.



## SUMMARY

The term *binary form* is applied to a movement or portion of a movement that consists of two main sections (except that periods and double periods are not usually referred to as binary forms). If the first section of a binary form ends on the tonic triad in the main key of the form, then it is *sectional binary*; if the first section ends with any other chord, it is *continuous binary*. Most binary forms could be symbolized as AA′, with the A′ section containing elements of both continuation and contrast.

Music that is in *ternary form* is in three parts, with the middle section providing contrast through the use of different melodic material, texture, tonality, or some combination of these, and the third part returning all or most of the first. Ternary form is symbolized as ABA and may be sectional or continuous, depending upon whether or not the first A section ends with the tonic triad in the main key of the form.

*Rounded binary form* refers to music in which the opening A section returns after contrasting material, but in a considerably abbreviated form, as in AB½A. In many instances the choice between rounded binary and ternary is difficult to make. Like binary and ternary forms, rounded binary forms may be sectional or continuous.

Many binary, ternary, and rounded binary forms are also *two-reprise* forms, meaning that they consist of two repeated sections. The first repeated section is always the first A section, while the second repeated section is the rest of the form. The repeats are sometimes written out, perhaps with ornamentation or changes in register. Also, the main sections of a binary, ternary, or rounded binary form may be connected by *transitions*, and the form may end with a special concluding section called a *coda*.

Other musical forms are beyond the scope of this text, although they are discussed briefly in the chapter. Among these are *sonata form*, a very important form in tonal music, and *rondo form*.

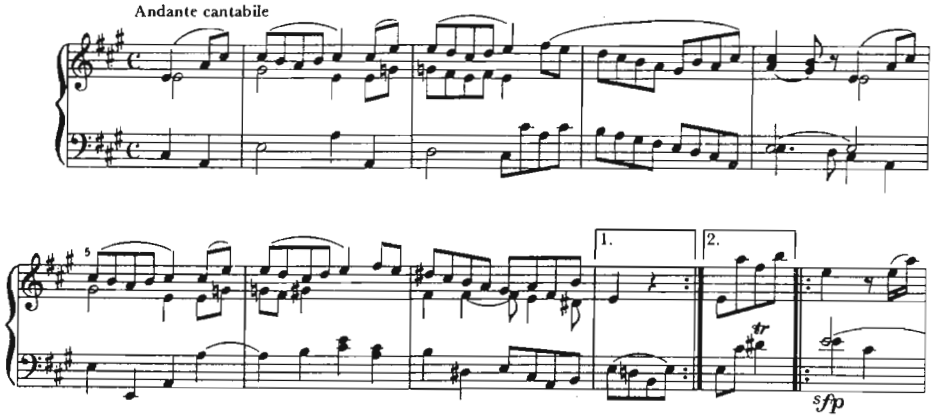
*SELF-TEST 20-1*
(Answers begin on page 632.)

A. Sing "America" ("My Country, 'Tis of Thee"), then diagram its phrase structure. Include measure numbers and cadence types in your diagram. What is the form?

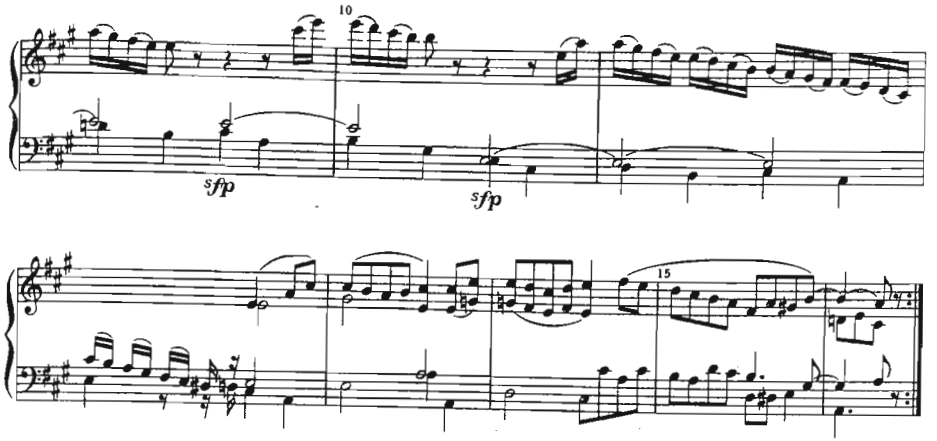
B. Diagram the piece below down to the phrase level and name the form. Assume there is a HC in m. 12, although there are other ways to hear this. Also, complete the following exercises.

1. Explain the G♮4's in m. 1 and m. 2
2. If there were a modulation at the end of the first section (most people hear it as a tonicization), where would the common chord be?
3. Can you relate mm. 9-12 to anything in mm. 1-4?
4. Find a 9-8 suspension with change of bass.
5. Find consecutive octaves by contrary motion.

Beethoven, Bagatelle, Op. 119, No. 4



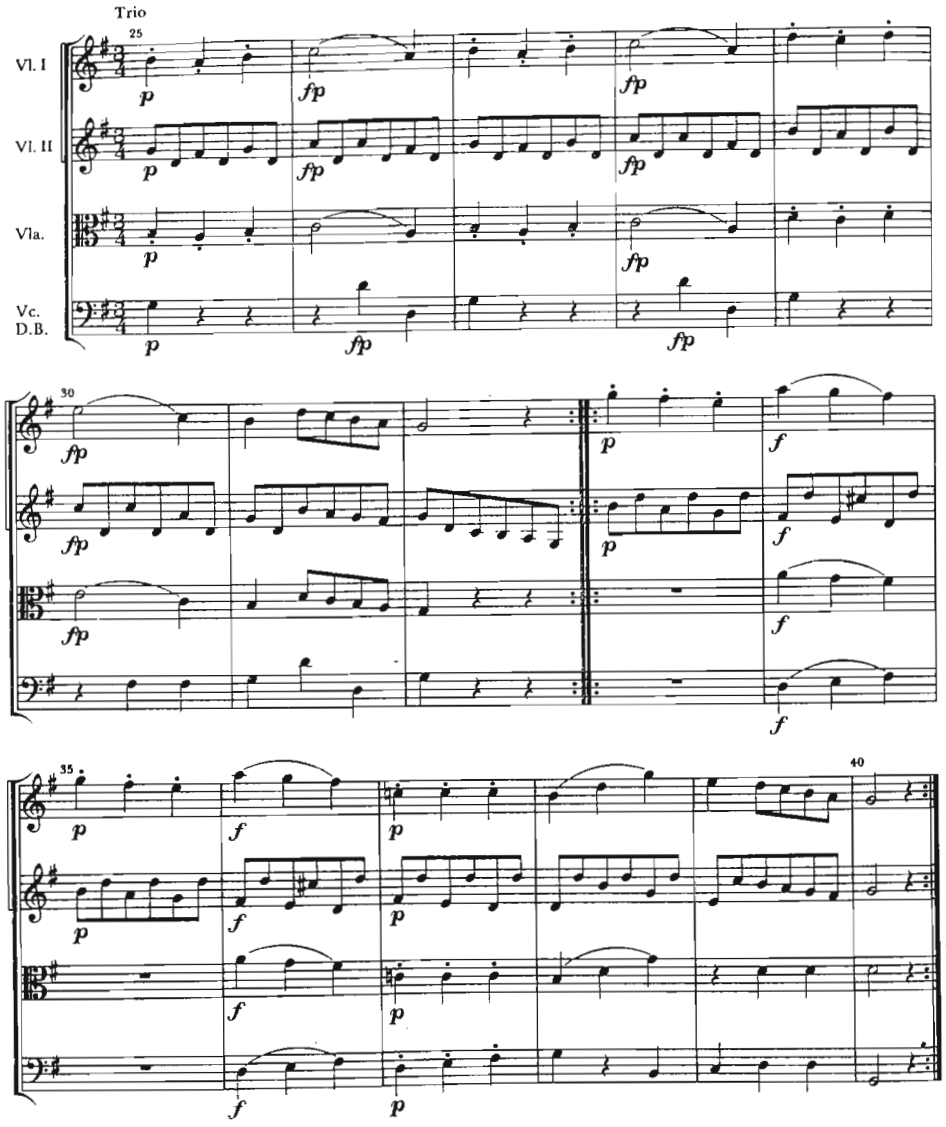



C. Diagram this trio down to the phrase level and name the form. Assume the phrases are four measures long. Also, complete these exercises.

1. The violas double what part (until m. 39)?
2. Explain the C♯5 in m. 36.
3. Find parallel 5ths between the outer voices.

Mozart, Symphony K. 97, III

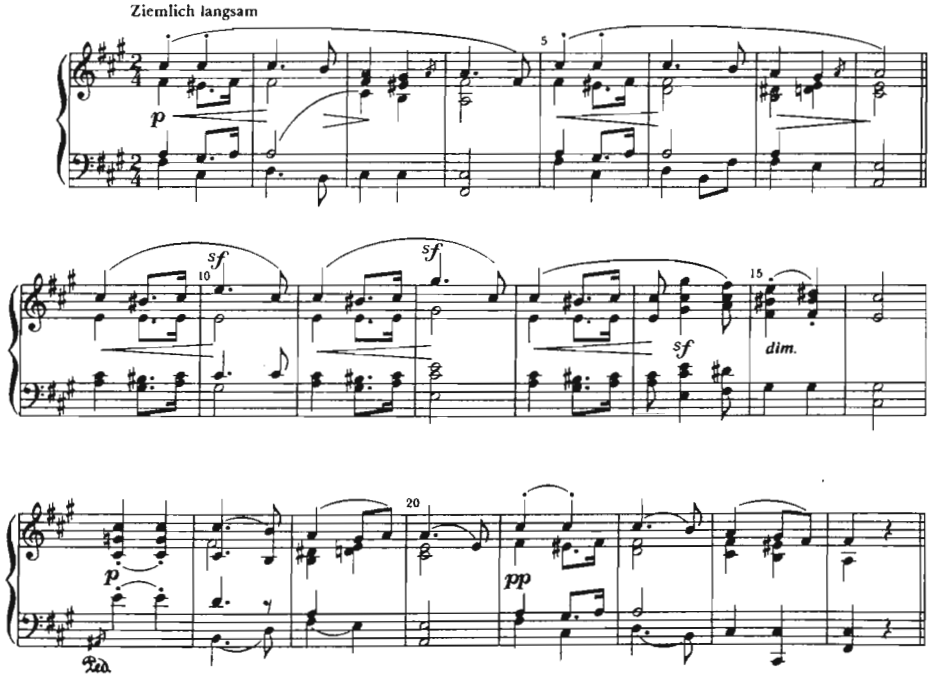





D. Diagram this piece down to the phrase level and name the form. Assume that all phrases are four measures in length, except for an eight-measure phrase in m. 9-16. Also, complete these exercises.

1. Discuss the choice of keys (tonicizations) in this piece.
2. Label the chords in mm. 17-24. Assume the modulation back to f♯ is a phrase modulation.
3. Find a disguised set of parallel 5ths in the same measures.
4. What about this piece is reminiscent of two-reprise form?

Schumann, *Album Leaf*, Op. 99, No.1




*EXERCISE 20-1. See Workbook.*

PART

# *Chromaticism 2*

CHAPTER 21

# *Mode Mixture*

## INTRODUCTION

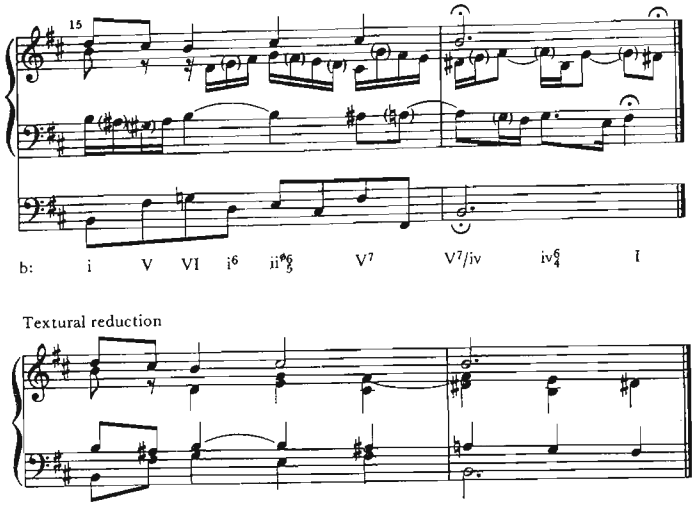
The term *mode mixture* refers to the use of tones from one mode (*mode* here refers to the major and minor modes) in a passage that is predominantly in the other mode. Usually the mixture involves coloring a passage in the major mode with notes from its parallel minor. Mode mixture often serves an expressive purpose, and it is a frequently encountered source of altered chords. Other terms used for mode mixture are *borrowed chords* and *mutation.*

## BORROWED CHORDS IN MINOR

Some writers feel that the use of raised $\hat{6}$ and $\hat{7}$ in minor is an example of mode mixture. According to that view, every V, for example, is borrowed from major, which makes mode mixture in minor a very common occurrence. Our approach is that scale degrees $\hat{6}$ and $\hat{7}$ each have two versions (review pp. 61-63), which means that the raised $\hat{3}$ is the only scale degree that can be borrowed in a minor key.

As it happens, there is a chord frequently borrowed from major that contains the raised $\hat{3}$, and that chord is the major tonic triad itself. The raised $\hat{3}$ in the tonic triad is called the *Picardy third*, and it was used to end most compositions in minor from the early 1500s until around 1750. A typical use of the Picardy third is seen in Example 21-1. Notice that the upper-case roman numeral I is enough to indicate the mode mixture. It is not necessary to add any explanatory note in the analysis. The voice leading in this example is worth examining, especially the descending tenor line and the alto part, which actually contains two lines. The textural reduction shows a simplification of the texture.

**Example 21-1.** Bach, "Helft mir Gottes Güte preisen"

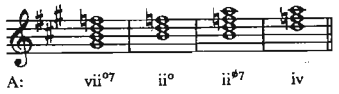



The idea of the Picardy third is sometimes used on a very large scale. For instance, Beethoven's Symphony No. 5 begins in c minor, but the main key of the last movement is C major.

## THE USE OF ♭6̂ IN MAJOR

Borrowing ♭6̂ from the parallel minor creates four borrowed chords that are frequently used in major: vii°7, ii°, ii°7, and iv. Example 21-2 illustrates these in the key of A major. Notice that the roman numerals are identical to those used in minor.

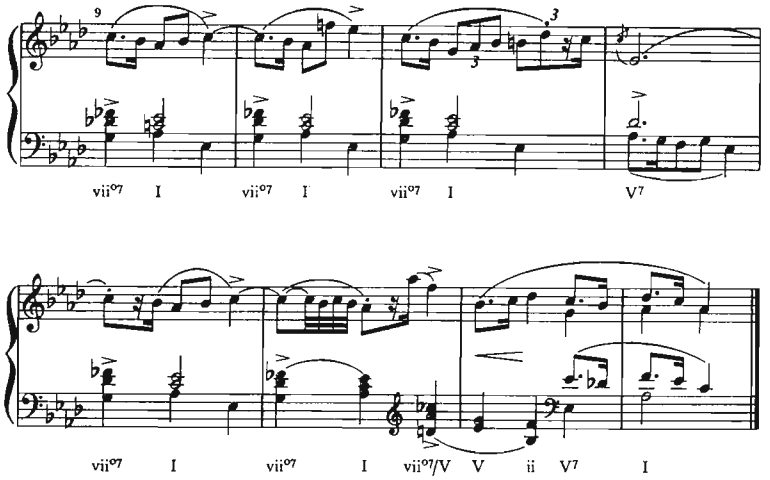
**Example 21-2.**






The vii°7 is actually a more useful chord than the vii°7, since parallel 5ths are never a problem in its resolution. The vii°7 chord is one of the primary motivic elements in Example 21-3, where it is accented each time it occurs. Although the ♭6̂, F♭, is in an inner voice, it forms the beginning of an important line begun in the first phrase and completed in the second: F♭-E♭-D♭ | F♭-E♭-D♭-C. Notice also the nice effect created by the unusual V-ii-V in m. 15.

**Example 21-3.** Chopin, Mazurka Op. 17, No. 3

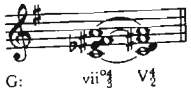



Incidentally, you will recall that either vii°7/ or vii°7/ may be used to tonicize a major triad (review p. 273). We can now understand that the use of vii°7 of a major triad is an example of *secondary mode mixture.** The vii°7/V in Example 21-3 illustrates this, the C♭ being the ♭6̂ "borrowed" from E♭ minor.

Frequently the vii°7does not resolve directly to I but is followed instead by V7. Only one voice needs to move to accomplish this, as Example 21-4 illustrates.

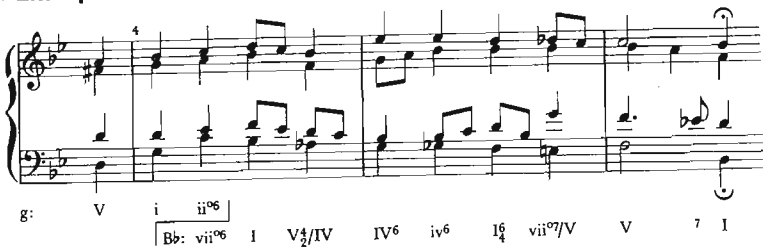
*Some theorists use "secondary mode mixture" in an entirely different sense, as in CM/Cm-E♭M/E♭m.

**Example 21-4.**



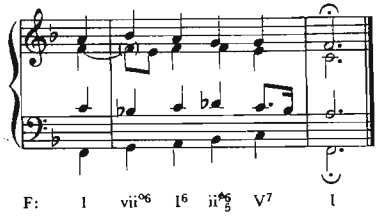

The borrowed iv is frequently used in first inversion as part of a stepwise descending bass line, as in Example 21-5. The imitation between soprano and tenor in mm. 4-5 and the soaring tenor line in mm. 5-6 are among the many points to appreciate in this beautiful phrase.

**Example 21-5.** Bach, "Herzliebster Jesu, was hast du"




The borrowed ii$^{ø7}$ is probably used more often than the borrowed ii$^{o}$ because of the added direction provided by the 7th. Example 21-6 is typical.

**Example 21-6.** Bach, "Christus, der ist mein Leben"



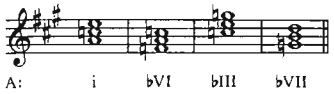

In general, ♭$\hat{6}$ in vii$^{o7}$, iv, or ii$^{o(ø7)}$ moves down by half step to $\hat{5}$. It is often also approached by step, either from ♮$\hat{6}$ or from $\hat{5}$.



## OTHER BORROWED CHORDS IN MAJOR

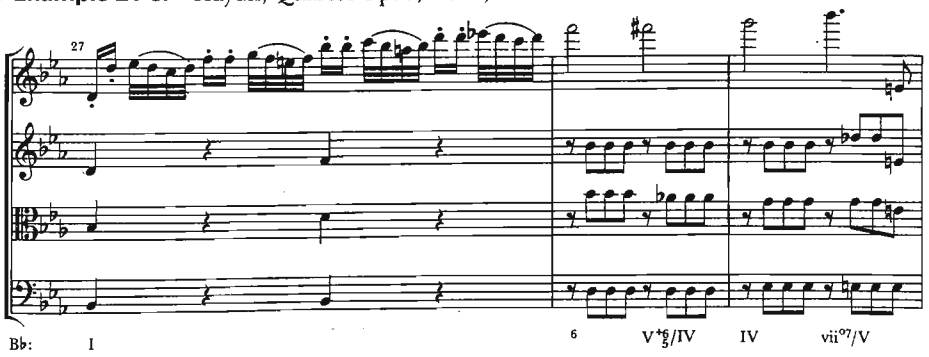
The most frequently encountered examples of mode mixture in major are the vii$^{o7}$, iv$^{(7)}$, and ii$^{o(ø7)}$ chords. Other possible borrowed chords are shown in Example 21-7. Of these, the ♭III and the ♭VII are relatively rare. Notice that the symbols for the borrowed submediant and mediant triads are preceded by a flat to show that the root is lowered. Use the flat in your analysis regardless of the actual accidental found in the notation, which might be a natural, flat, or double flat depending upon the key.

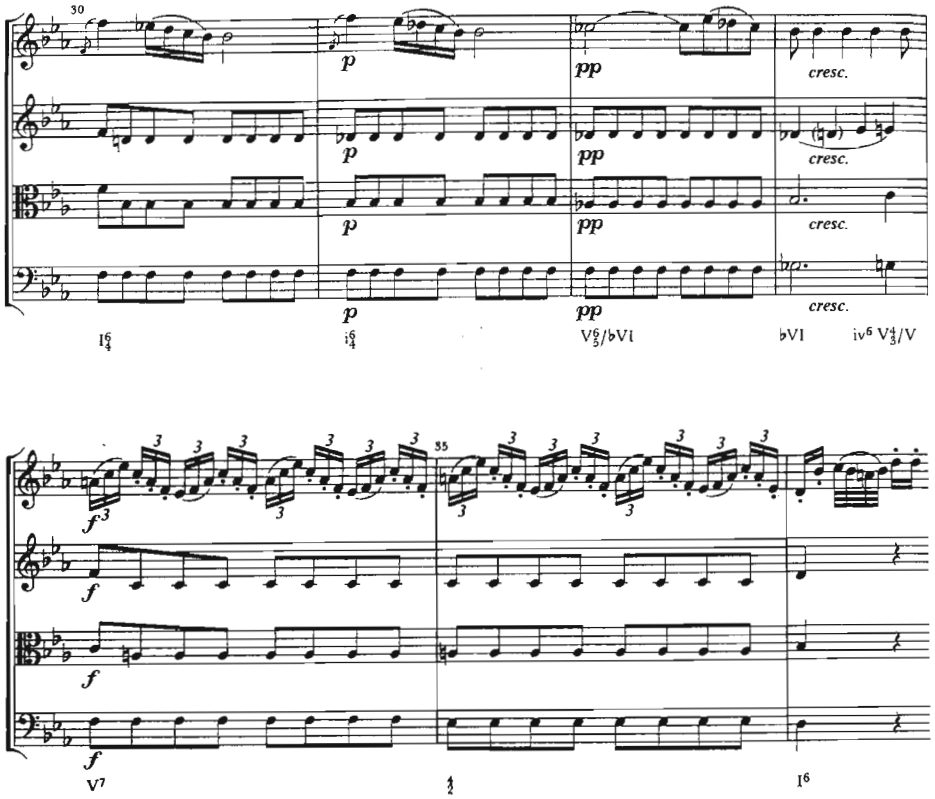
**Example 21-7.**




While vii$^{o7}$, iv, and ii$^{o(ø7)}$ are often found alone in major-mode passages, the minor tonic triad frequently occurs in longer passages in the parallel minor. In Example 21-8 the minor mode takes over in m. 31, and major is not reestablished until the arrival of the D♮ in m. 36. Notice that this is *not* a modulation, since B♭ is the tonal center throughout. This example also illustrates the ♭VI, preceded here by its secondary dominant. The ♭VI is sometimes used with dramatic effect in deceptive cadences: V-♭VI. The V$^{+6}_{5}$/IV in Example 21-8 is an augmented dominant, which will be discussed in a later chapter.

**Example 21-8.** Haydn, Quartet Op. 9, No. 2, I

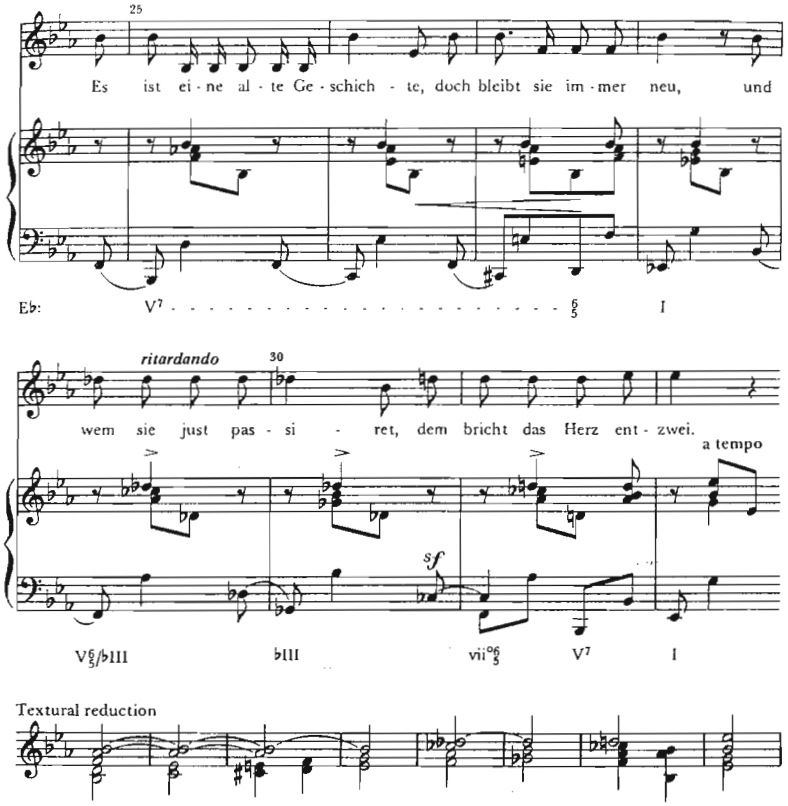





The ♭VII and ♭III chords are by no means commonly encountered. The ♭VII, when it occurs, frequently functions as a V/III, just as the same chord does in the minor mode, although an example of a ♭VII in a less typical context was seen earlier in Example 15-4. In Example 21-9 the ♭III is preceded by its secondary dominant and followed by a borrowed vii°7. The sonorities in mm. 26-27 with C and C♯ in the bass are passing chords that connect the V7 to the V6/5 (see the textural reduction). These chords do not require roman numerals.



**Example 21-9.** Schumann, "Ein Jüngling liebt ein Mädchen," Op. 48, No. 11



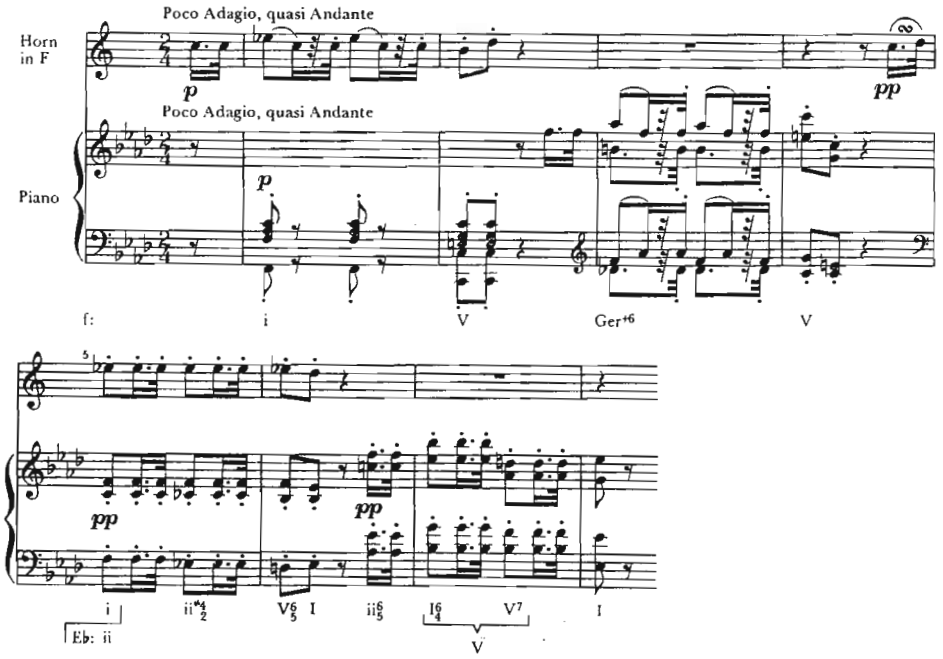

## *CHECKPOINT*

1. What is the name for the raised $\hat{3}$ in the tonic triad in the minor mode?
2. Show the chord symbols for the borrowed chords in major discussed in this chapter.
3. To what does *secondary mode mixture* refer?
4. How does ♭$\hat{6}$ most often proceed: up by step, down by step, or down by leap?

## MODULATIONS INVOLVING MODE MIXTURE

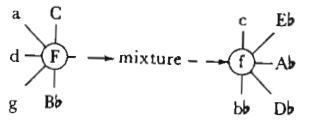
Mode mixture in the new key is often employed as a signal to the listener that a modulation is taking place. In Example 21-10 a modulation from f to E♭ occurs. In m. 5 Beethoven uses an f minor chord, which is the common chord linking the two keys. The f$^{\circ 7}$ chord that follows announces the modulation to the listener, because this chord is a very unlikely one in the key of f. (The Ger$^{+6}$ chord in m. 3 will be discussed in Chapter 23.)

**Example 21-10.** Beethoven, Horn Sonata, Op. 17, II



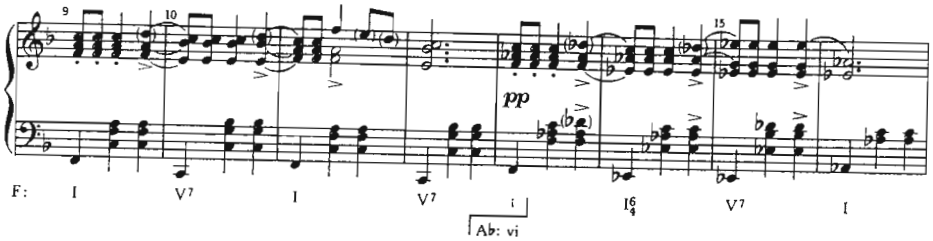



Mode mixture also simplifies modulation to certain foreign keys. If a passage in major slips into the parallel minor, all of the keys that are closely related to the parallel minor come within easy reach. For example, mixture in the key of F gives us access to all the keys in the chart below:




Schubert uses mode mixture in Example 21-11 to move to the relative major of the parallel minor: F → (f) → A♭.

**Example 21-11.** Schubert, Originaltanze, Op. 9, No. 33



### *SUMMARY*

The term *mode mixture* refers to the use of tones from one mode in a passage that is predominantly in the other mode. The only case in which a chord is "borrowed" from the major mode for use in minor is the *Picardy third*, a major tonic triad that was used to end most minor mode compositions in the early tonal era.

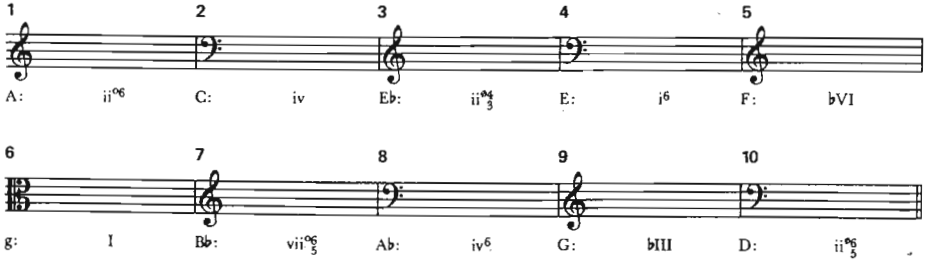
Borrowing from minor into the parallel major, on the other hand, is more common and involves a large number of chords. Several of these come about through the use of $\flat\hat{6}$. These include vii$^{o7}$, ii$^{o}$, ii$^{\varnothing 7}$, and iv. A secondary vii$^{o7}$ used to tonicize a major triad is an example of *secondary mode mixture*. Other borrowed chords require the use of $\flat\hat{3}$ and even $\flat\hat{7}$. These chords include the i, ♭VI, ♭III, and ♭VII chords, and of these the i and the ♭VI are the most commonly encountered.

Mode mixture is often a factor in modulations. Sometimes it is used only in the new key after a common chord as a signal to the listener that a modulation is taking place. At other times the common chord itself is a borrowed chord, a technique that simplifies modulations to some foreign keys.


### *SELF-TEST 21-1*

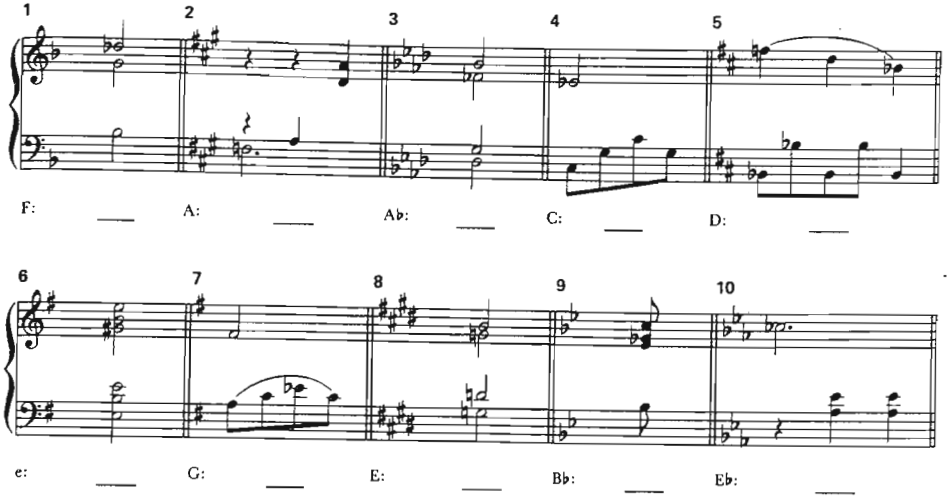
(Answers begin on page 633.)

A. Notate the following chords in the specified inversions. Include key signatures.





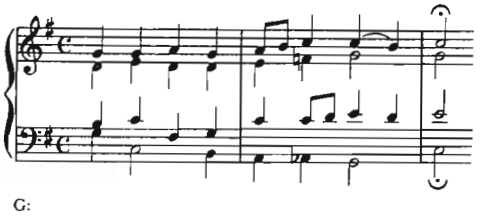

B. Label the following chords. Include inversion symbols.




C. Analysis.

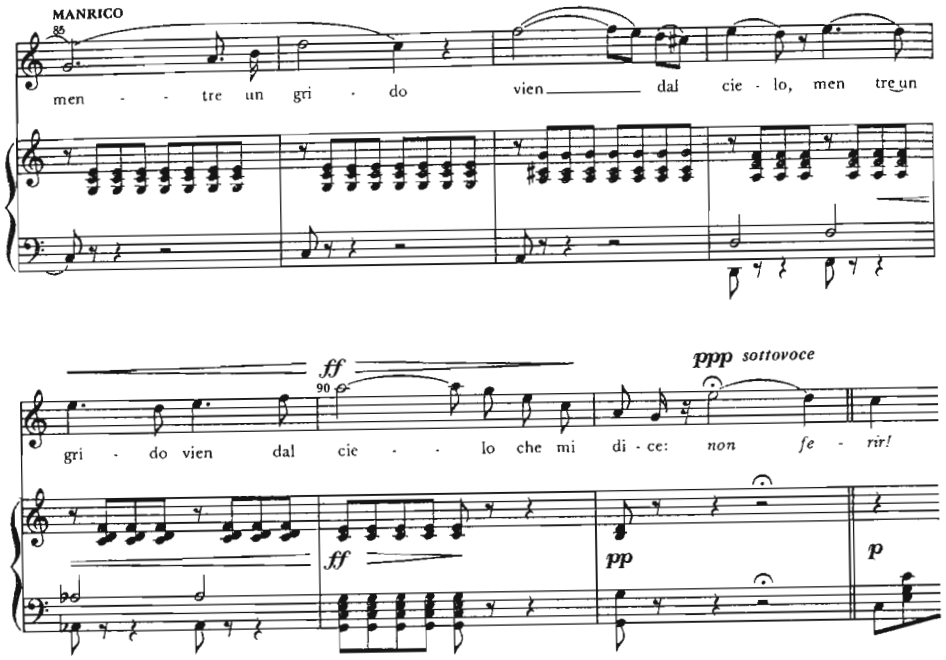
**1.** Label chords and NCTs. Circle the roman numerals of any borrowed chords.

Bach, "Warum sollt' ich mich denn grämen"



**2.** Label the chords and NCTs, and circle the roman numerals of any borrowed chords.

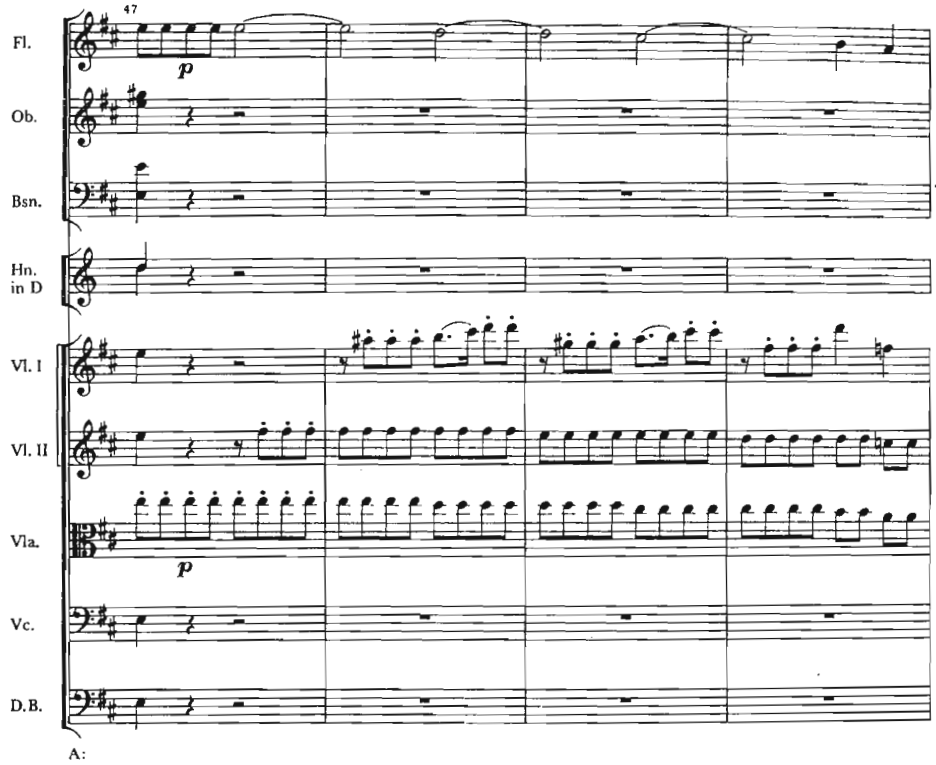
Verdi, *Il Trovatore*, Act II, No. 11

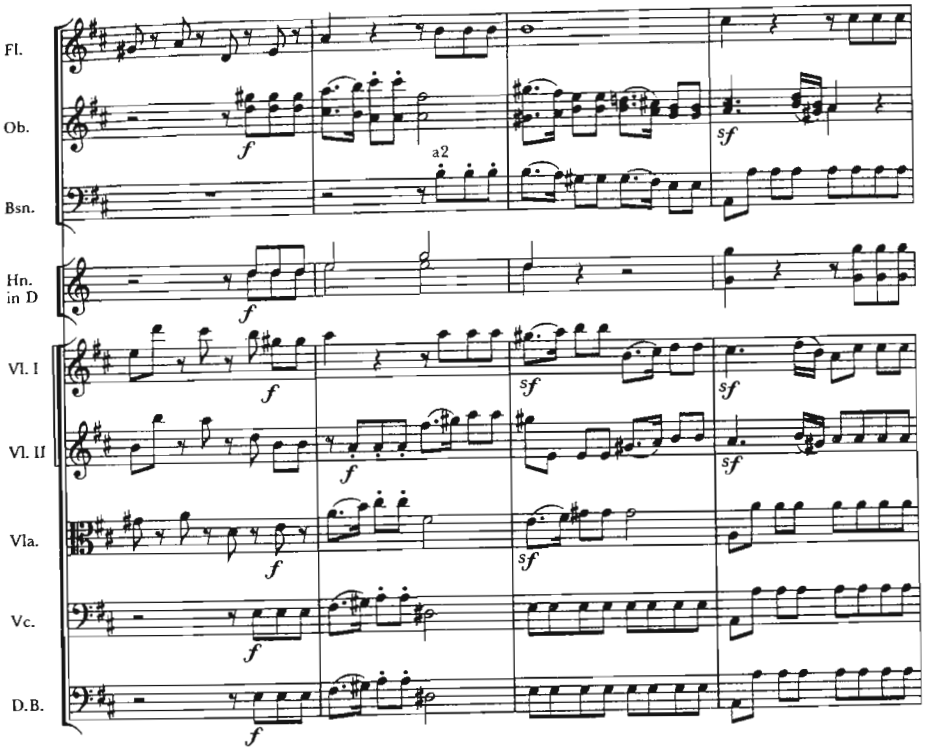





**3.** Label the chords, circling the roman numerals of any borrowed chords. Which part is doubling the violas in mm. 47-51? The horn in D sounds a m7 lower than written.

Haydn, Symphony No. 73, I

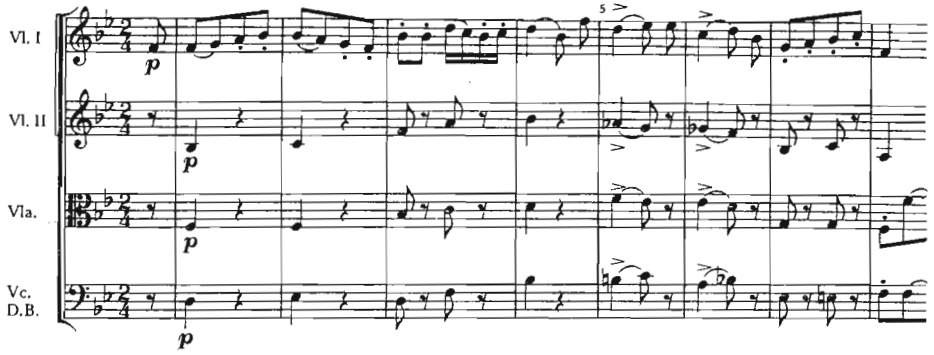






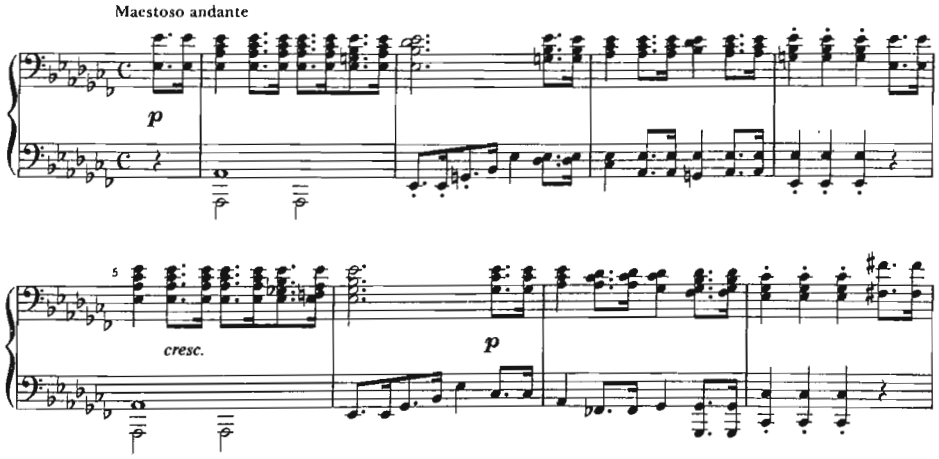

**4.** Label the chords, circling the roman numerals of any borrowed chords. Discuss any diminished seventh chords that occur in terms of the resolution of their tritones.

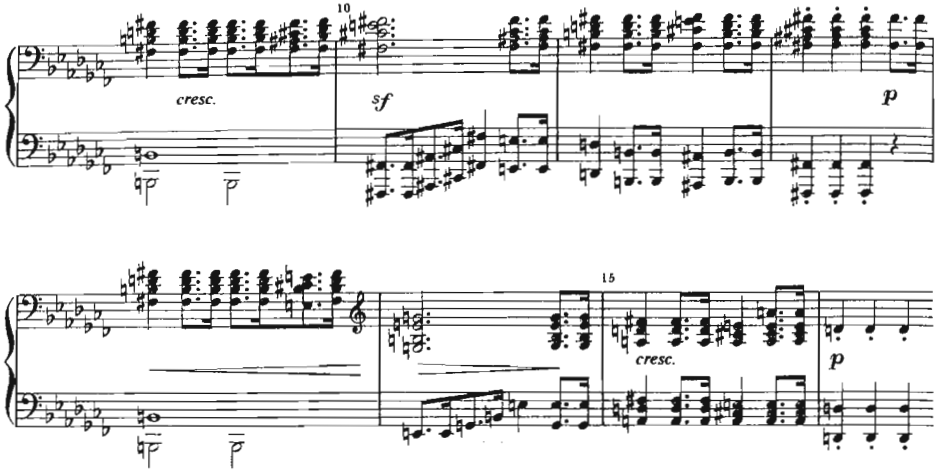
Schubert, Symphony in B♭, I




**5.** In this remarkable excerpt, Beethoven manages to modulate from a♭ minor to D major, a tritone away. Explain how he accomplishes this (it is not necessary to label every chord in the excerpt).

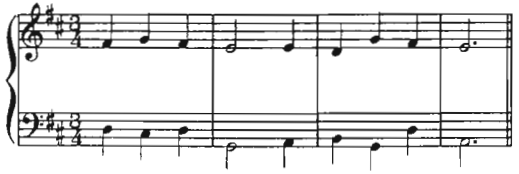
Beethoven, Sonata Op. 26, III



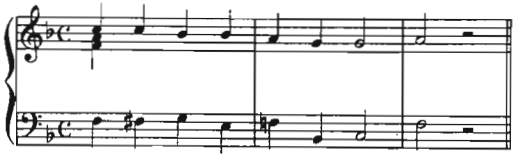



D. Part writing. Analyze the chords implied by the soprano-bass framework. Then fill in alto and tenor parts. Be sure to use the specified mode mixture.

**1.** Include a vii$^{o7}$.

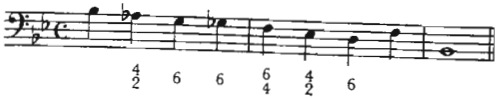


**2.** Include a ii$^{\varnothing\frac{6}{5}}$.





E. Analyze the chords specified by this figured bass, then make an arrangement for SATB chorus.




*EXERCISE 21-1. See Workbook.*

CHAPTER 22

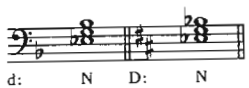
# *The Neapolitan Chord*

## INTRODUCTION

While the I-V-I progression is the basic organizing force in tonal harmony, much of the foreground harmonic interest in a tonal passage may be provided by the ways in which the dominant is approached. One of the more colorful chords that can be used to precede the dominant is the Neapolitan.

The *Neapolitan chord* derives its name from an important group of eighteenth-century opera composers who were associated with the city of Naples. While the composers of the "Neapolitan school" frequently used this chord in their music, they did not originate it but inherited it from earlier composers. Nevertheless, the term Neapolitan has survived, and we will make use of it and its abbreviation, N. Simply stated, the Neapolitan triad is a *major triad* constructed upon the *lowered second scale degree.* One accidental is required to spell the Neapolitan in a minor key and two in a major key, as is illustrated in Example 22-1.

**Example 22-1.**



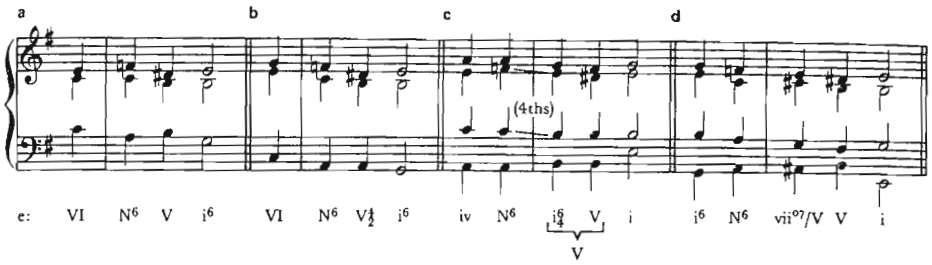

## CONVENTIONAL USE OF THE NEAPOLITAN

The Neapolitan is usually found in the minor mode and in first inversion. In fact, the first inversion is so typical that the Neapolitan triad is often referred to as the *Neapolitan sixth chord.* Example 22-2 illustrates several contexts in which the $N^6$ is commonly found. At the piano, establish the key of e minor and play through the example so you will become familiar with the distinctive sound of the $N^6$.





**Example 22-2.**

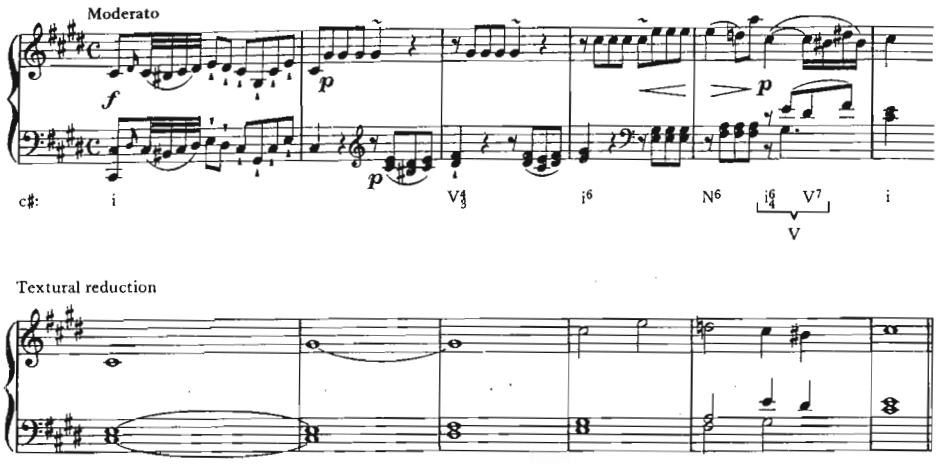



Example 22-2 illustrates several characteristics of the $N^6$.

1. When a tone is doubled, it is usually the 3rd of the $N^6$.
2. The $N^6$ moves to V (or $i^6_4$-V), but $vii^{\circ 7}/V$ may appear between the $N^6$ and the V. The $N^6$ would usually not be followed by iv or $ii^\circ$.
3. The $\flat\hat{2}$ (the root of the $N^6$) moves down, especially when it appears in the melody. Its goal is the leading tone, which lies at the unusual interval of a °3 below $\flat\hat{2}$ (see the soprano line in Exx. 22-2a and 22-2b). But the °3 is filled in by the tonic pitch when the $N^6$ moves first to $i^6_4$ or $vii^{\circ 7}/V$ (Exx. 22-2c and 22-2d).
4. When the $N^6$ moves to $i^6_4$, as in Example 22-2c, parallel 4ths should be used to avoid parallel 5ths. Parallel 5ths would be created in Example 22-2c by transposing the alto line an octave lower.
5. The $N^6$, like the unaltered $ii^{\circ 6}$, is usually preceded by VI, iv, or i.

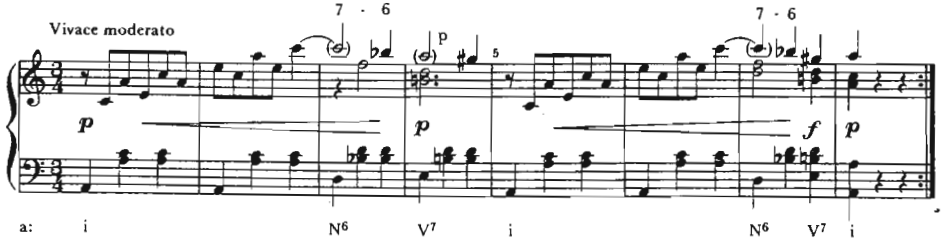
Example 22-3 illustrates the $N^6$ in a three-part texture. Notice the leap in the tenor voice from A3 to E4 to provide the 3rd for the $i^6_4$ chord. The textural reduction brings out the stepwise ascent in the bass from $\hat{1}$ up to $\hat{5}$.

**Example 22-3.** Haydn, Sonata No. 36, I




In Example 22-4 the $N^6$ appears in a more complicated keyboard texture. Both Neapolitans in the example proceed directly to V. In the resolution of the first $N^6$, the interval of a °3 in the melody is filled in by a supermetrical passing tone (the A5). Notice that the freer treatment of the inner parts allows the ♭$\hat{2}$ (B♭3) in the left hand to move upward to ♮$\hat{2}$. This does not disturb the listener, whose attention is drawn to the resolution of the more significant B♭5 in the melody.

**Example 22-4.** Beethoven, Bagatelle Op. 119, No. 9






## OTHER USES OF THE NEAPOLITAN

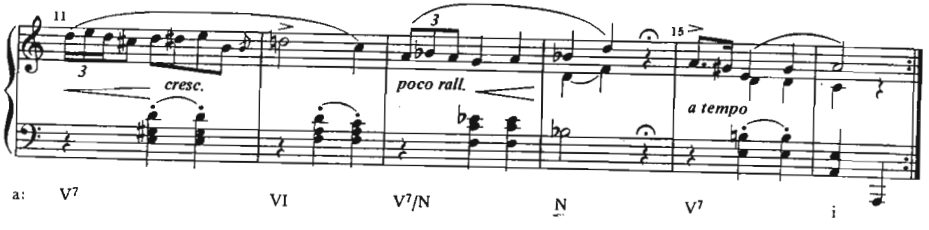
The Neapolitan is usually employed in first inversion in the minor mode, and it usually moves toward V. However, several other contexts for the Neapolitan may be encountered.

1. The Neapolitan may appear in root position (N) or, rarely, in second inversion ($N^6_4$). In both cases, the bass will probably be doubled in a four-part texture.
2. The Neapolitan may occur in the major mode.
3. The Neapolitan may be tonicized. This may take the form of a single chord (such as V7/N), or it might be a genuine modulation to the key of the Neapolitan. In some cases VI (or ♭VI) may function as V/N.
4. In a modulation the common chord may be a Neapolitan in either key. Foreign key relationships might be involved in such a modulation.
5. The Neapolitan may, on occasion, serve a function other than that of a pre-dominant chord.
6. In rare instances, the Neapolitan may include a 7th ($N^{M7}$).

The examples below illustrate most of these uses of the Neapolitan.

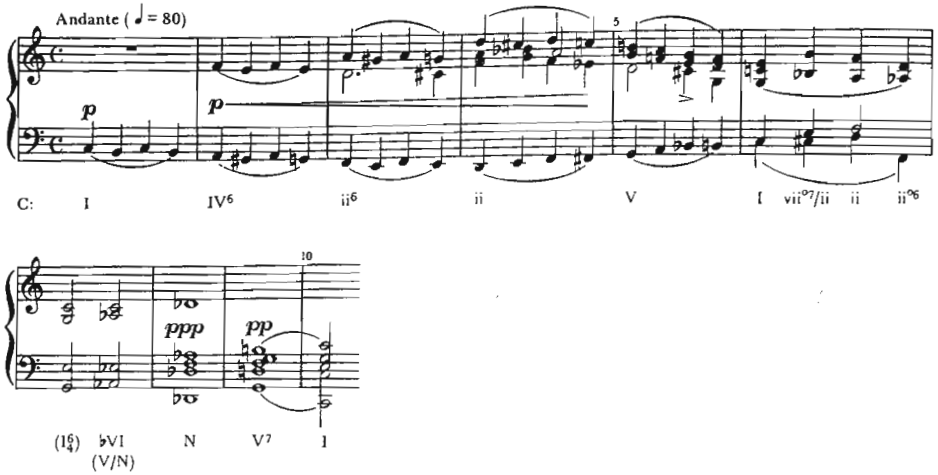
Both a V7/N and a root position Neapolitan occur in Example 22-5. Notice the tritone root relationship between the N and V chords.

**Example 22-5.** Chopin, Mazurka Op. 7, No. 2



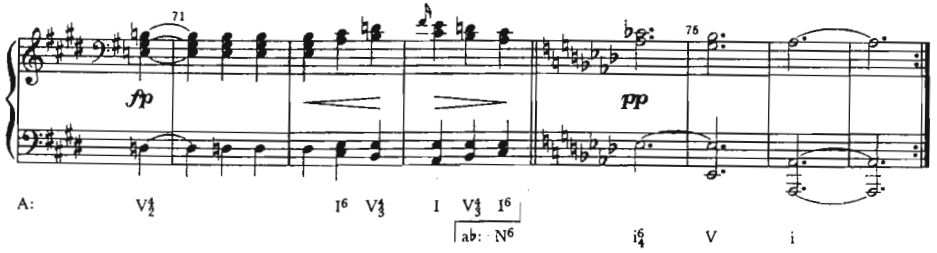

In Example 22-6 Verdi uses the N in a major key (and in root position). However, he does prepare for the N by using mode mixture in the previous two measures. (Only the main chords are analyzed in the first five measures.)

**Example 22-6.** Verdi, *Il Trovatore*, Act I, No. 5




Example 22-7 begins in A major and ends in a♭ minor (although neither key signature agrees with that analysis). The I6 chord before the double bar is enharmonically the same as a B♭♭ major triad, which is the Neapolitan in a♭. It then moves normally to $i^6_4$-V in a♭.

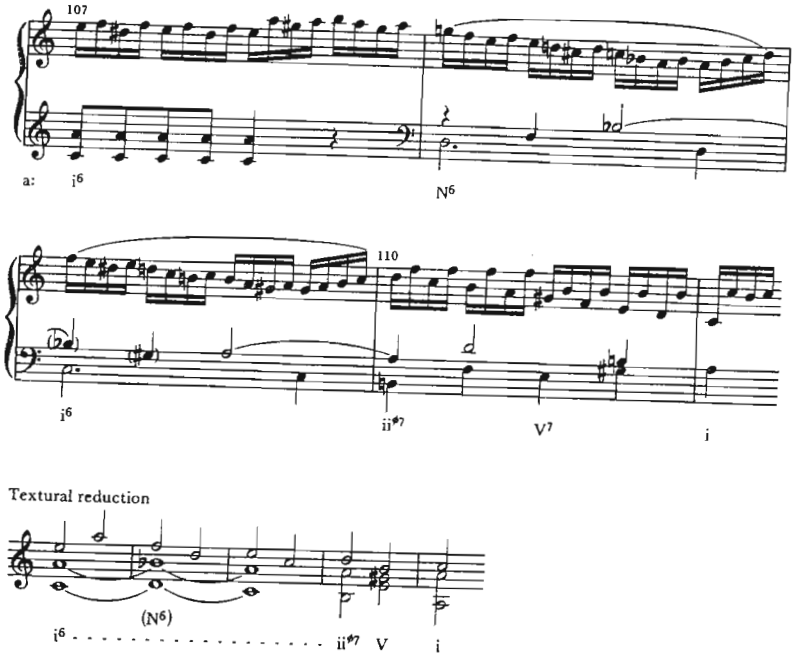
**Example 22-7.** Schubert, *Moment Musical*, Op. 94, No. 6






The chord in m. 108 of Example 22-8 contains all the notes of a Neapolitan chord, but it does not move to V. Instead, as the textural reduction shows, the N6 serves as a neighbor chord to the i6 that appears on either side of it.

**Example 22-8.** Mozart, Sonata K. 310, I



### *SUMMARY*

The Neapolitan chord (symbolized as N) is a major triad constructed on the lowered second scale degree. The Neapolitan chord occurs most often in the minor mode and typically appears in first inversion, so it is often called the Neapolitan sixth chord.

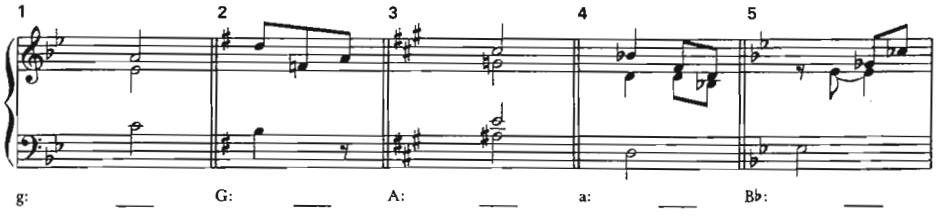
Like the diatonic supertonic triad, the $N^6$ progresses to V, sometimes passing through $i^6_4$ or $vii^{o7}/V$, or both, on the way. In four parts, the 3rd of the $N^6$ is doubled and—in the resolution of the $N^6$—the $\flat\hat{2}$ moves down to the nearest chord tone.

Although the Neapolitan chord is characteristically found in the minor mode and in first inversion, it also occurs in the major mode and in other bass positions. In addition, the Neapolitan may serve as a common chord in a modulation and may itself be tonicized. Less commonly, the Neapolitan chord may progress toward some chord other than V and may, in rare instances, contain a 7th ($N^{M7}$).

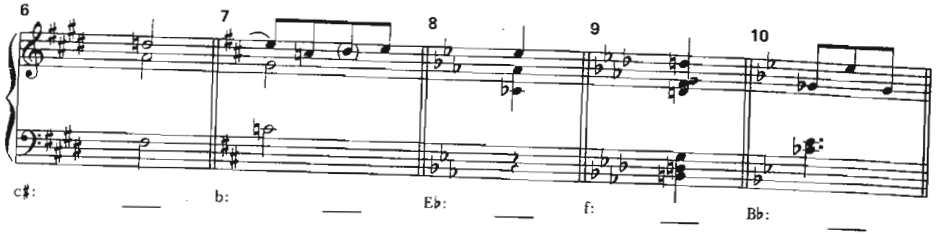

### *SELF-TEST 22-1*

(Answers begin on page 636.)

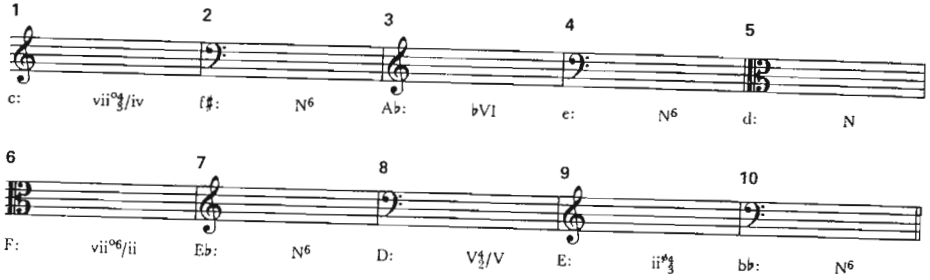
A. Label each chord. Include inversion symbols, if any.





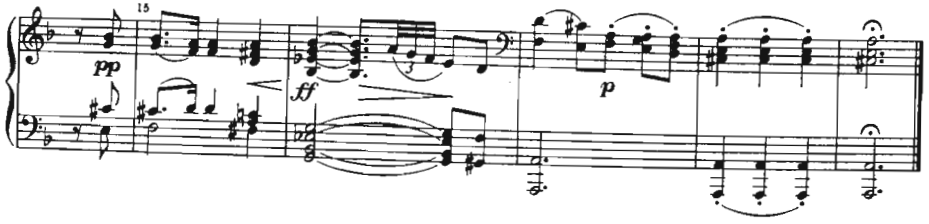

B. Notate each chord. Include key signatures.




C. Analysis.

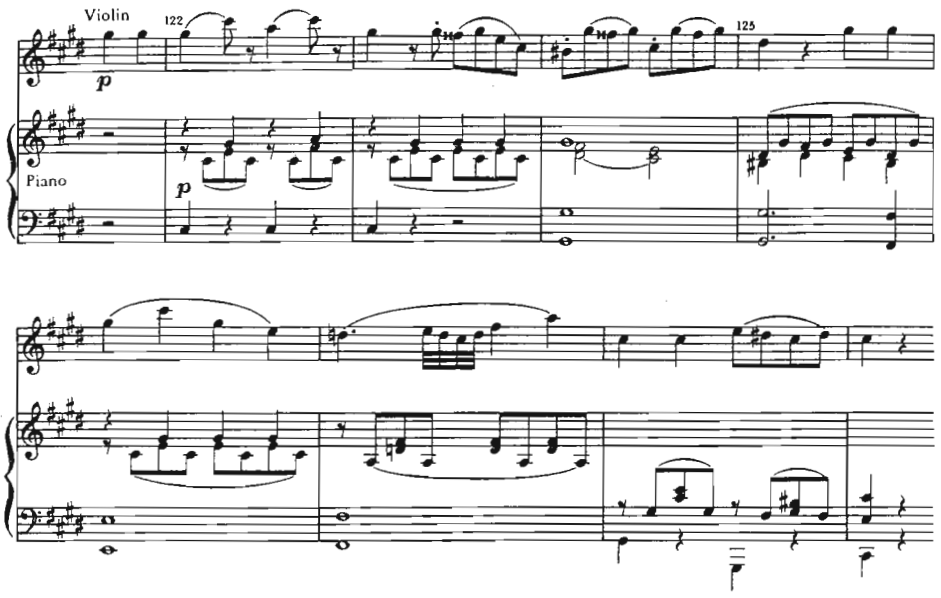
**1.** Label chords with appropriate symbols. Try to think of two interpretations of the first chord in m. 16.

Haydn, Sonata No. 37, II



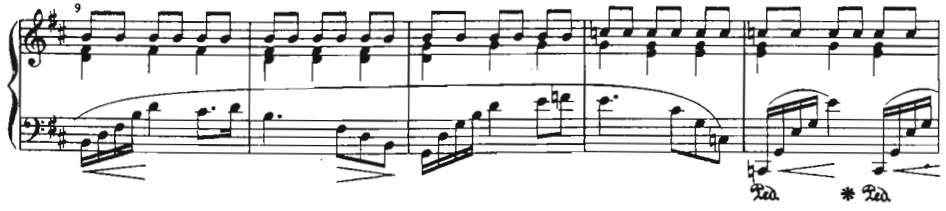
**2.** a. Label the chords.
b. Identify any six-four chords by type.
c. Name the form of the excerpt.

Mozart, Piano Trio, K. 542, III

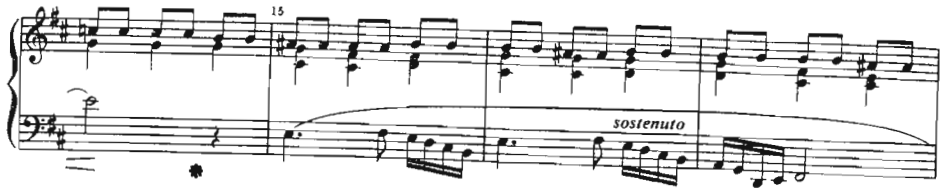



**3.** Label chords and NCTs. Assume that the F4 in m. 11 is a chord tone. Omit inversion symbols, because the bass has the melody in this example.

Chopin, Prelude Op. 28, No. 6

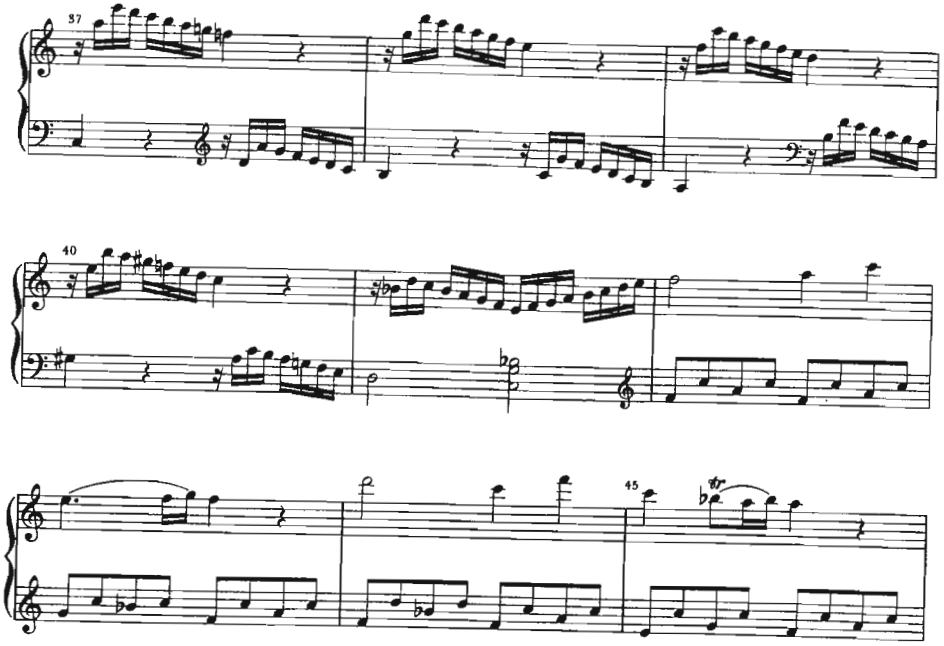




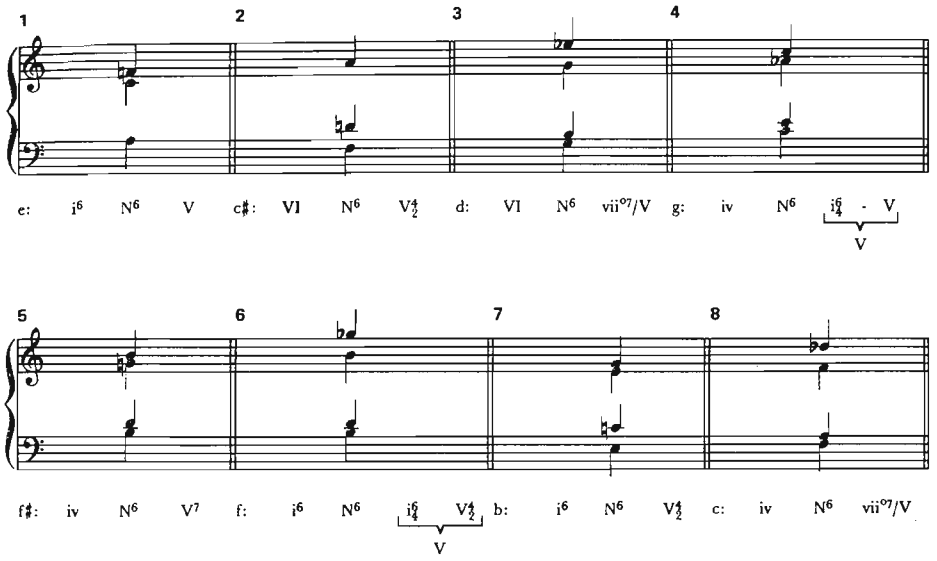




**4.** This excerpt from a well-known Mozart sonata begins in a minor and ends in F, with the first chord in m. 41 serving as the common chord. Label all the chords.

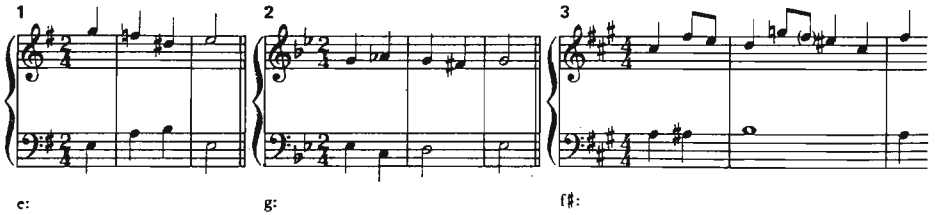
Mozart, Sonata K. 545, I



D. For each exercise provide the correct key signature and notate the specified chords preceding and following the $N^6$. Use the given three- or four-part texture in each case.

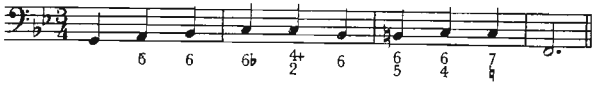



E. Analyze the harmonies implied by the soprano-bass framework. Then fill in inner voices to make a four-part texture. Each excerpt should include a Neapolitan chord.






F. Analyze the harmonies specified by this figured bass, then make a setting for four-part chorus. It does contain a modulation.




G. Make a setting of the following progression in d minor for three-part chorus. Then make another setting in b minor for four-part chorus. Arrange the rhythm and meter so that the final chord comes on a strong beat.

i $V^6$ $V^4_2$/iv $iv^6$ V $V^4_3$/N $N^6$ $V^4_2$ $i^6$ $vii^{o6}$ i V

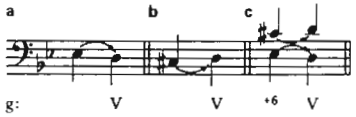
*EXERCISE 22-1. See Workbook.*

# CHAPTER 23 *Augmented Sixth Chords 1*

## THE INTERVAL OF THE AUGMENTED SIXTH

One way to emphasize a tone is to approach it by a half step, either from above or from below. In Examples 23-1a and 23-1b the dominant in g minor is approached by half steps. Approaching the dominant by half steps from above *and* below at the same time makes for an even stronger approach to the dominant, which is illustrated in Example 23-1c. you will notice that the two approaching tones form a vertical interval of an *augmented 6th.* This method of approaching the dominant distinguishes a whole category of chords called *augmented sixth chords.*

**Example 23-1.**




The characteristic elements of most augmented sixth chords are those illustrated in Example 23-1c.

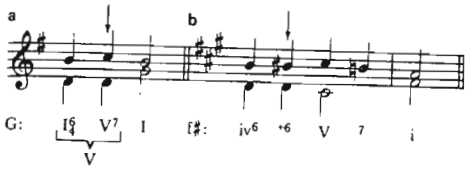
1. The chord being approached is the V chord.
2. The minor-mode $\hat{6}$ (chromatically lowered if in a major key) appears in the bass.
3. The $\sharp\hat{4}$ is in an upper part.

The interval of an +6 formed by these pitches is enharmonically equivalent to a m7, but the difference between the effect of the +6 and that of the m7 is easily detected by the ear. The m7 tends to resolve as in Example 23-2a, the +6 as in Example 23-2b. Play both parts of Example 23-2, and notice the contrast in the effect of these two intervals.





**Example 23-2.**




In a two-part texture the augmented sixth chord appears as in Examples 23-1c and 23-2b. The analytical symbol to be used is simply +6. Notice that the numeral is an arabic +6 and not a roman +VI.

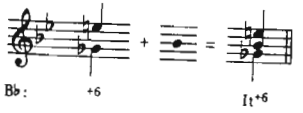
The interval of the +6 usually resolves outward by half step, following the tendencies of the tones to lead to the dominant. Less commonly, the top pitch of the +6 may descend chromatically to produce the 7th of a V7. This generally occurs only in +6 chords that have three or more pitch classes (see below), with the top pitch of the +6 interval in an inner part.

For the reasons mentioned above, the +6 chord is among the strongest of all approaches to the dominant, and it generally moves directly to V (or $i^6_4$-V). It is frequently used just after a modulation to make it clear to the listener that a modulation has, in fact, occurred. Like the $N^6$, the +6 originated in the minor mode, but it was soon found to be equally useful in major keys. When used in major keys, it is often preceded by mode mixture.

## THE ITALIAN AUGMENTED SIXTH CHORD

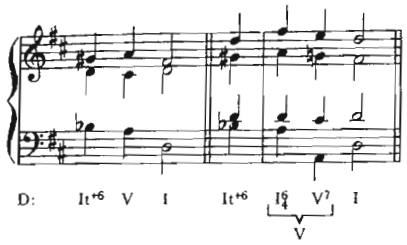
In most cases +6 chords contain more than two pitch classes. When a third pitch class is included, it is usually the tonic pitch. This combination of tones is referred to as an *Italian augmented sixth chord* ($It^{+6}$), which is illustrated in Example 23-3. This geographical term, like the others we will be using, has no historical authenticity—it is simply a convenient and traditional label.

**Example 23-3.**



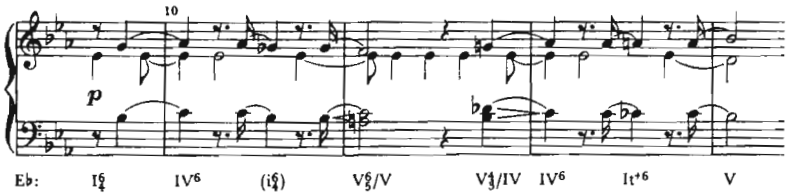
The It$^{+6}$, like any other +6 chord, resolves to V or I$^{6}_{4}$-V. In a four-part texture the tonic pitch is doubled. Typical resolutions are shown in Example 23-4.

**Example 23-4.**




Example 23-5 includes an illustration of the It$^{+6}$ in a three-part texture. Most of the excerpt consists of parallel 6ths (soprano and bass) surrounding a tonic pedal (alto). Notice that the bass reaches $\hat{5}$ four times, with different harmony in each case.

**Example 23-5.** Mozart, *The Magic Flute,* K. 620, Overture (piano reduction)




## THE FRENCH AUGMENTED SIXTH CHORD

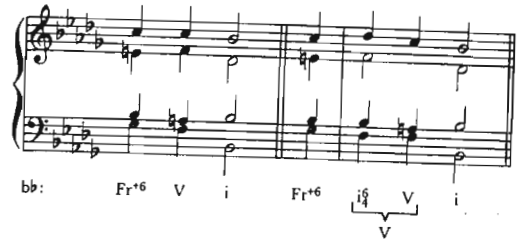
There are two common +6 chords that contain four pitch classes, and both of them may be thought of as It$^{+6}$ chords with one pitch added. If the added tone is $\hat{2}$, the sonority is referred to as a *French augmented sixth chord* (Fr$^{+6}$), which is shown in Example 23-6.



**Example 23-6.**

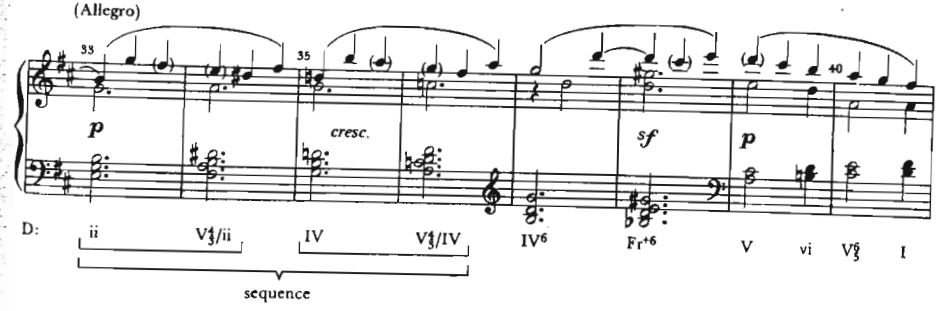

The Fr$^{+6}$ works best in four-part or free textures. Typical resolutions are illustrated in Example 23-7.

**Example 23-7.**




In Example 23-8 a Fr$^{+6}$ provides the harmonic color for the climax of an entire movement. At this point, in m. 38, Beethoven shifts to a seven-part texture, which explains why $\sharp\hat{4}$ is doubled. In the following measure there is a sudden return to *piano* and a thinner texture, with the note of resolution ($\hat{5}$) appearing only in the bass. Notice that the bass and "tenor" move in parallel 3rds throughout.

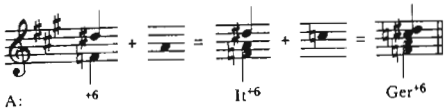
**Example 23-8.** Beethoven, Sonata Op. 10, No. 3, III



## THE GERMAN AUGMENTED SIXTH CHORD

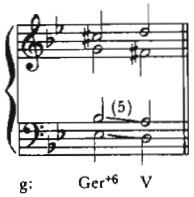
The other common +6 chord that contains four pitch classes is the *German augmented sixth chord* (Ger+6, not G6). It may be thought of as an It+6 with the addition of a minor-mode $\hat{3}$ (chromatically lowered if in a major key). The Ger+6 is shown in Example 23-9.

**Example 23-9.**




As with any +6 chord, the usual resolutions of the Ger+6 are to V and to $i^6_4$-V. When the Ger+6 moves directly to V, parallel 5ths are apt to result, as in Example 23-10. Because the ear is distracted by the resolution of the interval of the +6, the parallels are not so objectionable here, and they may occasionally be encountered.

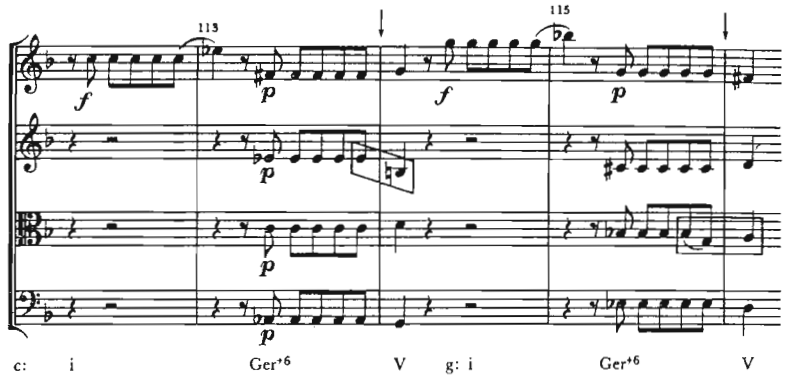
**Example 23-10.**




However, composers usually manage either to hide the parallels through anticipations or suspensions or to avoid them through the use of leaps or arpeggiations. In Example 23-11 Mozart first avoids the 5ths by leaping the E♭4 to B3 (a °4), then, in the second Ger+6, by arpeggiating the B♭3 to G3 before the resolution, turning the Ger+6 into an It+6.

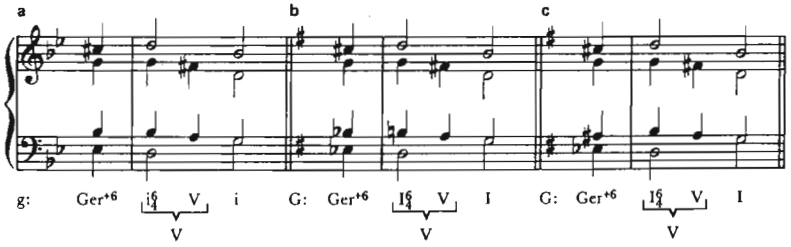


**Example 23-11.** Mozart, Quartet K. 173, I




A simpler resolution to the problem of the parallels is to delay the V through the use of a cadential six-four, as in Example 23-12.

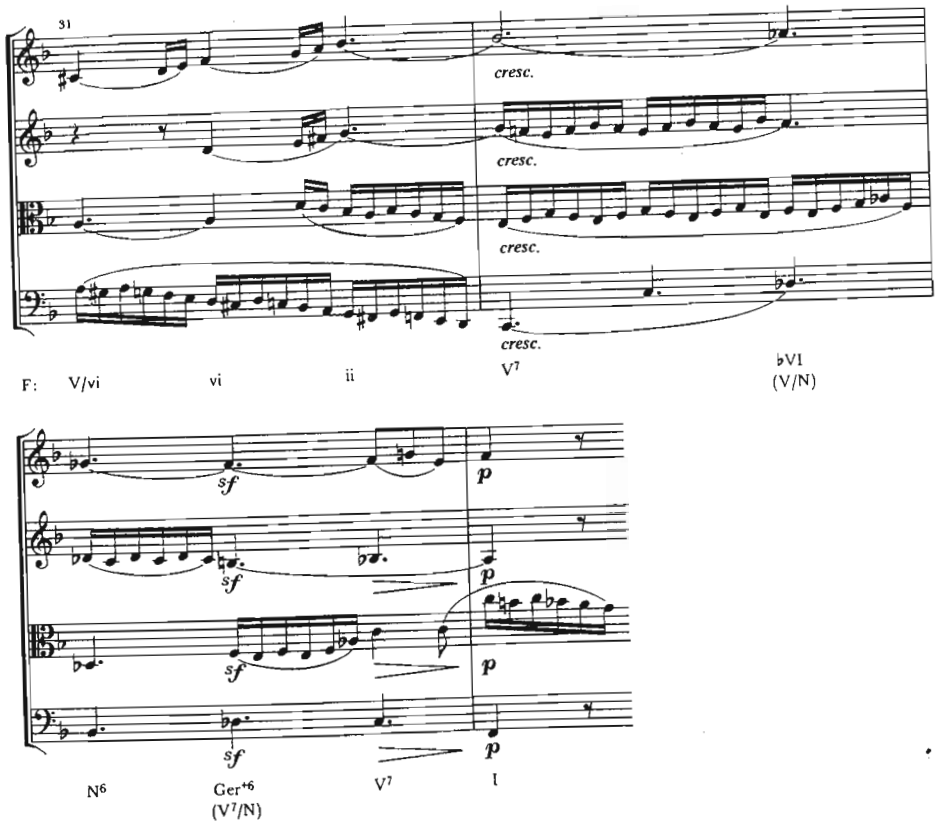
**Example 23-12.**




You may have noticed that the last Ger+6 in Example 23-12 is spelled differently from the others, although it sounds the same (A♯=B♭). This is a fairly common enharmonic spelling of the Ger+6, used in the major mode only, when the Ger+6 is going to $I^6_4$. The reason for its use is more for the eye than for the ear: A♯ to B♮ looks more reasonable than B♭ to B♮, since we expect raised notes to ascend and lowered ones to descend.

Enharmonic spellings are also involved when we compare the Ger$^{+6}$ with the V7/N. The listener can tell the Ger$^{+6}$ from a dominant seventh chord only by its resolution, a feature that can lead to some interesting modulations (to be discussed in Chapter 25). For instance, the Ger$^{+6}$ in m. 33 of Example 23-13 sounds like a V7/N (a D♭7), especially since it is preceded by a N$^{6}$. The resolution to V$^{7}$ is needed before its function is clear to us. Notice also that the ♯4̂ (B♮3) moves down chromatically to ♮4̂ (B♭3) to provide the 7th of the V$^{7}$chord.

**Example 23-13.** Beethoven, Quartet Op. 18, No. 1, II





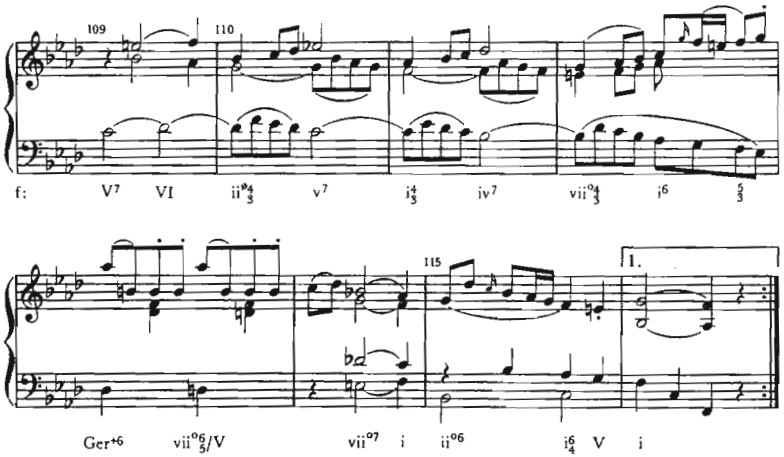

## OTHER USES OF CONVENTIONAL AUGMENTED SIXTH CHORDS

The conventional +6 chord, as described in this chapter, usually functions as the final element of a series of chords leading to a dominant or cadential six-four chord. However, a number of other contexts may be encountered, even with what would be considered conventional +6 chords. A few examples will give you an idea.

The +6 may be used as a neighbor chord, as in V - +6 - V, which is in some ways a weaker function than its use as a pre-dominant chord. An instance of this was seen in Example 21-10 on p. 362.

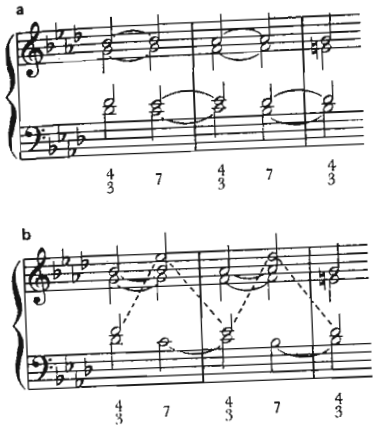
Less commonly, another chord, usually some form of V/V or vii°7/V, comes between the +6 and V chords, as in Example 23-14, where vii°7 substitutes for V.

**Example 23-14.** Mozart, Piano Sonata, K. 533 and K. 494, III



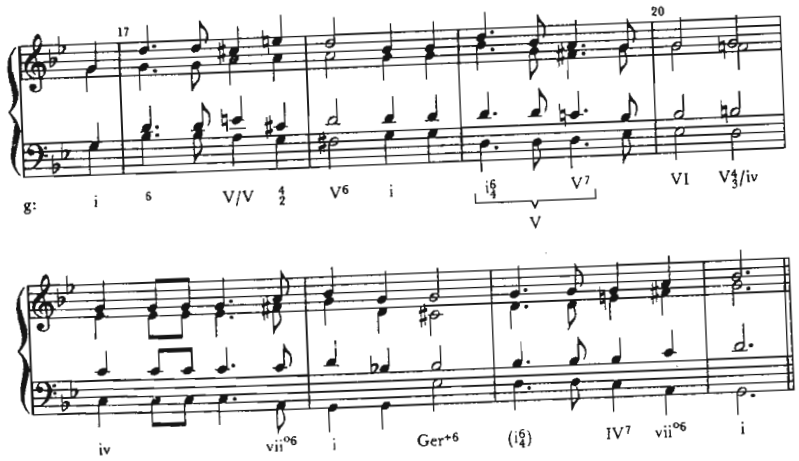

Measures 110-112 of Example 23-14 contain an interesting variant on the circle-of-fifths patterns that were discussed in Chapter 15 (review Examples 15-17 and 15-18). Example 23-15a shows a much simpler model, while Example 23-15b elaborates that model slightly. Finally, compare Example 23-15b with Mozart's version in Example 23-14.

**Example 23-15.**




In Example 23-16 the Ger$^{+6}$ resolves normally to a $i^6_4$ chord, but it turns out to be a passing six-four instead of the expected cadential six-four. Notice also the major-minor IV$^7$ chord and the unusual upward resolution of the 7th.

**Example 23-16.** Schumann, *Der Traum*, Op. 146, No. 3






## SUMMARY

The class of chords known as augmented sixth chords get their name from the interval of an augmented 6th. The +6 is typically formed between the minor sixth scale degree ($\flat\hat{6}$ if in major) in the bass voice and $\sharp\hat{4}$ in some upper voice. The interval of a +6 expands to an octave on $\hat{5}$, harmonized by V or $I^6_4$-V.

In textures of three or more voices, the tonic scale degree usually appears along with $\flat\hat{6}$ and $\sharp\hat{4}$, and this combination of intervals is called an *Italian augmented sixth chord.* The other two conventional augmented sixth chords add a fourth tone to the Italian augmented sixth chord: the *French augmented sixth chord* adds a second scale degree, while the *German augmented sixth chord* adds $\hat{3}$ from the minor mode (in major either $\flat\hat{3}$ or $\sharp\hat{2}$).

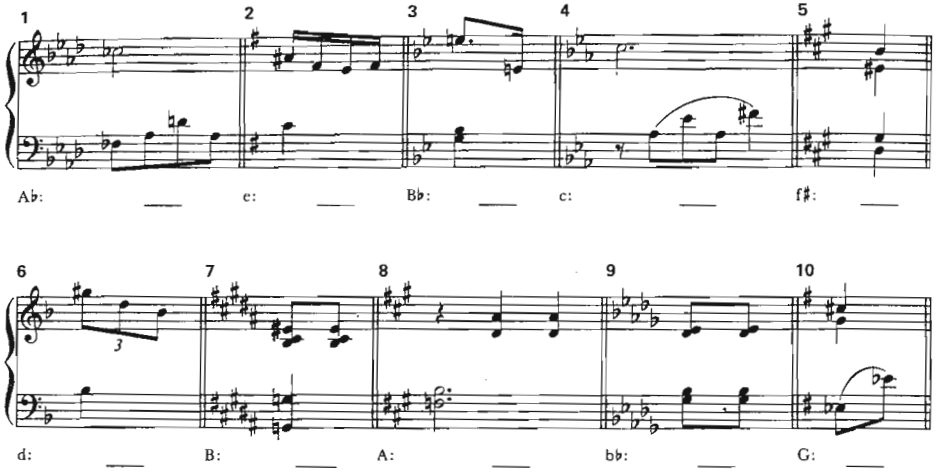
Augmented sixth chords typically progress to V, although the V chord may, of course, be delayed by a tonic $^6_4$ chord. The tonic $^6_4$ chord is especially useful in avoiding parallel 5ths in the resolution of the Ger$^{+6}$ chord, although the 5ths may also be avoided or hidden by other means.

Exceptional uses of conventional augmented sixth chords are occasionally encountered. A few of these are discussed on pp. 391-392.

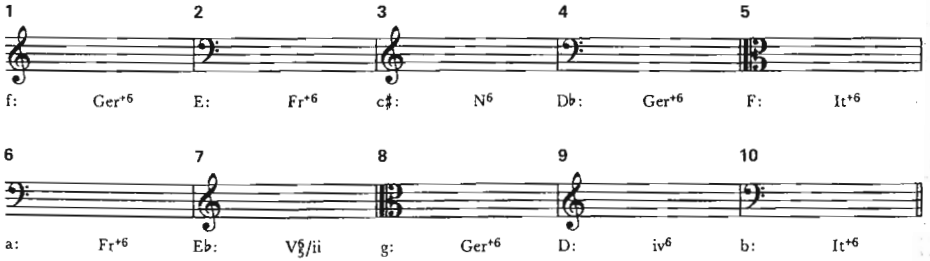
## *SELF-TEST 23-1*

(Answers begin on page 639.)

A. Label each chord, using inversion symbols where appropriate.




B. Notate each chord in close position. Augmented sixth chords should be in their customary bass position (♭6 in the bass). Include key signatures.

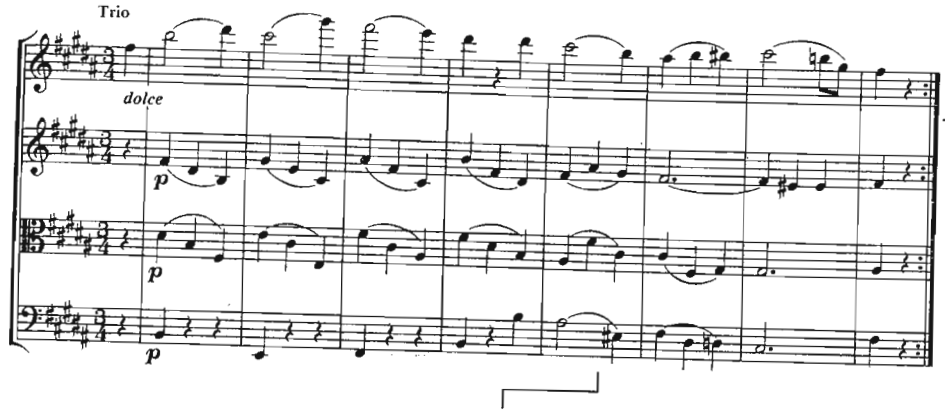





C. Label the chords in each excerpt below. Also, discuss the details of the resolution of each +6 chord. Do ♯$\hat{4}$ and ♭$\hat{6}$ follow their expected resolutions to $\hat{5}$? How are parallel 5ths avoided in the Ger+6 resolution(s)?

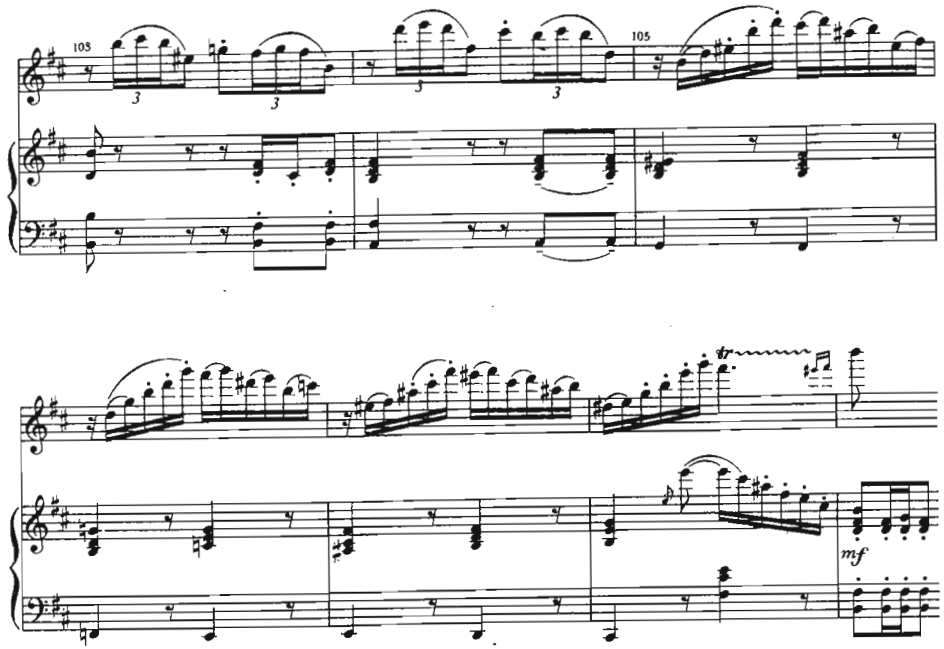
**1.** This excerpt modulates.

Haydn, Quartet Op. 64, No. 2, III



**2.** Find in this excerpt two chords that are enharmonically equivalent but very different in function.

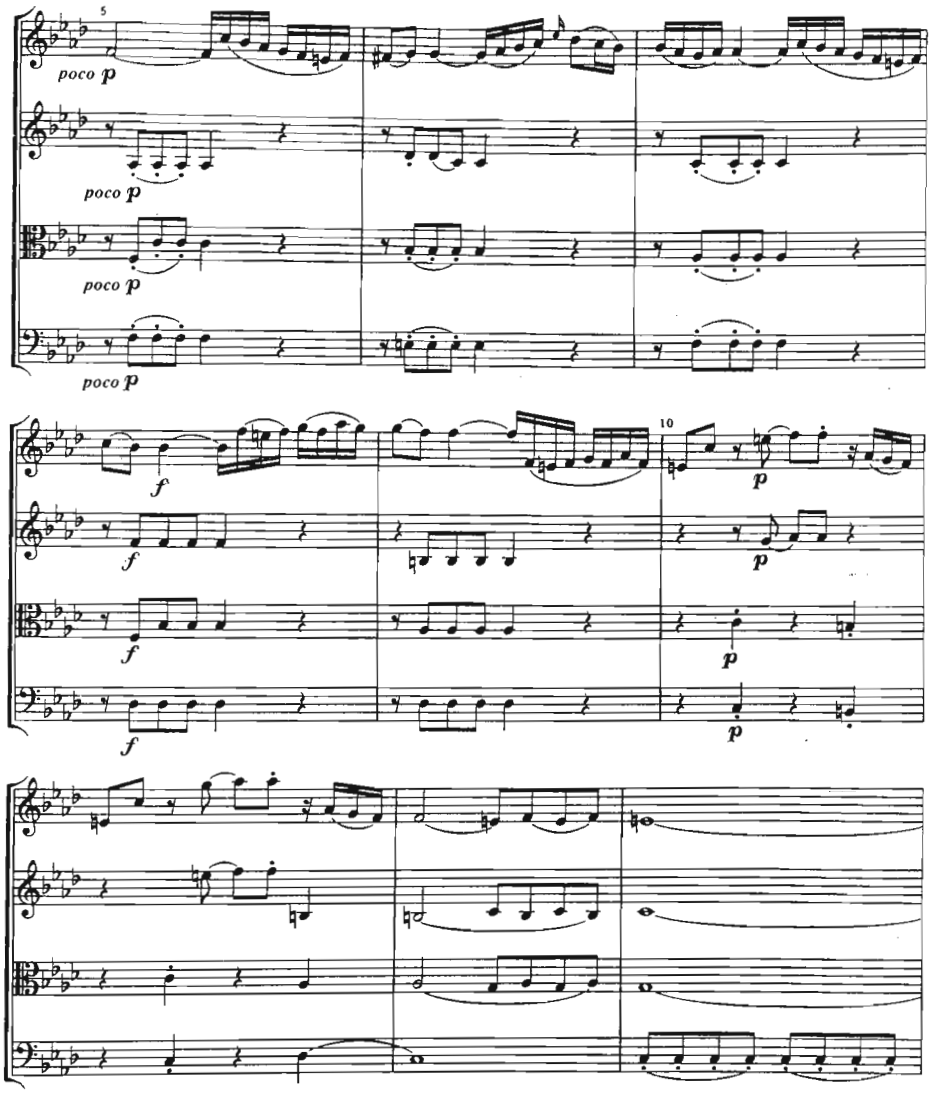
Reinecke, Flute Concerto, Op. 283, I





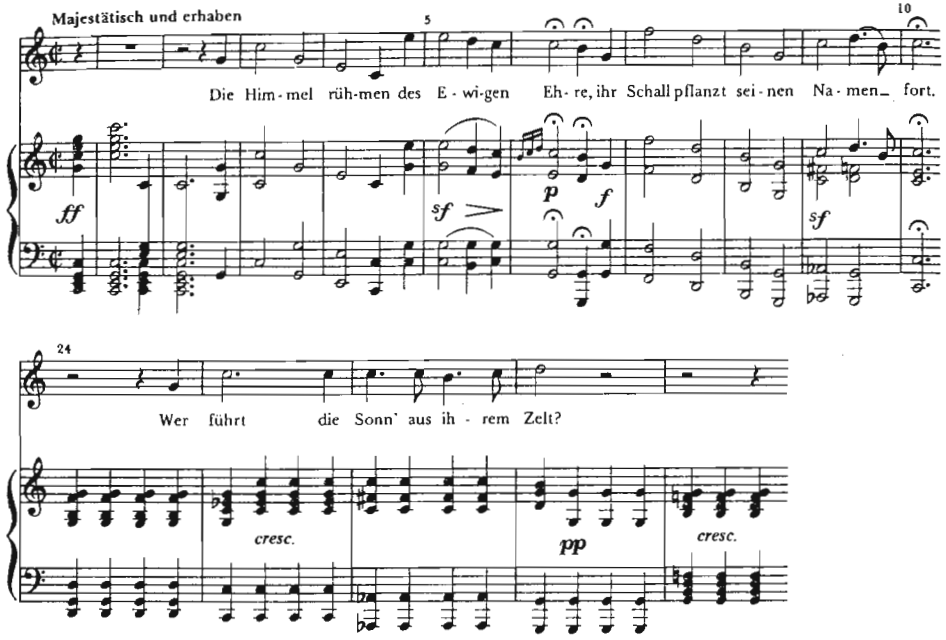

**3.** Label all chords, and find an example of a chromatic passing tone.

Haydn, Quartet Op. 20, No. 5, I

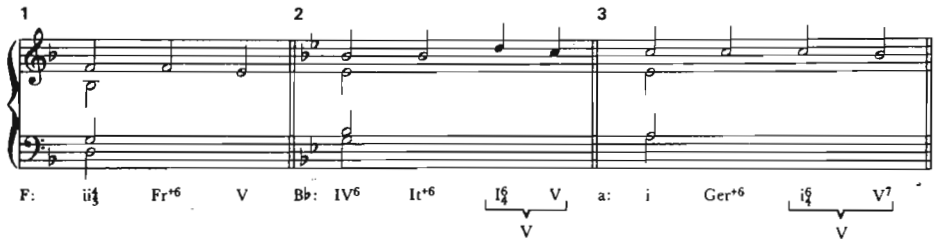


**4.** The two excerpts below are from the same song.

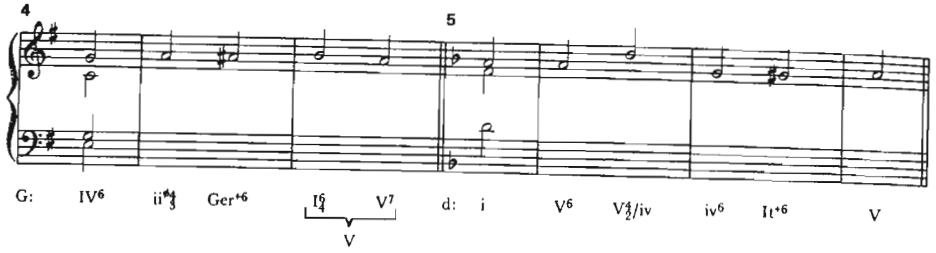
Beethoven, "Die Ehre Gottes aus der Natur," Op. 48, No. 4



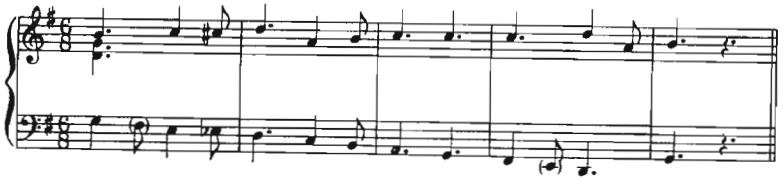

D. Supply the missing voices for each fragment below. All but Exercise 5 are four-part textures.



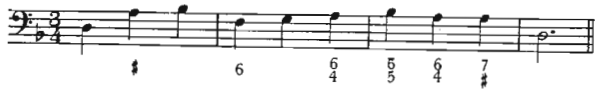



E. Analyze the harmonies implied by this soprano-bass framework, and try to include a Fr+6 and an example of mode mixture in your harmonization. Then complete the piano texture by filling in two inner parts in the treble-clef staff, following good voice-leading procedures.



F. Analyze the chords specified by this figured bass, then make an arrangement for SATB chorus.




*EXERCISE 23-1. See Workbook.*

# CHAPTER 24 *Augmented Sixth Chords 2*

## INTRODUCTION

Chapter 23 presented augmented sixth chords as they usually occur in tonal music: with (♭)$\hat{6}$ in the bass, ♯$\hat{4}$ in some upper part, and resolving outward to form a P8 on $\hat{5}$, which serves as the root of a V chord. Augmented sixth chords are sometimes used in other ways, however, including these:

1. A chord member other than (♭)$\hat{6}$ may be used as the bass note.
2. The interval of the +6 may be created by scale degrees other than (♭)$\hat{6}$ and ♯$\hat{4}$ in order to lead to some scale degree other than $\hat{5}$.
3. The interval of the +6 may expand to the 3rd or the 5th of a chord instead of to its root.
4. The augmented sixth chord may not be one of the three commonly encountered types.

These four possibilities are discussed in more detail in the following sections. The list is organized according to frequency of occurrence, which means that you would rarely encounter the uses listed toward the bottom.

## OTHER BASS POSITIONS

We have not yet discussed what pitch serves as the root of an augmented sixth chord. The reason for this is that the augmented sixth chord is a linear sonority that *has no root.* One can arrange the notes of a Fr$^{+6}$ to resemble an altered V$^7$/V, and the It$^{+6}$ and Ger$^{+6}$ sonorities can be likened to altered iv$^7$ chords. Indeed, many theorists prefer to use modified roman numerals as a convenient way to represent augmented sixth chords. Still, these chords are rootless; they have only a most common bass position, that position having the (♭)$\hat{6}$ in the bass.

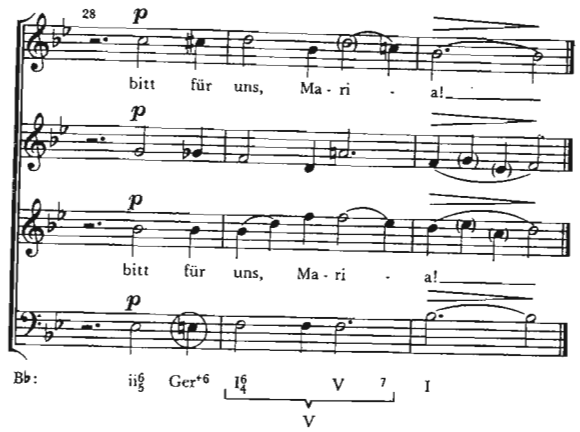
Although the minor mode $\hat{6}$ usually constitutes the bass of an +6 chord, other bass positions do occur, especially in music of the Romantic period.





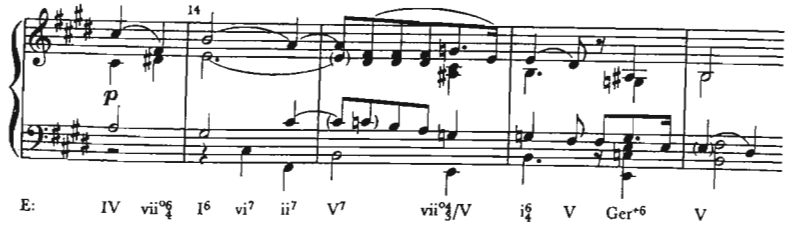
Generally, the voice leading will be identical or similar to that found in the standard resolutions discussed in Chapter 23, but the interval of the +6 will often be inverted to become a °3. The most common of the various possibilities is that with ♯$\hat{4}$ in the bass, as in Example 24-1. Notice also the enharmonic spelling of the Ger$^{+6}$.

**Example 24-1.** Brahms, "Ruf zur Maria," Op. 22, No. 5




The only other bass position that occurs with any frequency is that with the tonic pitch in the bass, as in Example 24-2.

**Example 24-2.** Brahms, Symphony No. 1, Op. 68, II (piano reduction)

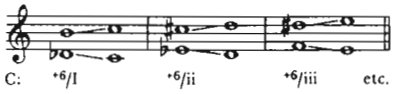


Because +6 chords have no root and therefore technically cannot be inverted, it is not necessary to show the bass position of the chord in the analytical symbol. Just use It+6, or whatever is appropriate, regardless of the bass position.

## RESOLUTIONS TO OTHER SCALE DEGREES

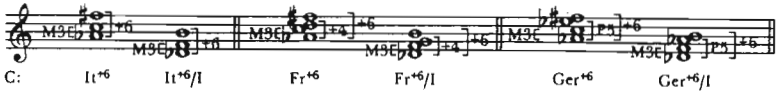
As we have shown, the interval of the +6 is usually created by the half steps above and below $\hat{5}$. Especially in the Romantic period, this same principle is occasionally applied to other scale degrees as well. In such cases we will employ analytical symbols similar to those used with secondary functions to indicate that the +6 is embellishing some scale degree other than the dominant. The +6 chords we have presented so far have all embellished the dominant, and we could have used symbols like Fr+6/V for these chords. However, we have followed the custom of symbolizing Fr+6/V as Fr+6. But when the +6 embellishes some scale degree other than $\hat{5}$, we will make this clear by using the method shown in Example 24-3.

**Example 24-3.**




In order to spell or recognize the various +6 types in these contexts, you will have to be familiar with the intervallic structure of the three kinds of augmented sixth chord. In Example 24-4, +6 chords embellishing $\hat{1}$ are formed by transposing the intervals from the more familiar +6/V spellings.

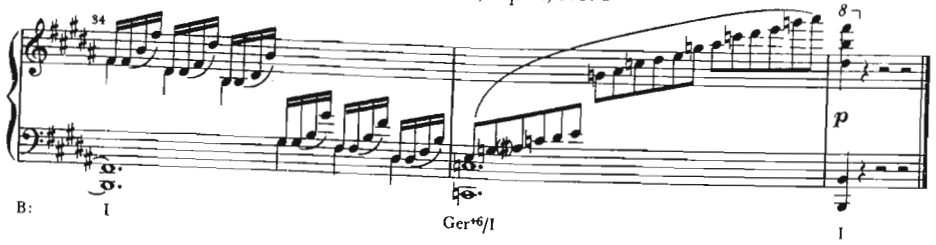
**Example 24-4.**




The Ger+6/I-I cadence in Example 24-5 comes at the very end of a song, following a more conventional $V^4_3$-I cadence a few measures earlier.

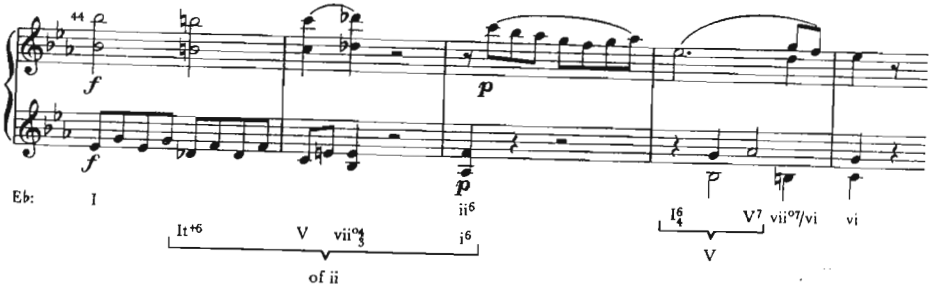


**Example 24-5.** Chausson, *Sérénade italienne*, Op. 2, No. 5




Often when an augmented sixth chord resolves to something other than V, the chord that it resolves to is a secondary dominant. In that case, it is probably better to show the analysis in relationship to the chord being tonicized. For instance, the chord in m. 44 of Example 24-6 could be analyzed as an It+6/vi, but it is better understood as part of a tonicization of F minor (ii).

**Example 24-6.** Mozart, Sonata K. 457, I

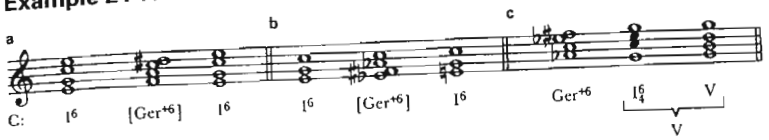



## RESOLUTIONS TO OTHER CHORD MEMBERS

In all of the resolutions discussed so far, the interval of the +6 (or °3) has resolved to the root of the next chord (which was sometimes ornamented with a cadential six-four chord). Much less common is the resolution of the +6 or °3 to the 3rd of a chord (as in Ex. 24-7a) or to the 5th of a chord (Ex. 24-7b). Such a use of the augmented sixth sonority is very different from those discussed so far. To signify this, the chord symbol is placed in brackets. It is important to realize that Examples 24-7b and 24-7c have little in common, even though they both show identically spelled Ger+6 chords

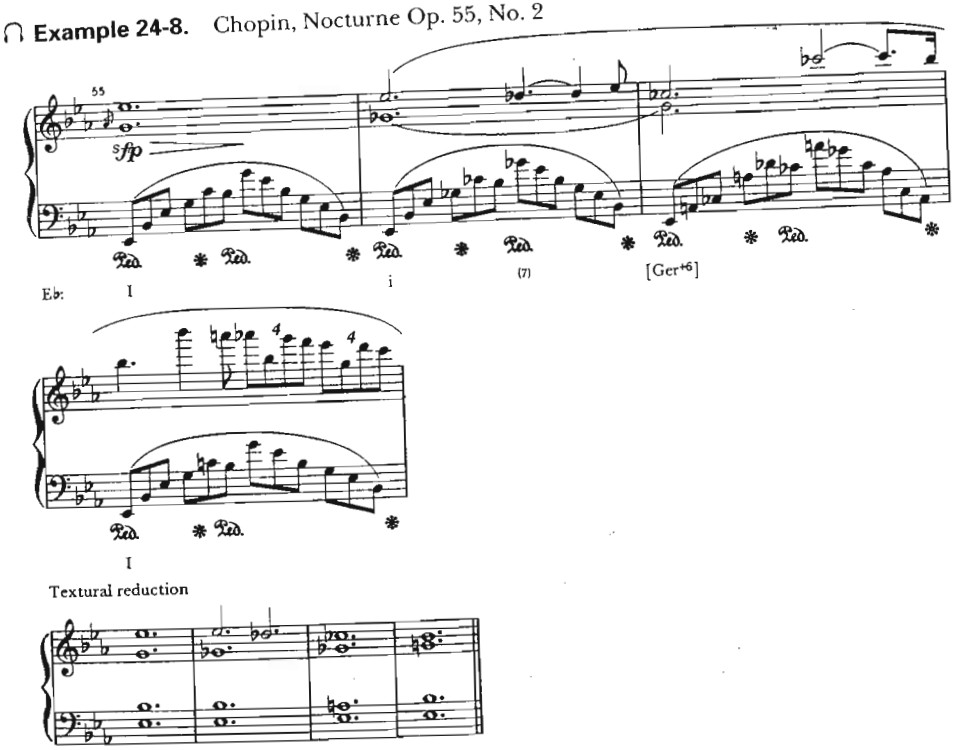
followed by tonic triads. The tonic triad in Example 24-7b is in the relatively stable six-three position, while the tonic triad in Example 24-7c is a cadential six-four standing for the root position dominant that follows.

**Example 24-7.**




An example of a Ger+6 resolving to the 5th of a I chord is seen in Example 24-8. The textural reduction shows that the voice leading is very smooth. Be sure to listen to both versions.

**Example 24-8.** Chopin, Nocturne Op. 55, No. 2

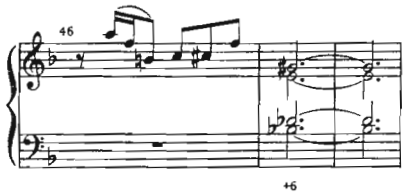





## OTHER TYPES OF AUGMENTED SIXTH CHORDS

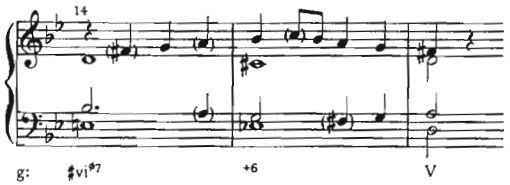
Only rarely will you encounter an augmented sixth chord that is not one of the three standard types: Italian, French, or German. When you do encounter such a sonority, the symbol +6 will suffice to show the characteristic interval found in the chord. One such chord is seen in Example 24-9. Here the +6 sonority resembles a Fr+6, but the D♭ would have to be a D♮ for it to be a Fr+6.

**Example 24-9.** Strauss, *Till Eulenspiegel's Merry Pranks*, Op. 24 (piano reduction)




The +6 symbol may also be used for what is actually a very common occurrence—the use of two or three augmented sixth sonorities within the span of a single +6 interval. In Example 24-10 the pitches of all three types of augmented sixth chord appear in m. 15. In such cases the symbol +6 would seem to be a good solution, although you could label the sonority that has the longest duration (Ger+6) or the sonority that appears last (It+6) in Example 24-10.

**Example 24-10.** Mozart, Symphony No. 40, K. 550, I (piano reduction)



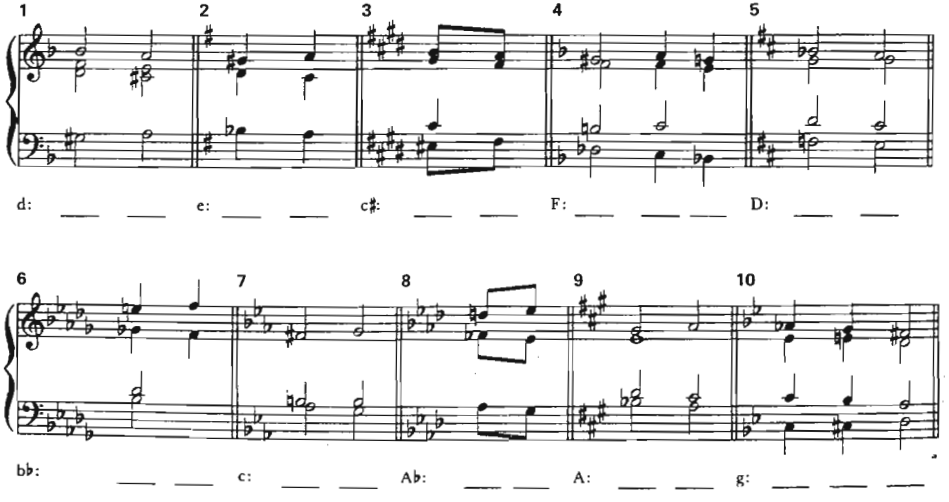
### *SUMMARY*

Most augmented sixth chords conform to the types discussed in the previous chapter, but variations do occur. For one thing, augmented sixth chords may appear with scale degrees other than (♭)$\hat{6}$ in the bass—most commonly ♯$\hat{4}$, but other chord members may appear in the bass as well. Also, the interval of the augmented 6th may embellish scale degrees other than $\hat{5}$, the chord of resolution often being a secondary dominant. Yet another possibility is to resolve the interval of an augmented 6th not to the root of a chord but to the 3rd or 5th. (This does not include the resolution to $I^6_4$-V, where the $I^6_4$ really represents the V chord.) Finally, you might on occasion encounter an augmented sixth chord that is not one of the three standard types (Italian, French, or German).

### *SELF-TEST 24-1*

(Answers begin in page 641.)

A. Label the following chords.

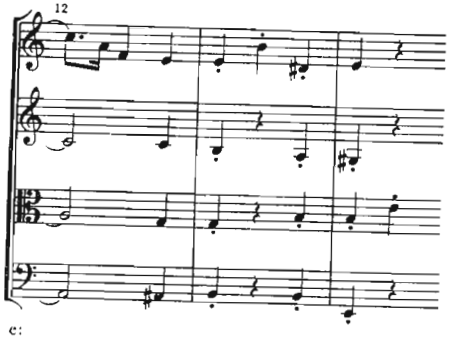





B. Analysis.

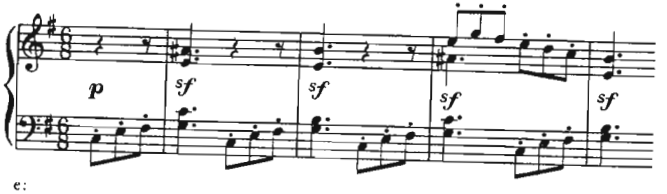
**1.** Label the chords in this short excerpt.

Brahms, Quartet No. 2, Op. 51, No. 2, III



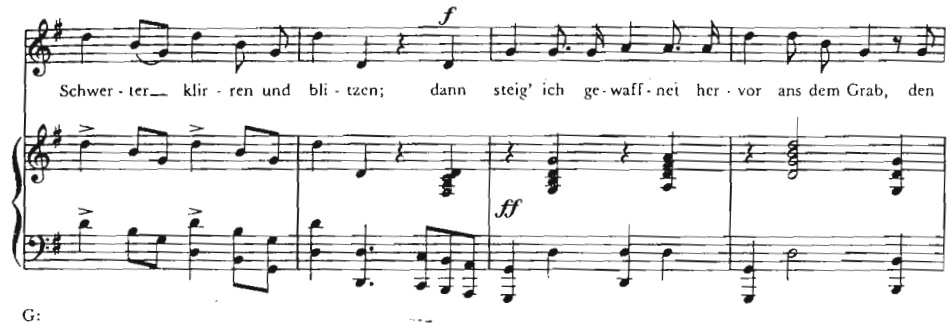

**2.** Label the chords in this excerpt.

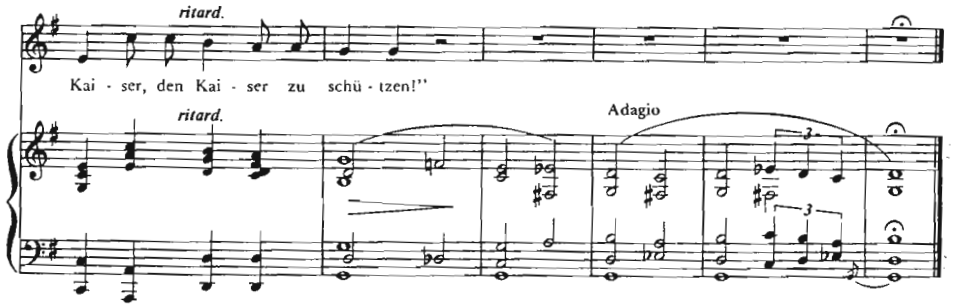
Tchaikovsky, "The Witch," Op. 39, No. 20



**3.** This is the ending of one of Schumann's better known songs. What national anthem is hinted at in the vocal part? Notice also the contrast between the diatonic setting of the text and the more chromatic codetta that ends the song. Label chords and NCTs.

Schumann, "Die beiden Grenadiere," Op. 49, No. 1

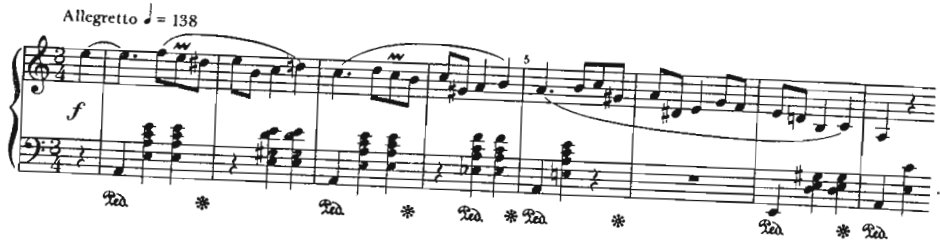





**4.** Label the chords, but not NCTs, in this excerpt. (Hint: Analyze the E♭ in m. 4 as a D♯.) Notice that in the first measure, for example, the A2 is the bass note through the entire measure.

Chopin, Mazurka, Op. 67, No. 4



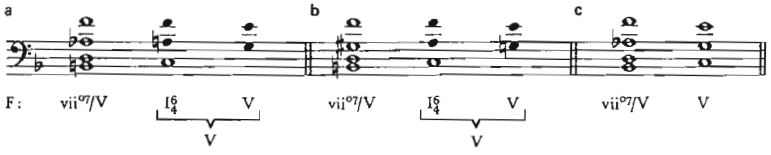

*EXERCISE 24-1. See Workbook.*

# CHAPTER 25 *Enharmonic Spellings and Enharmonic Modulations*

## ENHARMONIC SPELLINGS

Enharmonic spellings are used by composers for a variety of reasons. One reason is to indicate clearly the direction in which a pitch will move. For example, consider the vii$^{o7}$/V in Example 25-1a. When the vii$^{o7}$/V moves to the cadential $I^6_4$, there is nowhere for the A♭ to go but up to A♮. This motion looks a little more sensible when the A♭ is spelled as C♯, as it is in Example 25-1b, but the aural result with any fixed-pitch instrument is the same. This new spelling changes the chord visually from a b$^{o7}$ to a g♯$^{o7}$, but it does not change its function or the analysis. Of course, when the vii$^{o7}$/V moves directly to V, as in Example 25-1c, the A♭ spelling poses no problem, since the seventh resolves immediately downward to the G.

**Example 25-1.**



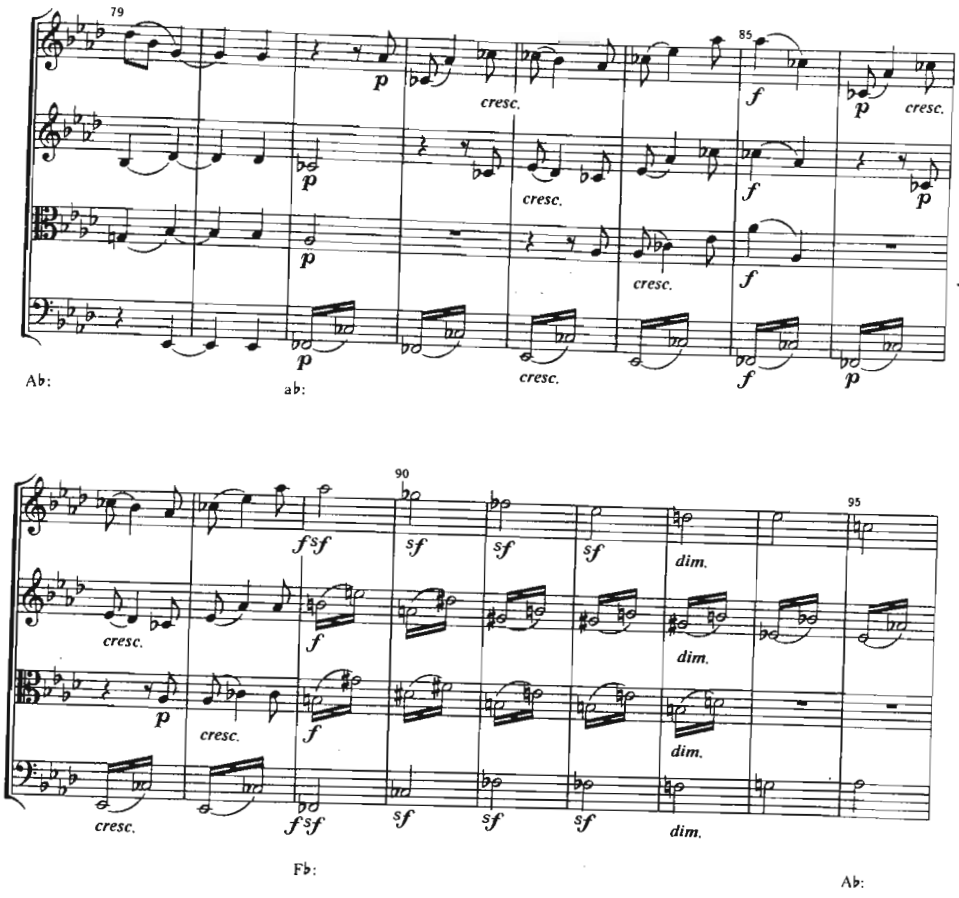

If you turn back to an earlier excerpt (Ex. 17-8 on p. 287), you will see an illustration of the enharmonically spelled vii$^{o7}$/V, voiced exactly as in Example 25-1b, above. Very similar to the enharmonically spelled vii$^{o7}$/V is the enharmonically spelled Ger$^{+6}$ chord (review Ex. 23-12 on p. 389). Notice that both involve the respelled ♭$\hat{3}$/♯$\hat{2}$ preceding a $I^6_4$ in the major mode.

Another reason for enharmonic spellings is the desire on the part of the composer to make things easier for the performer. This is presumably the case in Example 25-2, which changes briefly from A♭ to a♭ (mode mixture), then reaches F♭ (VI of a♭) before returning to A♭. In the F♭ portion (mm. 89-92) the viola and second violin are notated enharmonically in the key of E, perhaps to make their tremolos easier to read.



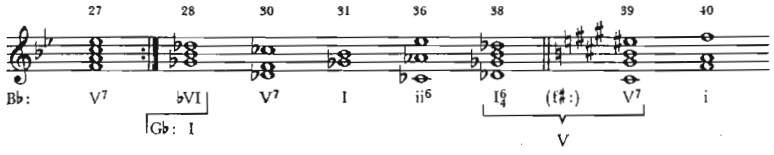


**Example 25-2.** Mendelssohn, Quartet Op. 80, IV



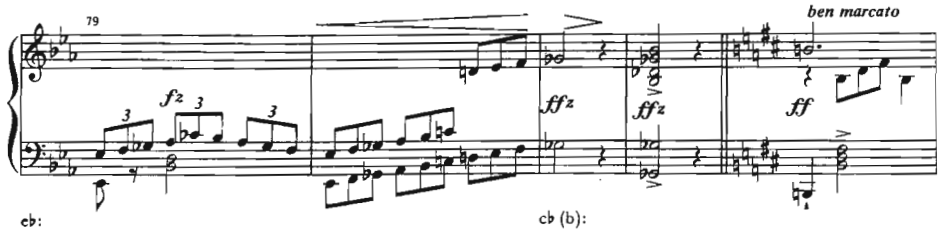
Instead of enharmonically spelling only some of the parts, as Mendelssohn did in the example above, composers usually respell the key entirely. In Schubert's String Trio there is a modulation from B♭ to G♭ (♭VI), which then changes by mode mixture into g♭ minor. In order to avoid this awkward key (the key signature would contain nine flats!), Schubert quite reasonably notates it in f♯ minor. The harmonic skeleton of this passage is shown in Example 25-3.

**Example 25-3.** Schubert, String Trio D. 581, I (textural reduction)




Examples of enharmonically spelled keys abound in nineteenth-century music. Schubert's Impromptu contains a passage with the following tonal structure: E♭-e♭-c♭, the last being spelled as b minor. The e♭-c♭ portion of that passage is given as Example 25-4.

**Example 25-4.** Schubert, Impromptu Op. 90, No. 2




Composers will often—but not always—change the key signature in situations such as this. Otherwise, they will use whatever accidentals are required. This is the case with the Self-Test excerpt 21-1, part C5 (p. 369), where Beethoven used accidentals to notate passages in b minor and D major, even though the key signature contains seven flats. However it is notated, the enharmonically spelled key is an example of enharmonic spelling for convenience, and



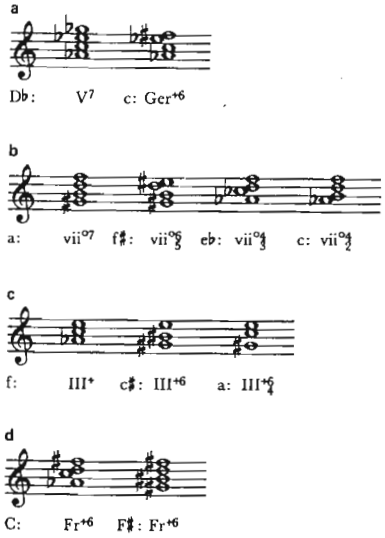
the listener is entirely unaware of the enharmonic spelling. Enharmonic spelling for convenience is *not* the same as enharmonic modulation, which is a much more interesting topic and which is the subject of the rest of this chapter.

## ENHARMONIC REINTERPRETATION

The enharmonic spelling discussed so far in this chapter is intended primarily for the eye, not the ear. But there are four sonorities used in tonal music that can be reinterpreted enharmonically *in a different key* (not in enharmonic keys, like G♭ and F♯), and the listener can hear this reinterpretation when these chords resolve.

One such sonority is the major-minor seventh, which can serve either as a $V^7$ or as a $Ger^{+6}$ (Ex. 25-5a). Another is the diminished seventh chord, where any tone can serve as the leading tone (Ex. 25-5b). The other two possibilities are the augmented triad (Ex. 25-5c) and the $Fr^{+6}$ chord (Ex. 25-5d), although these chords are rarely reinterpreted enharmonically.

**Example 25-5.**



The implications of all of this are that when the listener hears a major-minor seventh or diminished seventh sonority, certain expectations will probably arise (such as, "This chord will resolve as a $V^7$ in D♭"), only to be pleasantly thwarted on occasion by an equally logical enharmonic reinterpretation (such as, in this case, a $Ger^{+6}$ in C.) This process, which is often reserved for especially dramatic spots in a composition, is known as *enharmonic modulation.*

### *CHECKPOINT*

1. Contrast enharmonic spelling for convenience and enharmonic modulation.
2. Make up a key scheme starting with B♭ that might result in enharmonic spelling for the convenience of the performer.
3. What four sonorities can be reinterpreted enharmonically so that they occur in different keys?
4. Which two of these four sonorities are commonly used enharmonically in tonal music?

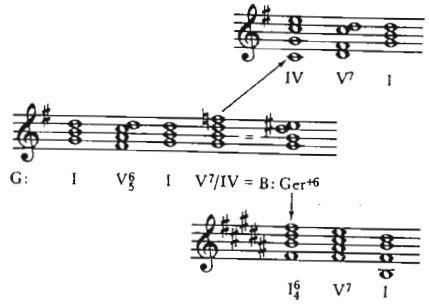
## ENHARMONIC MODULATIONS USING THE MAJOR-MINOR SEVENTH SONORITY

The term *enharmonic modulation* is used to refer to a modulation in which the common chord is reinterpreted enharmonically in order to fit into the second key. The actual spelling of the chord is not important—it might be spelled as it would appear in the first key, or in the second key, or even in both if it occurs more than once. What is important is that the common chord can be *heard* as a sensible chord in both keys.

The person listening to Example 25-6 probably expects the fourth chord to resolve as a V7/IV in G, as it does in the top staff. But the possibility exists that it may be enharmonically reinterpreted as a $Ger^{+6}$ in B, as seen on the bottom staff. This reinterpretation results in an enharmonic modulation from G to B. Play Example 25-6 several times, comparing the effect of the two resolutions of the major-minor seventh sonority.

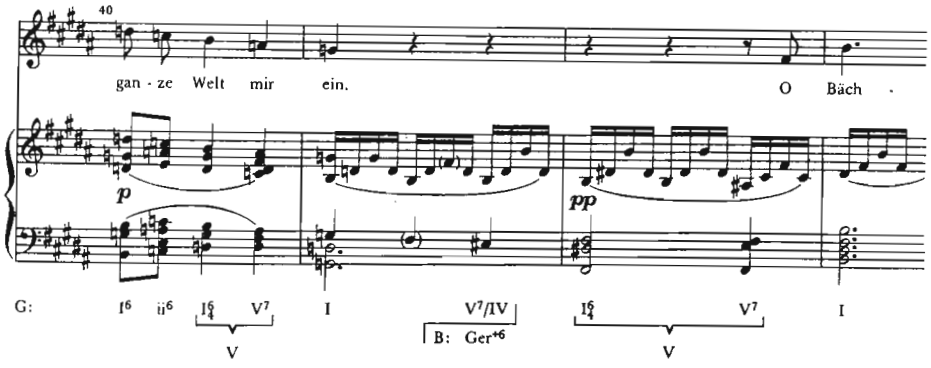


**Example 25-6.**




Now compare Example 25-6 with Example 25-7. The last chord in m. 41 of Example 25-7 sounds like a $G^7$ chord. Since the tonality at this point is G, the listener probably expects the next measure to begin with a C chord (IV in G). Instead, the $G^7$ is treated and spelled as a $Ger^{+6}$ in B major.

**Example 25-7.** Schubert, "Der Neugierige," Op. 25, No. 6

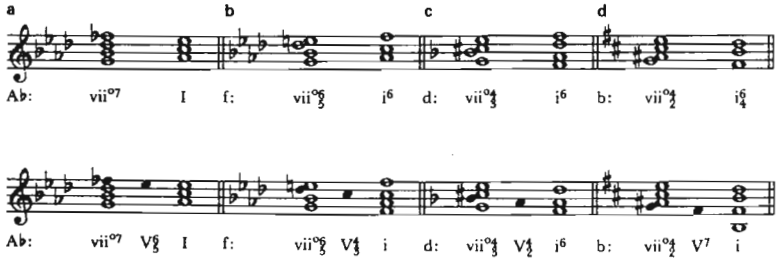


Any $V^7$ chord or secondary $V^7$ in the first key can be reinterpreted as a $Ger^{+6}$ chord in the new key. The reverse is also possible—a $Ger^{+6}$ in the first key can become a $V^7$ or secondary $V^7$ in the second key. However, in the majority of cases the common chord is a $Ger^{+6}$ in the second key, presumably because of its more dramatic effect. Also, the major-minor seventh chord in the first key seems most often to be a V7/IV. This common relationship, V7/IV becoming $Ger^{+6}$, was illustrated in Examples 25-6 and 25-7. It would also be possible to use an $It^{+6}$ as the enharmonic equivalent of an incomplete $V^7$, but this is not often encountered.

## ENHARMONIC MODULATIONS USING THE DIMINISHED SEVENTH CHORD

Surprisingly, the diminished seventh chord is not used as frequently as the major-minor seventh chord in enharmonic modulations, even though any diminished seventh chord can lead in four directions, compared to the two possible with the major-minor seventh (see Ex. 25-5). The top staff of Example 25-8 shows four resolutions of the same diminished seventh sonority. The bottom staff is similar, except that the diminished seventh chord in each case is followed by a $V^7$ before the resolution to tonic. Both methods—$vii^{o7}$-I and $vii^{o7}$-$V^7$-I—are used in enharmonic modulations. You should play through Example 25-8 to familiarize yourself with the sound of these resolutions.

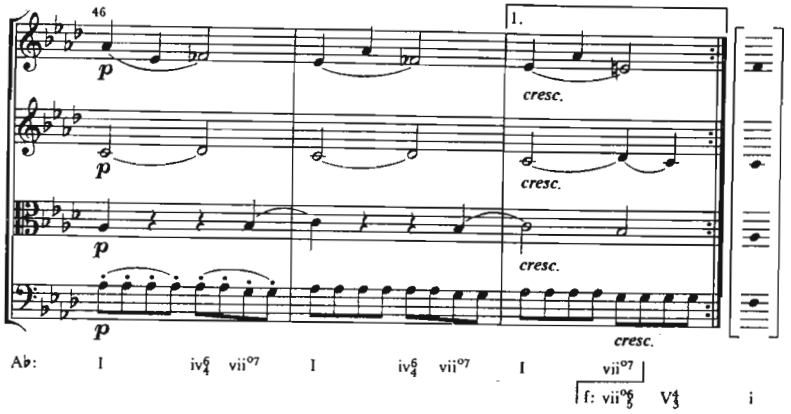
**Example 25-8.**





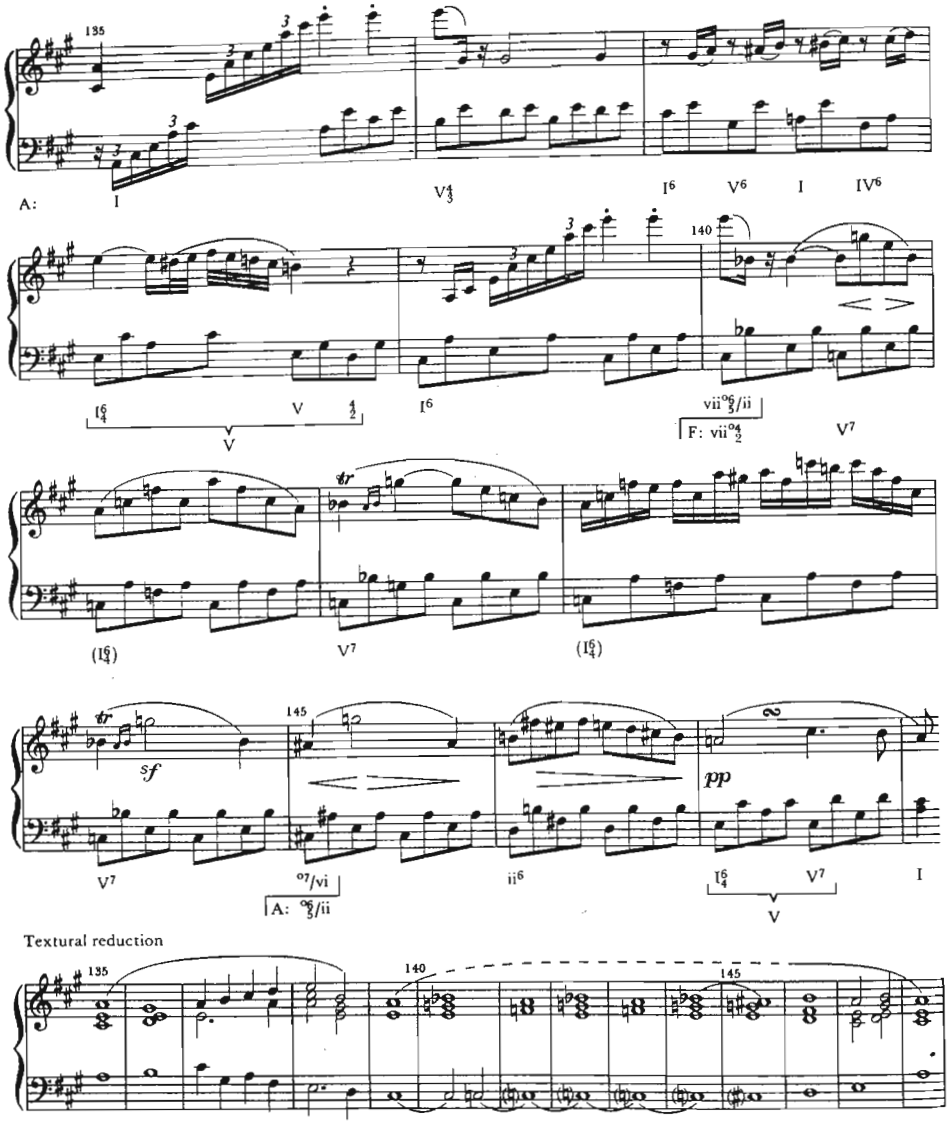

Example 25-9 is from the end of the first part of a movement by Haydn. The movement begins in f minor and modulates to A♭, the relative major. Because the composer is going to repeat the entire first section, he must modulate back to f minor before the repeat. Haydn prepares for the modulation in mm. 46-47 by using a $g^{o7}$ chord ($vii^{o7}$ in A♭), just as in the top staff of Example 25-8a. In the first ending, however, he uses the same sonority, respelled as $vii^{o6}_5$ in f, and resolves it as in the bottom staff of Example 25-8b, bringing us back to f minor for the repeat.

**Example 25-9.** Haydn, Quartet Op. 20, No. 5, I




Example 25-10 begins and ends in A major. A $c♯^{o7}$ chord appears in m. 140, but the listener probably hears it as an $a♯^{o7}$, which is a $vii^{o6}_5$/ii in A major ($vii^{o7}$/IV would be another possibility). But Beethoven treats this chord as a $vii^{o4}_2$ in F, the c♯ in the bass really acting like a d♭. This is similar to the bottom staff of Example 25-8d. When this same chord recurs in m. 145, it *sounds* like a $vii^{o7}$/vi in F, because it follows V and seems to imply a V-$vii^{o7}$/vi-vi deceptive progression. Instead, it is treated (and notated) as an $a♯^{o7}$, a $vii^{o7}$/ii in A major.

**Example 25-10.** Beethoven, Sonata Op. 2, No. 2, IV






The textural reduction that appears below Example 25-10 is worth studying. Play it and listen to it, paying special attention to the bass line. You will find that mm. 140-145 constitute a harmonic digression, keeping the C♯ in m. 139 from reaching its goal, D, until m. 146. The entire example is a parallel period, the second phrase being expanded from four to ten measures by means of the passage that tonicizes F. This is indicated by the dotted phrase mark in the example.

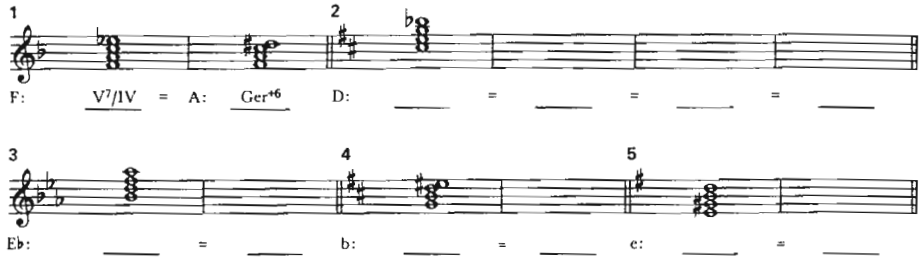
## SUMMARY

*Enharmonic spellings* are sometimes used when a composer wants to make the direction of a line more apparent to the performer—as in D-D♯-E, as opposed to D-E♭-E—or when a composer simply wants to make something easier to read—by notating a passage in E instead of F♭, for example. These sorts of enharmonic spellings come about for the performer's convenience, but they are inaudible to the listener. *Enharmonic reinterpretations*, on the other hand, are audible because they reinterpret a chord in a new key as part of a modulation. Enharmonic modulations almost always use either a major-minor seventh chord or a diminished seventh chord as the common chord. The major-minor seventh chord will be heard as a German augmented sixth chord in one key and a $V^7$ (or secondary $V^7$) in the other. The diminished seventh chord used as a common chord will be a $vii^{\circ 7}$ (or secondary $vii^{\circ 7}$) in both keys, but different pitch classes will serve as roots in the two keys.

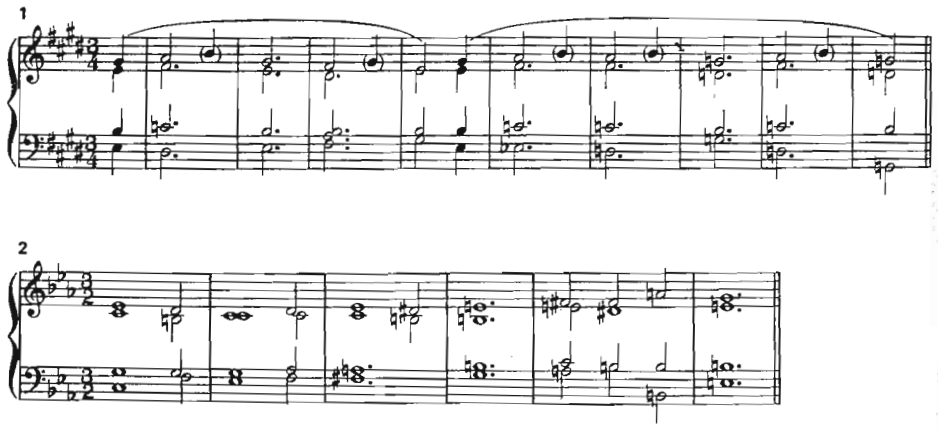
### *SELF-TEST 25-1*

(Answers begin on page 643.)

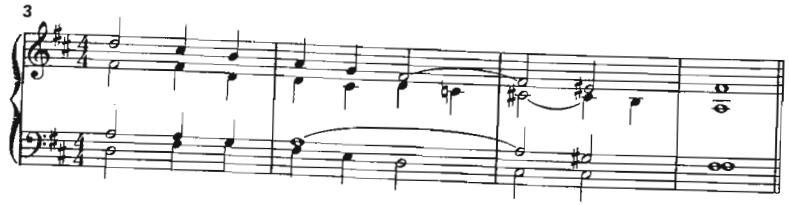
A. Analyze the given chord. Then show any possible enharmonic reinterpretation(s) of that chord, keeping the same key signature. Each enharmonic reinterpretation should involve a new key, not just an enharmonically equivalent key (such as g♯ and a♭). Number 1 is given as an example.




B. Each of the following short examples contains an enharmonic modulation. Analyze each example *after* playing it slowly at the piano and listening for the point of modulation. Do not try to analyze these example without hearing them.



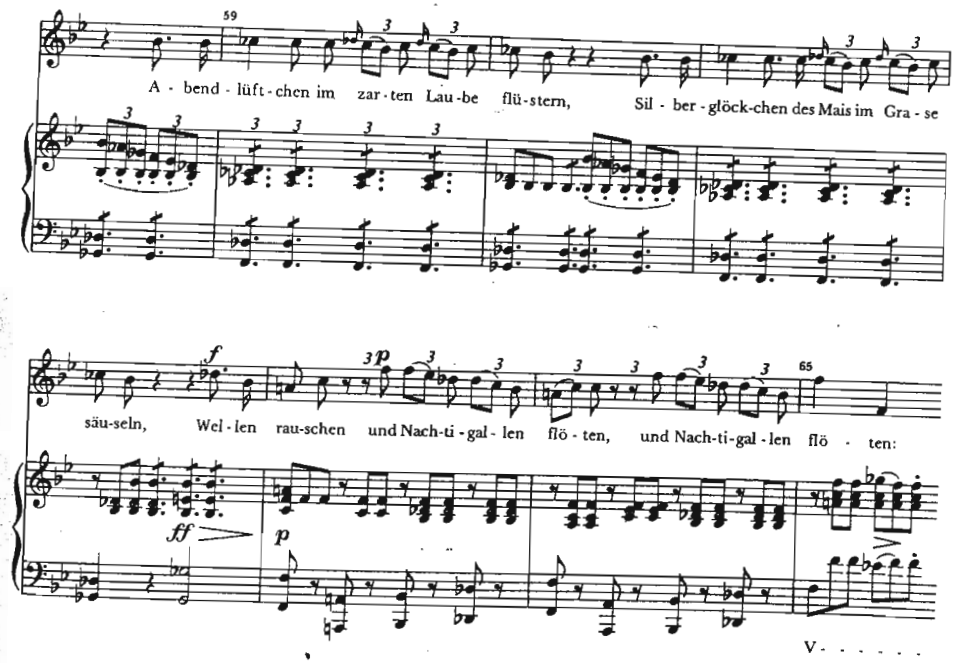



C. Analysis. Be sure to play as much of each excerpt at the piano as you can, simplifying the texture as necessary.

**1.** This excerpt begins in G♭ and ends in b♭ minor, although B♭ major is the eventual goal. Label all of the chords. Can you relate the F-G♭-F figure in the last measure to anything that has happened earlier? That is, does it remind you of any other figure heard in this excerpt?

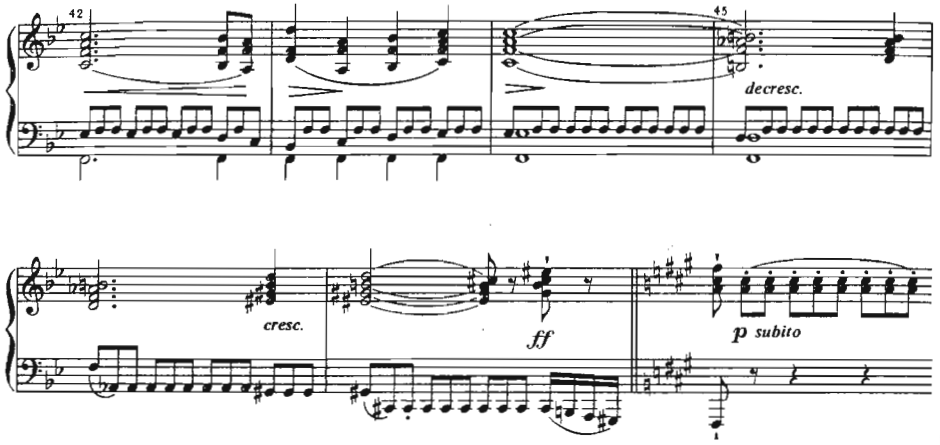
Beethoven, "Adelaide," Op. 46



**2.** Look back at the Schubert excerpt in Self-Test 19-1, part A2 (p. 330). Is this an enharmonic modulation? Explain your answer.

**3.** This excerpt begins in B♭ and modulates to f♯. Before you try to analyze the modulation, play the excerpt slowly as block chords, listening carefully as you play.

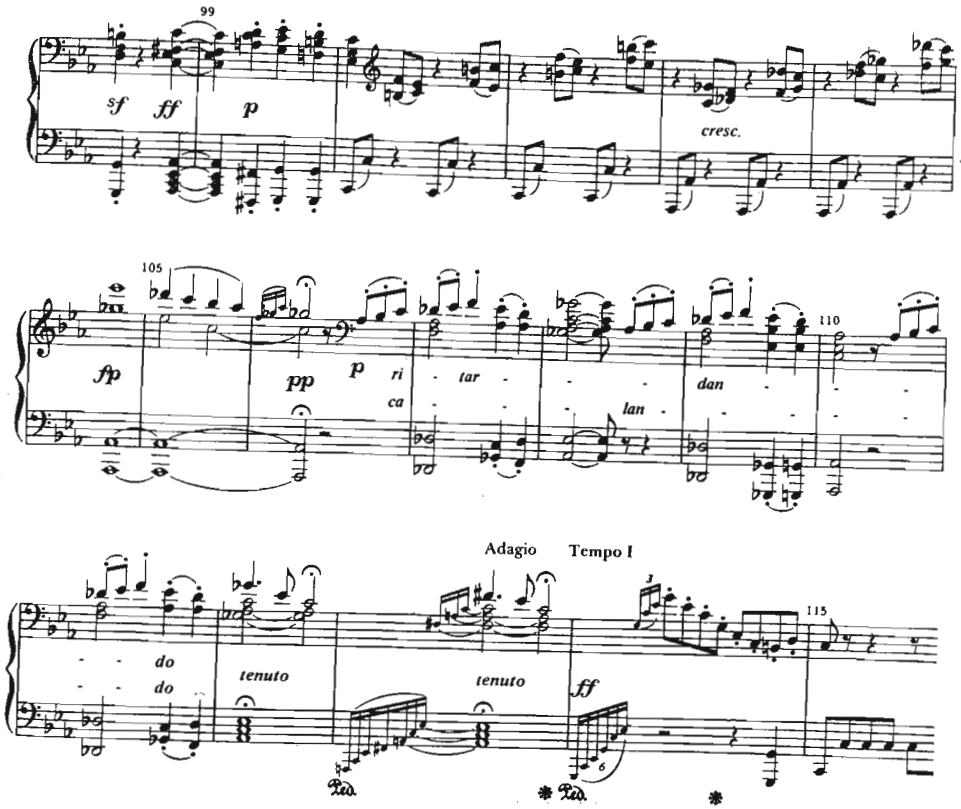
Schubert, Piano Sonata, D. 960, I





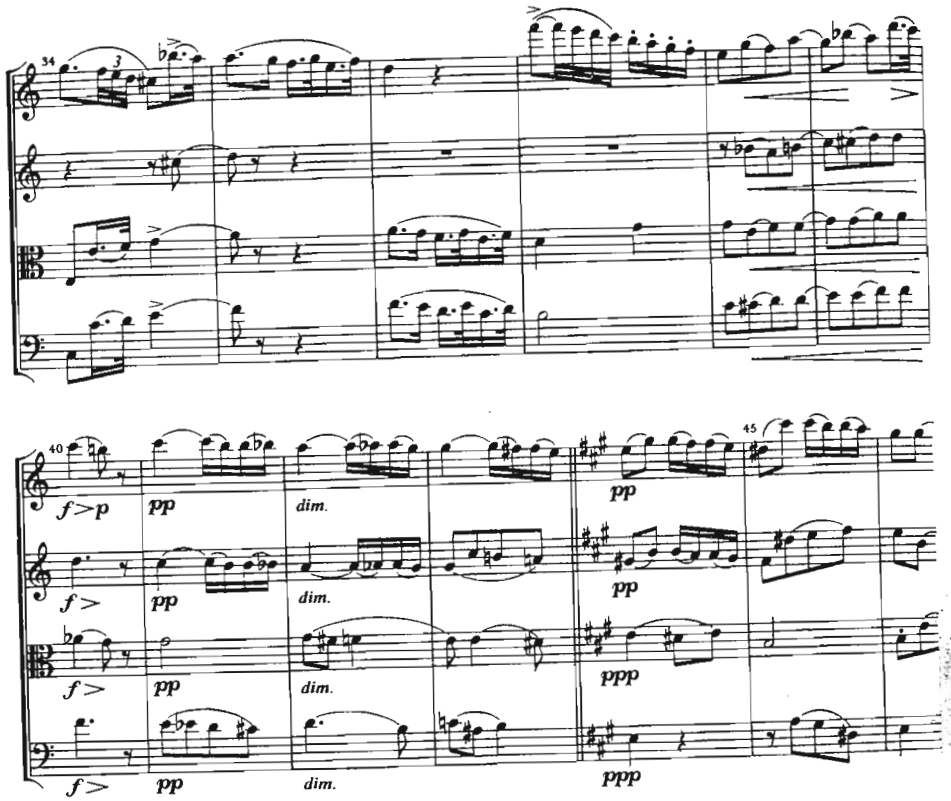

**4.** This excerpt begins and ends in c minor. Label all of the chords. This passage really represents an extended V-i cadence in c minor. An important role in extending the passage is played by the pitch class F♯/G♭. Make a list of all of the chords containing F♯/G♭ and their locations.

Beethoven, Sonata Op. 10, No. 1, III



**5.** This passage begins in C and ends in E, although the eventual goal is the key of A. Label all chords in this excerpt. Is there an important pitch class in this excerpt similar to the F♯/G♭ in the previous passage? If so, which one do you think it is and why?

Schubert, Quartet Op. 125, No. 2, II




*EXERCISE 25-1. See Workbook.*

CHAPTER 26

# *Further Elements of the Harmonic Vocabulary*

## INTRODUCTION

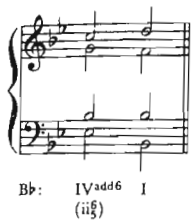
Tonal harmony, on the surface a simple and natural musical phenomenon, is in reality a very complex and variable set of relationships. Many people have devoted years to the study of tonal harmony and to the almost limitless number of musical structures for which it has provided the foundation. It surely represents one of the highest achievements of Western art and intellect.

Because the subject is so complex, we have been concerned throughout this text with those harmonic events in tonal music that could be thought of as the basic vocabulary of the system—those events that occur with a relatively high degree of frequency. This chapter deals with a few details which are perhaps less fundamental but which, nevertheless, deserve attention. But, of course, even with this chapter we will not completely exhaust the harmonic vocabulary. The variations in detail and exceptions to the norms found in tonal music are too numerous to codify; in fact, it is doubtful that they ever will be codified. This complexity is one of the really fascinating aspects of tonal music, an aspect you can look forward to exploring in your further study of the literature.

## THE DOMINANT WITH A SUBSTITUTED 6TH

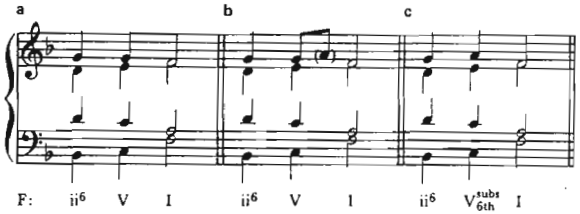
You may be familiar with the concept of added-note chords, such as the triad with an added 6th. Such chords were not really a standard part of the vocabulary of Western music before impressionism, but they were recognized as a possibility long before that time. For example, Jean Philippe Rameau (1683-1764), an influential French theorist and composer, considered the first chord in Example 26-1 to be a IV chord with an added 6th. Although you might prefer to label it as a $ii^6_5$, that approach does not explain the unresolved 7th (B♭3). Whichever analysis you choose, the cadence is plagal (review p. 157).

**Example 26-1.**




While triads with added 6ths are not characteristic of most tonal music, the dominant chord with a *substituted 6th* is not uncommon, especially in the nineteenth century. In this case, the 6th above the root is substituted for the 5th, which does not appear. If you play the three cadences in Example 26-2, you will find that they have a similar effect. The first one, of course, is a familiar form of the perfect authentic cadence. Example 26-2b incorporates an escape tone that embellishes the 5th of the V chord. In Example 26-2c the A4 appears in place of the 5th—it is a substituted 6th ($V^{subs}_{6th}$). You may have noticed that the $V^{subs}_{6th}$ contains the same scale degrees as those found in a iii$^6$ chord, but the function is clearly dominant. To analyze the cadence in Example 26-2c as iii$^6$-I would certainly be an error.

**Example 26-2.**

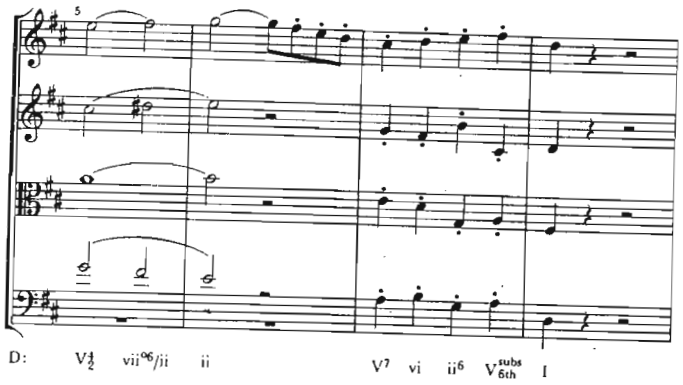



Example 26-3 contains an illustration of the $V^{subs}_{6th}$. Notice that the E5, the pitch that would have been the 5th of the V chord, appears immediately



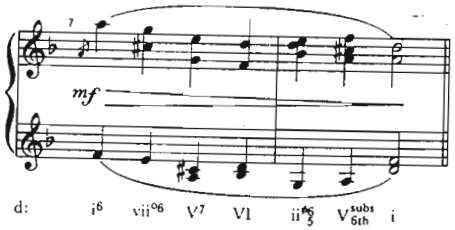
before the F♯5. The $V^{subs}_{6th}$ is usually prepared in this manner, which leads some theorists to analyze the $V^{subs}_{6th}$ as a V chord with a metrical escape tone. Either approach is acceptable.

**Example 26-3.** Haydn, Symphony No. 101, IV



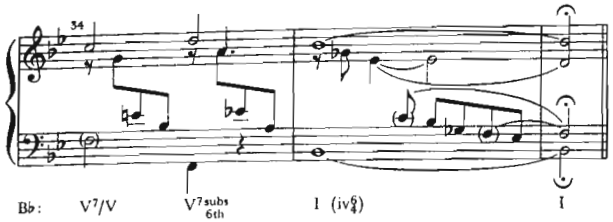

Example 26-4 is strikingly similar to the previous example, but it is in the minor mode. Notice again the preparation of the 6th.

**Example 26-4.** Schumann, "Folk Song," Op. 68, No. 9




The substituted 6th may appear in connection with the dominant triad, as in the examples above, or with the V$^7$, as in Example 26-5.

**Example 26-5.** Schumann, *Humoresque*, Op. 20

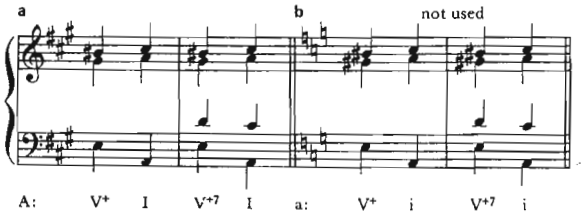



The $V^{subs}_{6th}$ and $V^{7subs}_{6th}$ are usually found in root position with the substituted 6th in the top voice, and the 6th is always voiced higher than the 7th in the $V^{7subs}_{6th}$. The 6th resolves by leaping down to the tonic pitch.

## THE DOMINANT WITH A RAISED 5TH

When the 5th of a V or $V^7$ is chromatically raised, the sonority that results is either an augmented triad ($V^+$) or an augmented minor-seventh chord ($V^{+7}$). This alteration is useful in that the raised 5th creates a leading tone to the 3rd of the tonic triad. The leading-tone effect would not be present if the tonic triad were minor, and for this reason the augmented dominant is not found resolving to a minor triad. These concepts are illustrated in Example 26-6.

**Example 26-6.**

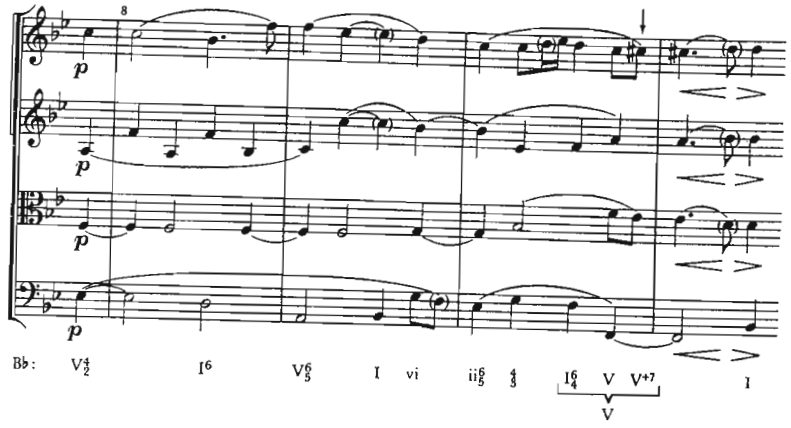



Notice that the $V^{+7}$ may contain the interval of an +6, depending upon the voicing (between the soprano and tenor in Ex. 26-6a). Try not to confuse this altered dominant, whether in root position or inversion, with more conventional +6 chords.



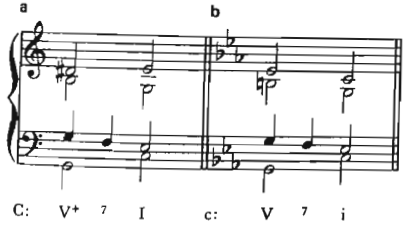
Most instances of $V^+$ and $V^{+7}$ find the augmented dominant preceded by its diatonic form, which means that the $\#\hat{2}$ could also be analyzed as a chromatic passing tone. The C♯5 in Example 26-7 is a chromatic passing tone, but at the same time it creates a $V^{+7}$ for a duration of four eighth notes.

**Example 26-7.** Beethoven, Symphony No. 9, Op. 125, III (strings)



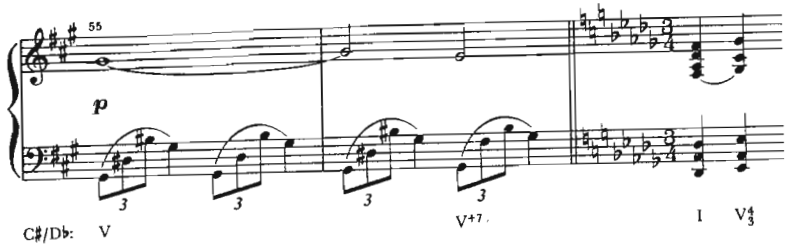

The $V^+$ and $V^{+7}$ in the major mode are enharmonic with the $V^{subs}_{6th}$ and $V^{7subs}_{6th}$ in the minor mode, as Example 26-8 illustrates. The resolutions are quite different, however: the raised 5th of the $V^+$ moves up by half step to $\hat{3}$ (Ex. 26-8a), while the substituted 6th of the $V^{subs}_{6th}$ leaps down to $\hat{1}$ (Ex. 26-8b).

**Example 26-8.**



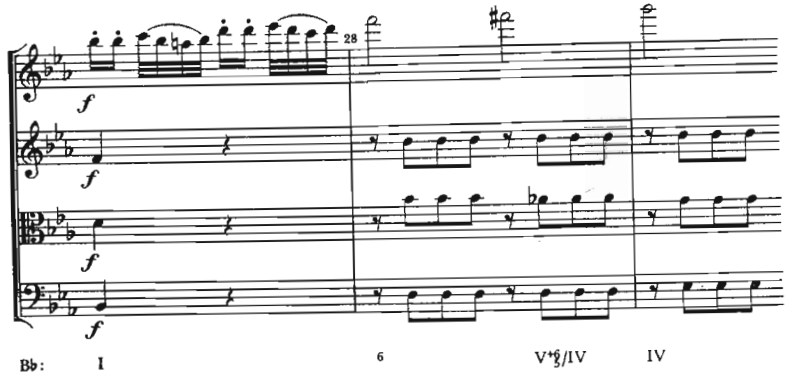
Example 26-9 begins with a V chord in the key of C♯, and the chord eventually resolves to a I, enharmonically spelled as D♭. In the second measure of the example, the E4 would appear to create a $V^{7\text{sub}}_{6\text{th}}$, but if you play the example, you will hear that the E4 is really a D𝄪4, and the chord is a $G♯^{+7}$ (compare Ex. 26-8a). Chopin used this enharmonic spelling for the convenience of the performer, who would rather read G♯-E-F in the soprano than G♯-D𝄪-F.

**Example 26-9.** Chopin, Nocturne Op, 48, No. 2




Secondary dominants may also appear in augmented form. Most common are the $V^{+}$/IV and the $V^{+7}$/IV, as in Example 26-10.

**Example 26-10.** Haydn, Quartet Op. 9, No. 2, I

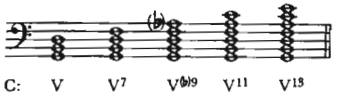





## NINTH, ELEVENTH, AND THIRTEENTH CHORDS

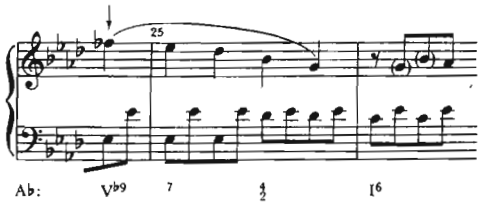
Just as superimposed 3rds produce triads and seventh chords, continuation of that process yields ninth, eleventh, and thirteenth chords (which is not to say that this is the manner in which these sonorities evolved historically). These chords are shown in Example 26-11.

**Example 26-11.**



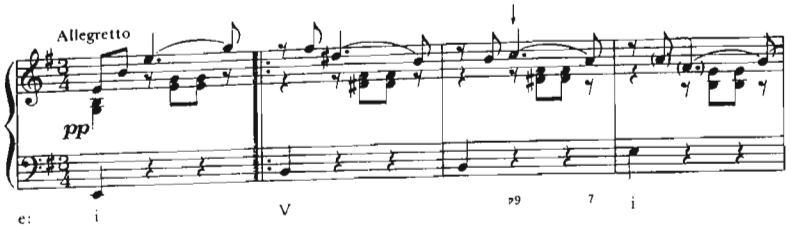

Interesting as these chords may be, the triad and the seventh chord were really the standard fare of music in the eighteenth and nineteenth centuries. True elevenths and thirteenths are rare before impressionism. Ninths occur throughout the tonal era, but the 9th of the chord often can be analyzed as an NCT and usually disappears before the chord resolves. The most common way to resolve the 9th is to slip down a step to double the root of the $V^7$. This is what happens in Example 26-12, where the minor-mode 9th, F♭5, moves down by step to E♭5, the root of the $V^7$.

**Example 26-12.** Beethoven, Sonata Op. 2, No. 1, I



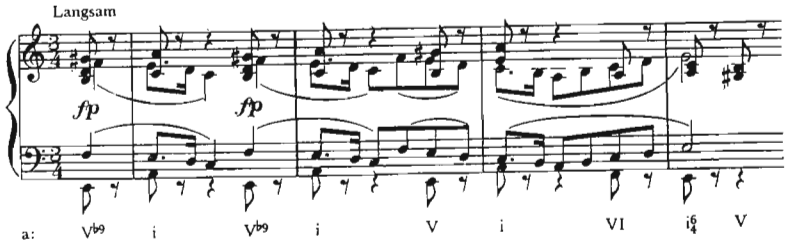

Another possibility, illustrated in Example 26-13, is to arpeggiate from the 9th of the chord down to the 7th.

**Example 26-13.** Beethoven, Quartet Op. 59, No. 2, III (piano reduction)




Certainly, examples may be found of ninth chords that maintain the quality of a ninth chord right up to the resolution, at which point the 9th resolves down by step. This is illustrated in Example 26-14, where the 9th, F, resolves to E in the next chord.

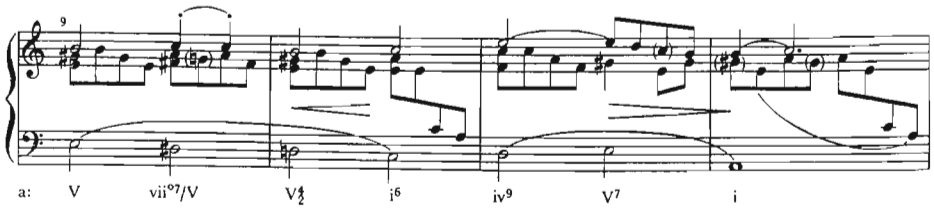
**Example 26-14.** Schumann, "Leides Ahnung," Op. 124, No. 2




All of the examples of ninth chords cited so far have been dominant ninths. Although dominant ninths are the most commonly encountered, other ninth chords do occur. Example 26-15 contains a clear instance of a iv$^9$.



**Example 26-15.** Schumann, *Scheherazade*, Op. 68, No. 32



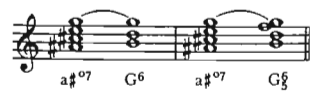

The symbols used in the analysis of ninth chords are not standardized. The easiest approach is to let the roman numeral reflect the triad type, with the *9* simply appended to it. Inversions of ninth chords are not as common as inversions of triads and seventh chords. Moreover, the figured bass symbols for inversions of ninth chords are too cumbersome to be practicable. A useful, if unscientific, solution is to give in parentheses the figures used for inversions of seventh chords: V$^9$($^6_5$), and so on. This will not work in the case of a ninth chord in fourth inversion, but the fourth inversion is very uncommon.

## THE COMMON-TONE DIMINISHED SEVENTH CHORD

Most diminished seventh chords function as leading-tone sevenths of tonic or of some other chord within the tonality. While the enharmonic potential of the diminished seventh chord is occasionally exploited in enharmonic modulation, the resolution of the chord generally clarifies its function.

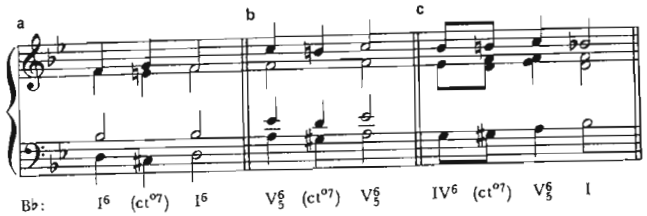
However, there is a diminished seventh chord usage that does not conform to the usual pattern. In this case, the diminished seventh chord progresses to a triad or dominant seventh chord, the *root* of which is the *same* as one of the notes of the °7 chord. In Example 26-16, G5, the 7th of the a♯°$^7$, is retained to become the root of the next chord. It is obvious that the a♯°$^7$ is not a leading-tone 7th of the G$^6$ or the G$^6_5$. We refer to a diminished seventh chord used in this way as a *common-tone diminished seventh* (ct°$^7$). Remember that the tone in common is the root of the major triad or dominant seventh chord.

**Example 26-16.**



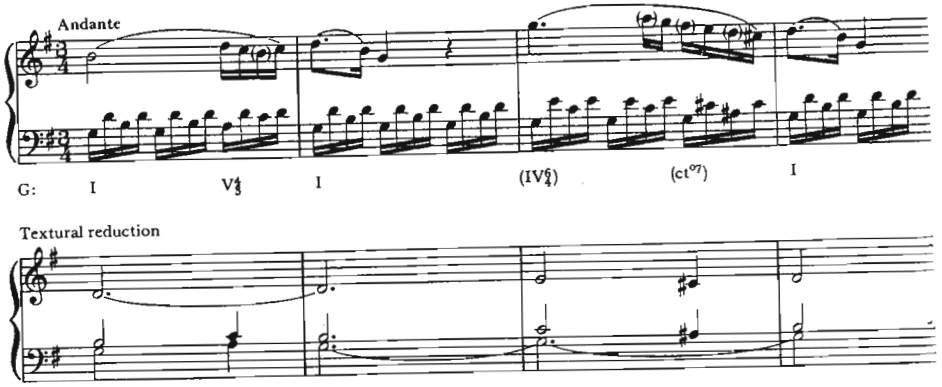
The function of a $ct^{o7}$ is simply one of embellishment, and we put its analytical symbol in parentheses to indicate its weak harmonic function. A $ct^{o7}$ can be used to embellish any triad or dominant seventh chord, but it is most often found progressing to I in major or $V^{(7)}$ in major or minor. Most often the $ct^{o7}$ has a distinctly nonessential flavor, acting as a neighbor chord (Exx. 26-17a and 26-17b) or as a passing chord (Ex. 26-17c). Notice the smooth voice leading in all the parts. Because the $ct^{o7}$ has no theoretical root, no inversions should be indicated when labeling $ct^{o7}$ chords.

**Example 26-17.**




Example 26-18 illustrates the $ct^{o7}$-I progression interpolated between a pedal $IV^6_4$ and its resolution back to I. The textural reduction of the accompaniment shows that the only significant harmonic event here is the presentation of the tonic triad. The $V^4_3$ consists only of neighbor tones on a weak beat, while the $IV^6_4$ and $ct^{o7}$ in combination form a double neighbor group figure in the inner voices.

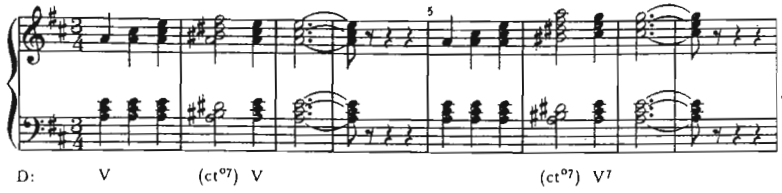
**Example 26-18.** Mozart, Sonata K. 545, II






The $ct^{o7}$ chords in Example 26-19 embellish a dominant chord. While the $ct^{o7}$ chords are clearly ornamental, their flavor is crucial to this passage and to the waltz that follows.

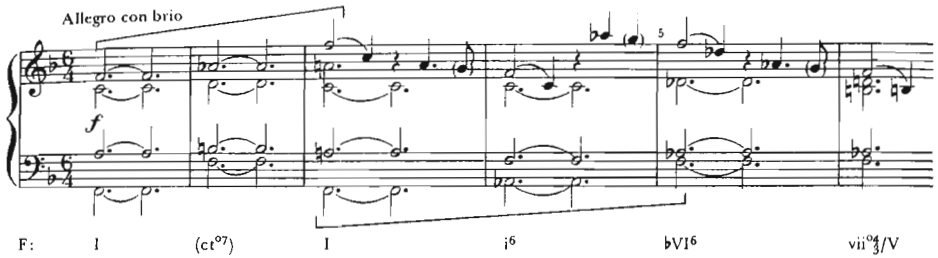
**Example 26-19.** Tchaikovsky, *Nutcracker Suite*, "Waltz of the Flowers" (piano arrangement)




The $ct^{o7}$ that embellishes I is usually spelled as a $\sharp ii^{o7}$ and that which embellishes V as a $\sharp vi^{o7}$, as in Example 26-17. However, enharmonic spellings are frequently found. In Example 26-20 Brahms spells the $ct^{o7}$ embellishing I as a $\sharp iv^{o7}$ in order to clarify the F-A♭-F arpeggiation in the melody (instead of F-G♯-F).

One feature of the theme that begins in Example 26-20 is extensive use of mode mixture, and the A♭ introduces this technique more clearly than G♯ would have. This marvelous theme should be studied in its entirety (mm. 1-15), using a recording and a full score. You will discover not only mode mixture, but additional $ct^{o7}$ chords, other altered chords, and polymeter (the aural effect of two or more different meters occurring at the same time). Motivic relationships are also of interest. For example, compare the melody in mm. 1-3 with the bass in mm. 3-5. Incidentally, the inner voices of this example have been included only to clarify the harmonies—they do not indicate Brahm's actual voice leading, which is too complicated for a piano reduction.

**Example 26-20.** Brahms, Symphony No. 3, Op. 90, I (simplified texture)

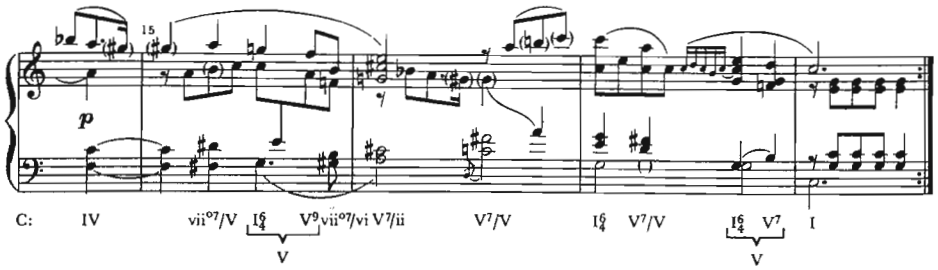



It is easy to confuse the vii°7/V with the ct°7 that embellishes the tonic, because they are enharmonically equivalent and both are sometimes spelled enharmonically (review Chapter 25, p. 410). This is especially clear in the preceding example, where the ct°7 is spelled as a vii°7/V (b°7). You should have no trouble if you will keep the following in mind:

| *Chord following the °7 chord:* | *Should be analyzed as:* |
|---|---|
| I or I6 | ct°7 |
| V or I$^6_4$ | vii°7/V |

In Example 26-21 Schumann spells the chord on the second beat of m. 15 as a d♯°7, a ct°7 of I, but its resolution to I$^6_4$-V9 requires an analysis as a vii°7/V. The texture of this example is quite complex and features imitation between the soprano and alto parts.

**Example 26-21.** Schumann, "Lento espressivo," Op. 68, No. 21






## SIMULTANEITIES

We know that some chords in a passage have more of an embellishing function than other chords do. This was discussed in the preceding section and also in relationship to passing six-four chords, parallel sixth chords, and others. Sometimes the traditional label for an embellishing chord (that is, V, ii, and so on) seems particularly meaningless, and we might use the term *simultaneity* for such a sonority to distinguish it from a traditional *chord.* A frequently encountered example is the diminished seventh sonority fulfilling a passing function.

Consider Example 26-22. It employs a tonic pedal throughout. The chord roots and sonority types are these:

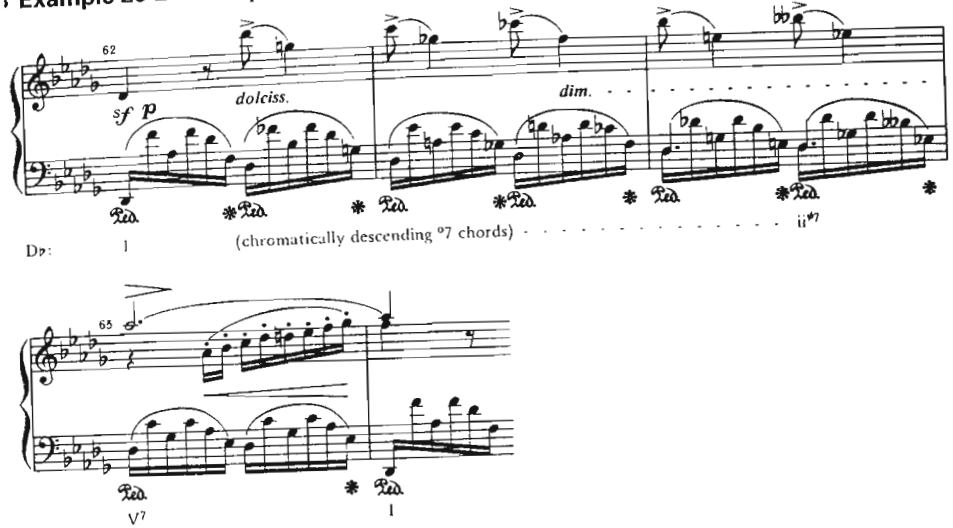
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Roots: | D♭ | G | / | A | D | / | E | E♭ | / | A♭ | / | D♭ |
| Types: | M | °7 | / | °7 | °7 | / | °7 | ø7 | / | Dom7 | / | M |

But the real "chords" in this progression are

D: I iiø7 V7 I

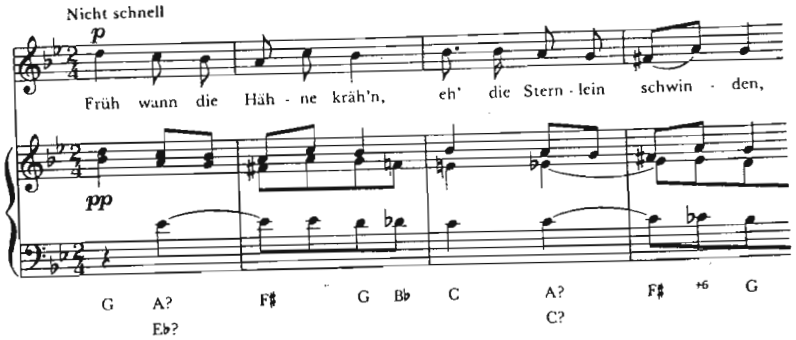
The diminished seventh chords are better understood as *simultaneities*—traditional sonorities used in nontraditional ways. Here the chromatically descending sonorities serve not as vii°7 or ct°7 chords, but as passing chords connecting the I to the iiø7. While these diminished seventh chords could be analyzed as a circle-of-fifths sequence (review pp. 283-286), it is unlikely that we would hear them that way, so we do not use roman numerals in their analysis.

**Example 26-22.** Chopin, Nocturne Op. 27, No. 2




Example 26-23 is more complicated, and you should play through it several times before reading further. The phrase is in g minor, and it consists entirely of traditional sonorities. The NCTs, if there are any, are difficult to identify. The roots of the sonorities are labeled, with alternative analyses shown in two cases.

**Example 26-23.** Schumann, "Das verlassne Mägdelein," Op. 64, No. 2






Two of the sonorities in this example are meaningless in the g minor context in which they occur: the B♭m in m. 2 and the It+6 over the C♭4 in m. 4. If we assume that these are simultaneities fulfilling a passing function, the phrase begins to make more sense. The analysis would be as follows:

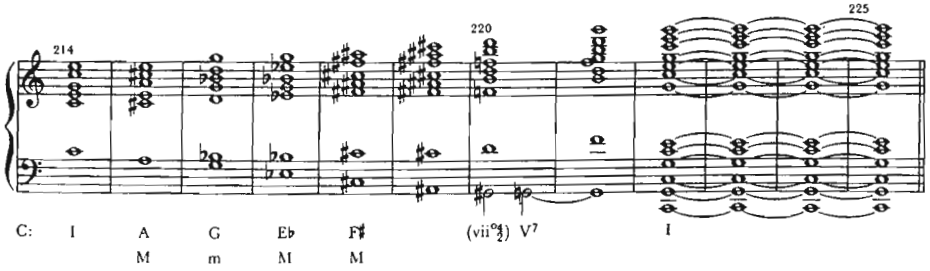
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| i | $ii^{o6}_{4}$ | $vii^{o4}_{2}$ | $i^{6}_{4}$ | $IV^{7}$ | $ii^{o6}$ | $vii^{o4}_{3}$ | $i^{6}$ |
| or VI | | | | or iv | | | |

Now we can hear the phrase in two segments, each ending with a $vii^{o7}$-i progression, the first one being a weaker progression because the i chord is in six-four position. The only oddity in the phrase is the $IV^7$, which usually comes about through ascending melodic minor. Here it is caused by descending chromaticism in the alto line. An interesting detail of the passage is the imitation of the alto and bass in mm. 1-2 by the soprano and alto in mm. 3-4.

## COLORISTIC CHORD SUCCESSIONS

Another way that a fundamental chord progression may be embellished is through the use of unexpected root movements to chords foreign to the key. Example 26-24 consists of an enormous I-$V^7$-I final cadence in C major, with the approach to the $V^7$ dramatized by a colorful series of unexpected chords. They do not seem to imply any tonicization or to function in a traditional sense in any key. In the analysis we simply indicate the root and sonority type of each chord.

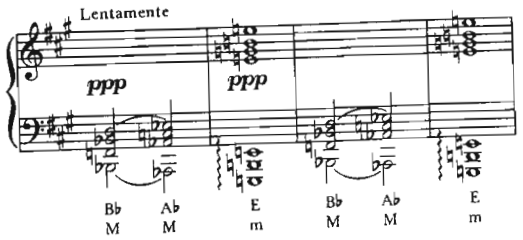
**Example 26-24.** Liszt, *Orpheus* (reduction)



Coloristic successions often involve *chromatic mediant* relationships. Two triads are said to exhibit a chromatic mediant relationship if they are both major or both minor and their roots are a 3rd apart. In Example 26-24 the C to A and E♭ to F♯ relationships are both chromatic mediants. Even more distant is the *doubly-chromatic mediant* relationship. In this case, the chords are of *opposite* mode (major/minor), have roots a 3rd apart, and share *no* common tones. Examples would be C to a♭ and C to e♭.

The A♭ major and e minor triads in Example 26-25 are in a doubly-chromatic mediant relationship, because A♭ and E are enharmonically a M3 apart, and the two triads share no pitch classes. The listener would not be likely to guess that these chords will lead to an authentic cadence in f♯ minor.

**Example 26-25.** Puccini, *Tosca*, Act II.






## SUMMARY

*The dominant with a substituted sixth* is a V or $V^7$ chord in which the 6th above the root ($\hat{3}$) is used *instead* of the 5th of the chord ($\hat{2}$). The 6th is usually approached by ascending step and left by descending leap: $\hat{2}$-$\hat{3}$-$\hat{1}$.

*Augmented dominants* ($V^+$ and $V^{+7}$) are not uncommon in the major mode. The raised 5th ($\sharp\hat{2}$) leads to the 3rd of the I chord. Secondary dominants may also be augmented.

While *ninth, eleventh, and thirteenth chords* are theoretically possible, only the ninth chord appears with any frequency before the twentieth century. Most often the 9th of the chord disappears before the chord resolves. Otherwise, the 9th resolves down by step.

The *common-tone diminished seventh chord* has a tone in common with the root of the chord it embellishes, but be careful not to analyze the $vii^{o7}/V$ as a $ct^{o7}$ of a cadential $I^6_4$. The common-tone diminished seventh chord usually embellishes either a I chord (in which case it will be spelled as $\sharp ii^{o7}$) or a V chord (spelled as a $\sharp vi^{o7}$). Enharmonic spellings do occur.

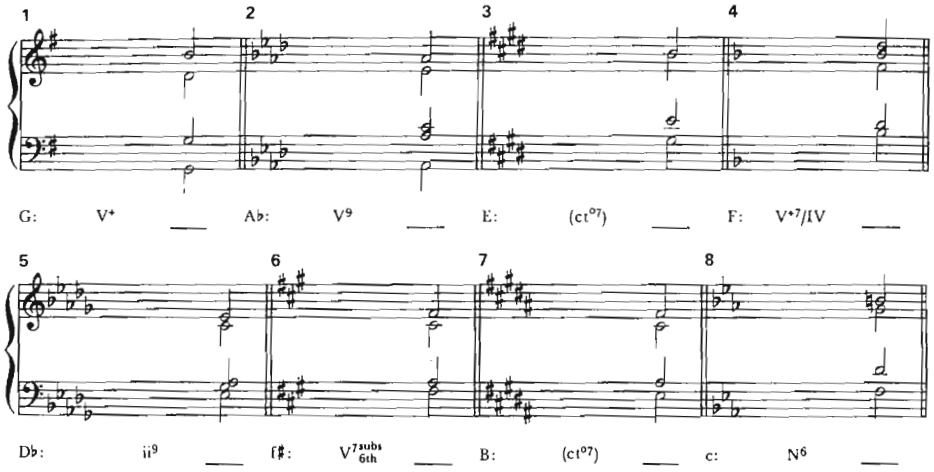
*Simultaneities* is a term sometimes applied to traditional sonorities handled in a nontraditional fashion. Roman numerals are inappropriate for simultaneities.

A *coloristic chord succession* makes use of chords foreign to the key in unexpected and nontraditional ways. We do not include here, of course, an unexpected secondary dominant or a Neapolitan, for example; we refer to less traditional chords and progressions.

### *SELF-TEST 26-1*

(Answers begin on page 645.)

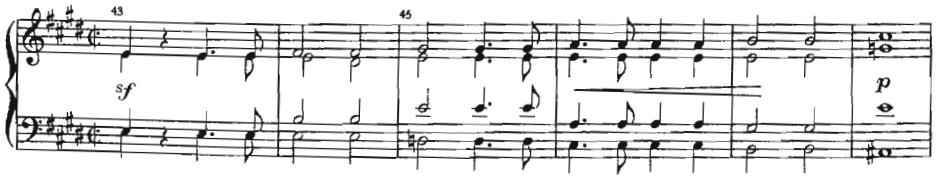
A. In each exercise below, analyze the given chord. Then notate the specified chord in such a way that it leads smoothly into the given chord with acceptable voice leading. Some of the problems use a five-part texture for simpler voice leading.



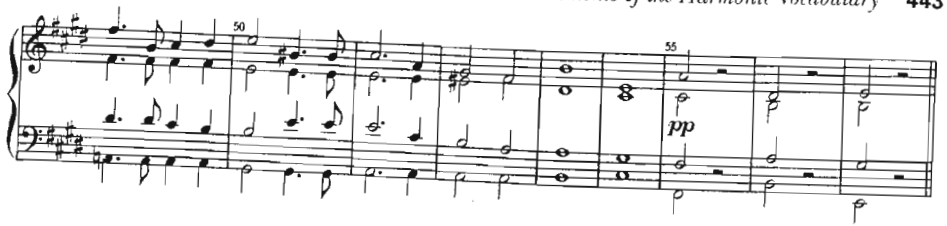

B. Analysis. Throughout this section, highlight (using arrows, and so on) any occurrences of the chords discussed in this chapter.

**1.** Label the chords in this excerpt. Pedal points occur in mm. 2 and 10.

Schumann, "Das Schifflein," Op. 146, No. 5

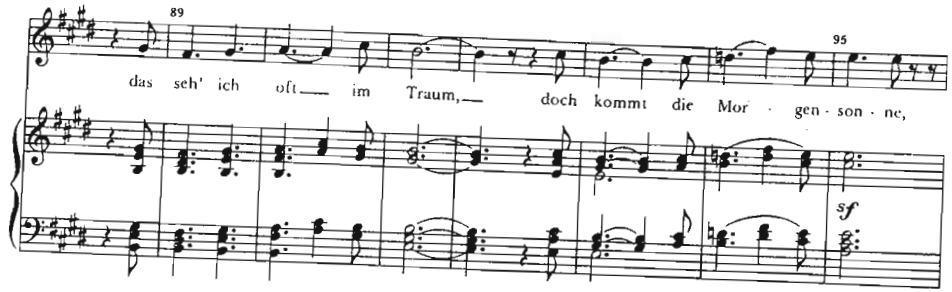


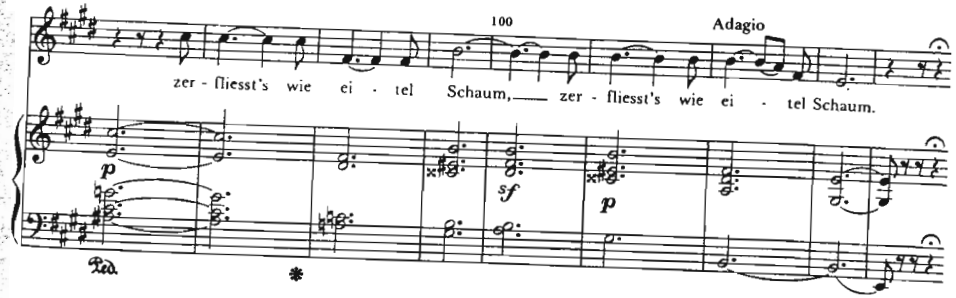



**2.** This excerpt is in E throughout. What bass notes are implied in the second half of m. 90 and m. 94? The chord in mm. 96-97 appears to be unrelated to the chord in m. 98. Can you think of a better explanation? Label all chords.

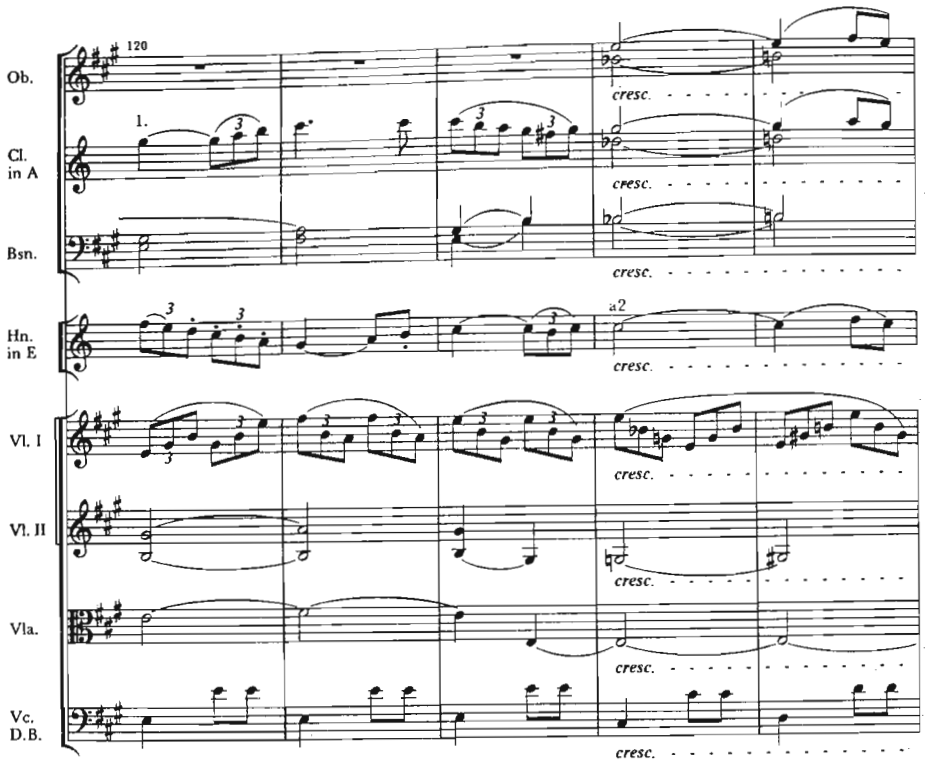
Schumann, "Aus alten Märchen," Op. 48, No. 15



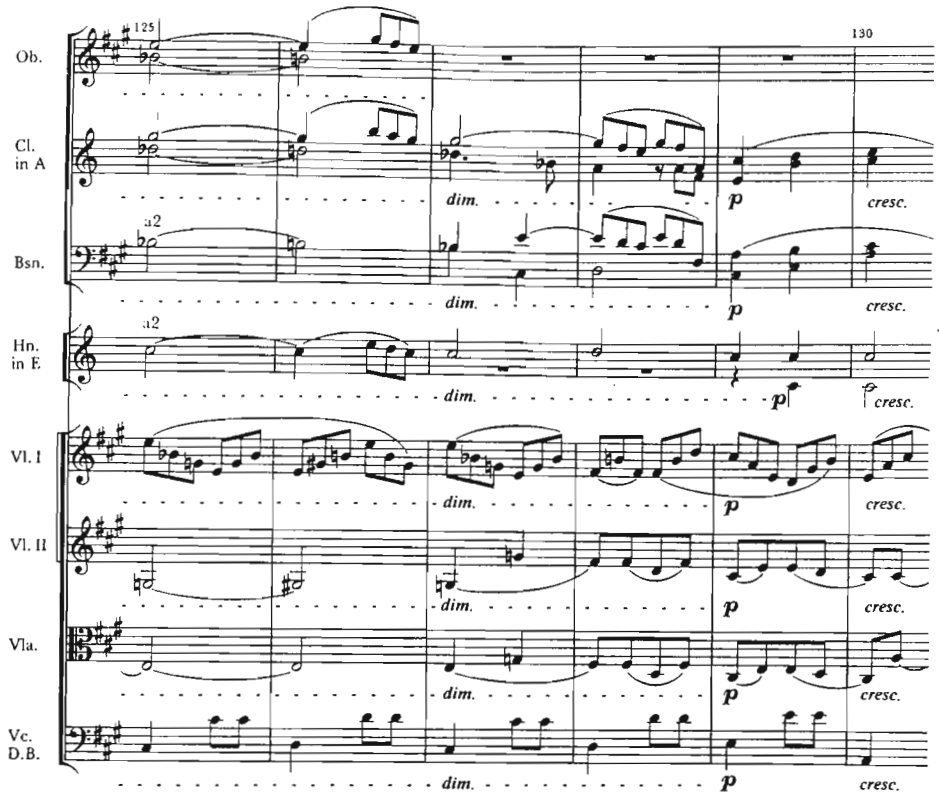



**3.** Label the chords in this excerpt, which modulates from E to A. The clarinets are in A and the horns are in E, but the harmonic analysis can be carried out by studying only the nontransposing instruments.

Beethoven, Symphony No. 7, Op. 92, II

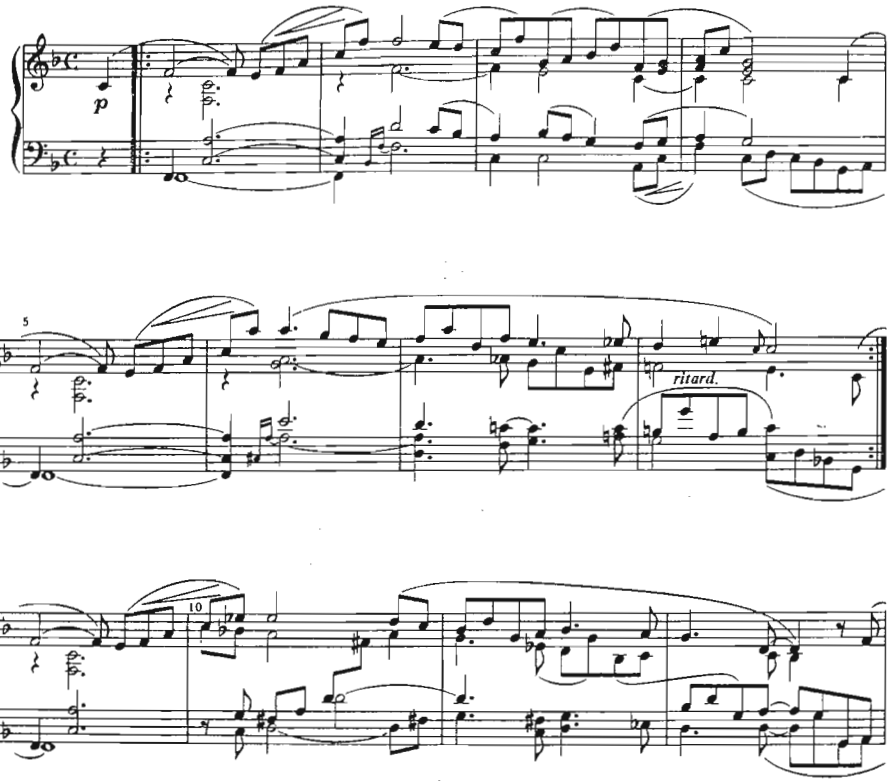




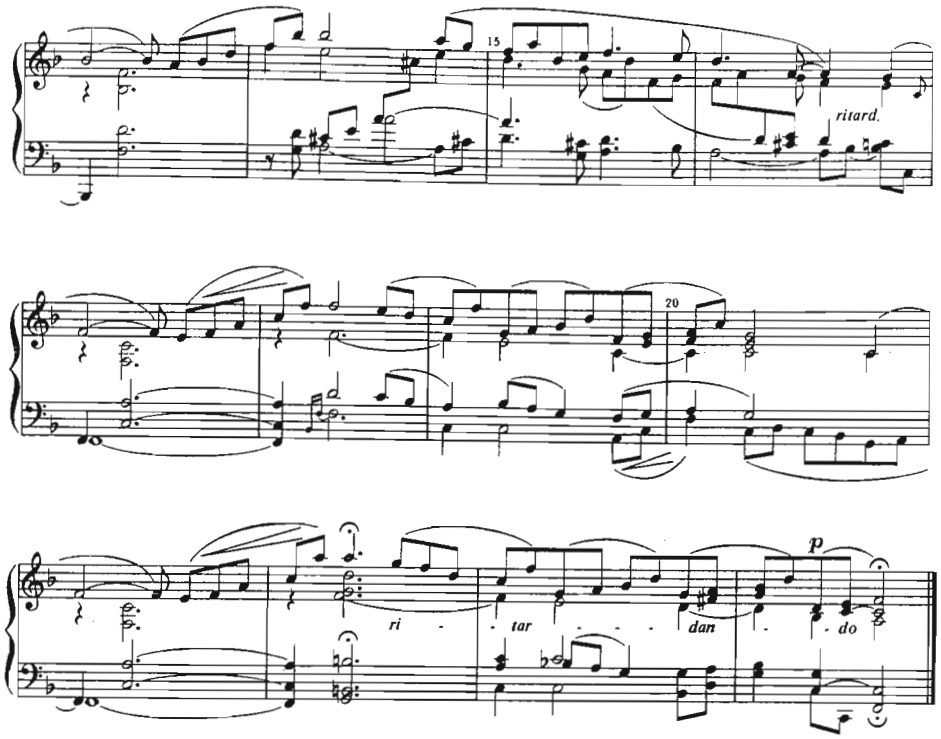



**4.** This example is one of the thirteen short pieces that comprise Schumann's *Kinderszenen* (*Scenes of Childhood*). While it could be analyzed entirely in F, your analysis should somehow reflect the strong tonicizations of C, g, and d. How can the reharmonization heard in the last thee measures be related to the rest of the piece? Label chords and NCTs throughout, except for measures that are exactly the same as earlier measures. What is the best name for the form of this piece?

Schumann, "Träumerei," Op. 15, No. 7

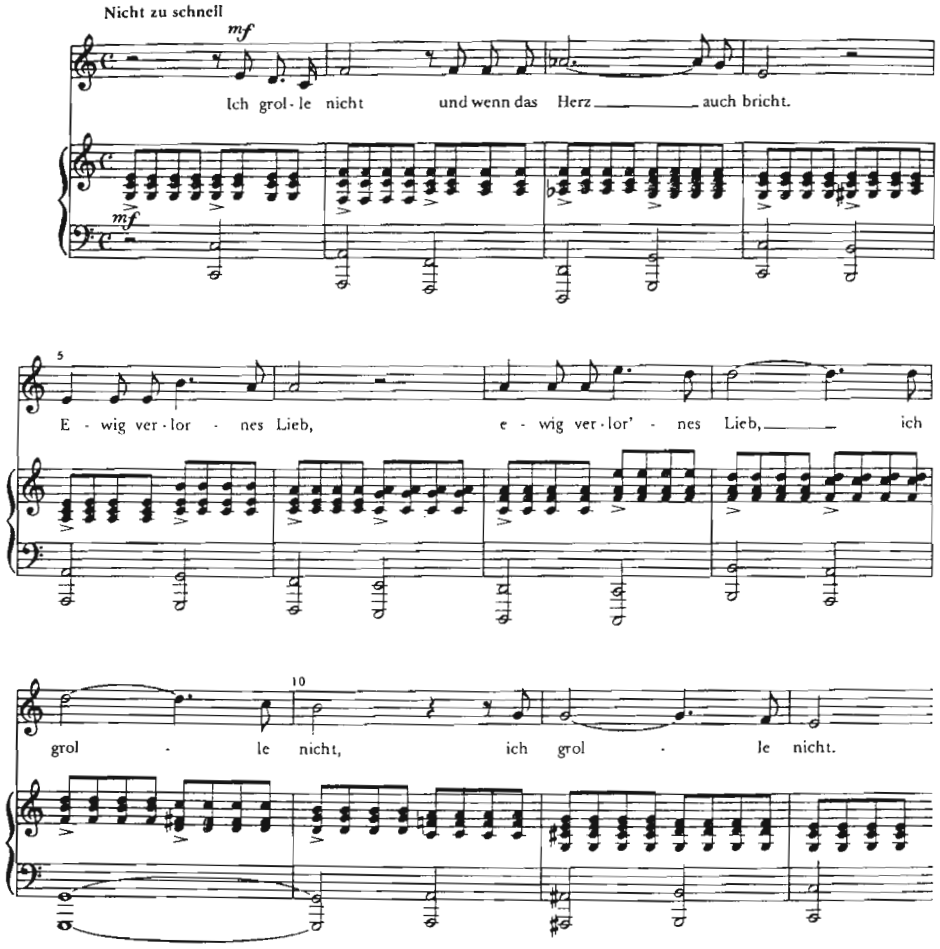





**5.** This famous song has been the subject of several contradictory analyses. Phrase 1 (mm. 1-4) offers no problems; label the chords with roman numerals. The second chord in m. 4 is a simultaneity, as are most of the chords in phrase 2 (mm. 5-12). Label the roots of any simultaneities in mm. 5-8. Most of the seventh chords are passing simultaneities rather than true chords. How can you tell? What interval used in parallel motion forms the basis for mm. 5-8? Label the chords in mm. 9-12.

Schumann, "Ich grolle nicht," Op. 48, No. 7




*EXERCISE 26-1. See Workbook.*

PART

# VI

# *Late Romanticism and the Twentieth Century*

# CHAPTER 27 *Tonal Harmony in the Late Nineteenth Century*

## INTRODUCTION

The forces that ultimately were to lead to the breakdown of the tonal system, or at least the end of its dominance of Western music traditions, may be viewed as the logical extension of the direction in which music had been developing since the beginning of the nineteenth century. Reference was made in Chapter 26 to certain harmonic practices which began to be found with increasing frequency as the end of the century drew near. These include the dominant with a substituted 6th, the prevalent use of chromatic mediant relationships, functional ninth chords, and coloristic chord successions. In attempting to identify characteristics which, as they evolved, eventually opened the door onto the new horizons of the twentieth century, we would certainly note the increasing preference for contrapuntal writing, the systematic blurring of essential harmonies by means of longer, stronger nonharmonic tones, the more rapid rate of change from one transient tonality to another, the tendency to avoid dominant-to-tonic cadences for longer periods of time, and frequently the total avoidance of any clear definition of a principal key center until well into the work. We might also note that melody was gradually released from its traditional harmonic associations, with the result that melodic and harmonic successions began to exist in their own coloristic right.

The period in which such practices became most pervasive lies roughly within the last two decades of the nineteenth century and the first two of the twentieth. Often referred to as the *post-Romantic era,* it is an elusive and intriguing epoch in many ways. Surely the trends that it spawned tended to develop in distinctly different directions as the twentieth century unfolded.

Of course, not all practices of the post-Romantic era were revolutionary. We have already encountered passages in the music of Mozart and Beethoven, even Bach, that defy tonal analysis, either written or aural. By the close of the nineteenth century, however, we find that this description applies to the greater part of the literature, as opposed to representing an occasional anachronistic curiosity.

Other developments that should be mentioned in passing include the expansion and modification of many of the accepted large forms, as seen in the symphonies of Bruckner and Mahler, the monumental music dramas of Wagner, and the tone poems of composers such as Liszt and Sibelius. When we are dealing with the concept of standard form, to be sure, we must note that the life cycle of any new musical venture is typically characterized by its introduction, gradual acceptance, standardization, and—shortly thereafter—rapid fall into disfavor through excessive use. Nowhere in Western musical history, however, may this process be observed more clearly than in the brief but turbulent span that preceded the dawn of the twentieth century.

Very much in evidence is an increasing emphasis on the dramatic and programmatic aspects of concert music. This trend may have inspired a spirit of nationalism on the part of numerous composers. Most notable among them are the so-called Russian Five: Cui, Balakirev, Borodin, Moussorgsky, and Rimsky-Korsakov. Much of their music is rich in historical allusions as well as in references to Russian folk legends. These five were by no means an isolated geographic phenomenon; other composers who drew upon the heritage of their native lands include Edward MacDowell (United States), Sir Edward Elgar (England), Jean Sibelius (Finland), Edvard Grieg (Norway), and Antonin Dvořák (Bohemia), to name but a few. This reawakening of national awareness proved to be profoundly significant in its influence upon the ensuing diversity of musical style. While it is not within the scope of this brief chapter for us to deal with the aspects of structural evolution and nationalism cited above, it is nonetheless useful to recall that they were taking place more or less simultaneously with the technical details we will discuss here.

## COUNTERPOINT

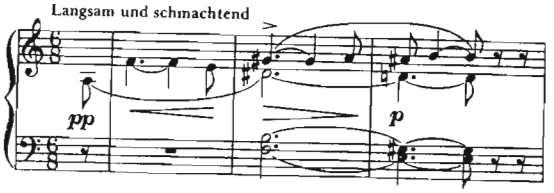
While we will treat various elements of the post-Romantic style separately, you will notice that they are in a sense inseparable. Excessive melodic chromaticism will unavoidably affect harmonic movement; irregular resolutions must inevitably influence linear movement. Perhaps the dominant characteristic of this music is the prevalence of contrapuntal manipulation, particularly of supporting voices. Since these voices tend to be chromatically inflected and to move independently of the principal voice (if there is a principal voice), the individual harmonies and, hence, any clear sense of harmonic progression are blurred.



Richard Wagner, a prolific author as well as composer, is generally considered to have been the most influential single figure in the Late Romantic era, particularly in the sense that his compositional procedures seem to provide an obvious link between the mid-nineteenth century and the subsequent emergence of the twelve-tone system, to be discussed in Chapter 28.

The Prelude to *Tristan und Isolde* illustrates how moving lines may serve to obscure, or even misrepresent, vertical harmonies.

**Example 27-1.** Wagner, *Tristan und Isolde,* Prelude (piano reduction)

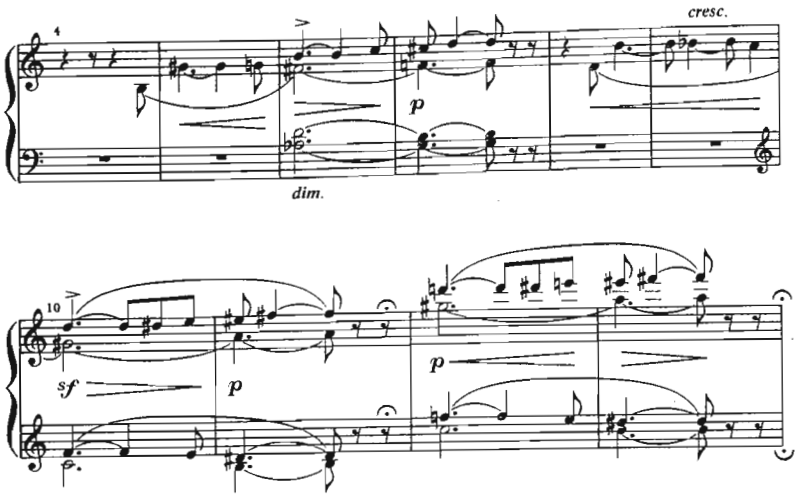



The sonority found on the first beat of m. 2 suggests an $F^{\emptyset 7}$ chord (enharmonically spelled). Yet before this chord is allowed to function in any way, the G♯ resolves to A, creating a $Fr^{+6}$ chord that seems to suggest the key of A. The ultimate conclusion of the phrase in m. 3 confirms the tonal center of A by means of its dominant; we are, however, uncertain whether to expect a major or minor tonic. The voice leading in this example is worthy of mention. Notice the following points:

1. The bass line of mm. 2-3 echoes the alto of m. 1.
2. The soprano line beginning at m. 2 represents an *exact mirror* of the alto in mm. 1-3.
3. The tenor line mirrors, in reverse, the first and last pitches of the soprano line.

The Prelude then continues as follows (Ex. 27-2).

**Example 27-2.** Wagner, *Tristan und Isolde*, Prelude (piano reduction)

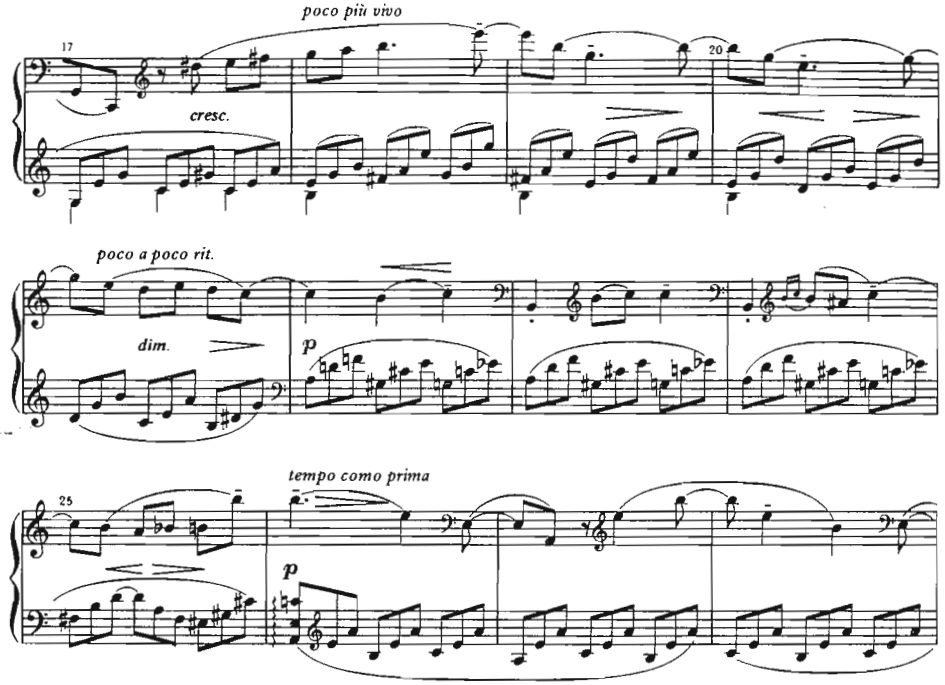



Although the opening leap of B to G♯ appears to confirm A as tonal center, it serves instead as the link to a sequential passage that leads first to a half cadence in the key of C, and finally to a reiterated half cadence in E. Of future significance here is the fact that we find these keys in mediant relationship (A, C, and E) subsequently serving as important tonal regions throughout the prelude. It should also be noted that the exceedingly slow tempo at which this piece is to be performed tends to further obscure the sense of harmonic direction.

The preceding examples by Wagner exhibit an economy of motivic material. The prelude also, as we have noted, sets up certain tonal expectations which are unfulfilled. Contrapuntal activity can serve to weaken the original tonal center, as well as obscuring the sense of motion toward a new one. In Example 27-3 by Rachmaninoff, we observe what at first appears to be melody with accompaniment. In listening to it, however, we find that the fragmentary nature of the melody, combined with the melodic implications of the lower and upper notes of the three-note figure played by the left hand, creates a compelling contrapuntal framework.



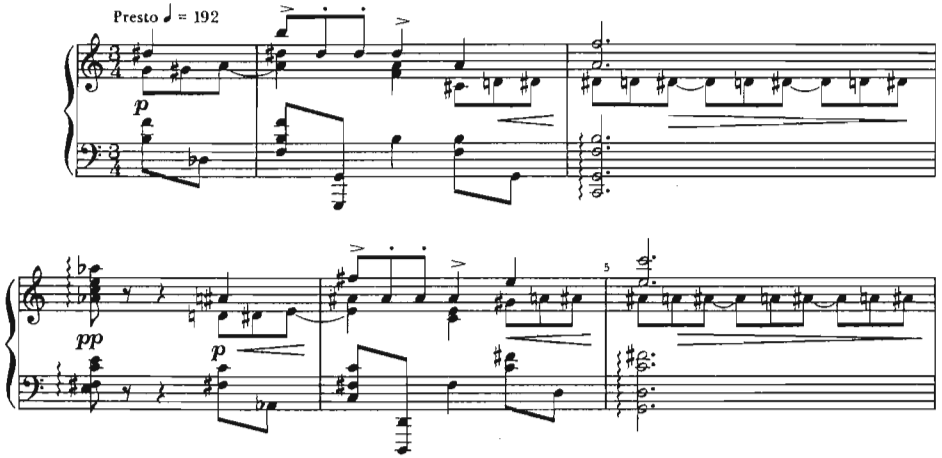
**Example 27-3.** Rachmaninoff, *Etude Tableau*, No. 2



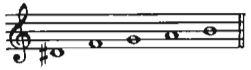

The excerpt begins with an implication of e minor, brought about by the persistent dominant pedal and the triadic outlines of the melody. The meandering succession of implied seventh chords created by the subordinate melodies, however, precludes any sense of strong tonality, or at best suggests a vague dwelling in the dominant. In m. 22, there is a notable increase in chromaticism, leading to the final resolution to a minor and a return to the opening thematic materials of the composition. The c minor harmonies found on beat 3 of mm. 22-24 in no way serve to prepare us for this resolution. Note too that at the point of resolution, the note "B" which heretofore has served as a kind of tonal anchor, now assumes the role of a strong dissonance.

The systematic blurring of tonality through contrapuntal activity may also involve nontraditional chord structures which, in some cases, may occur as linear accidents. Alexander Scriabin, Rachmaninoff's countryman, was fascinated with the juxtaposition of pitches which retained the implication of the traditional tonal suggestion but defied any attempt to relate them to traditional triadic chord structures. Listen to Example 27-4, by Scriabin.

**Example 27-4.** Scriabin, Fantastic Poem [C major], Op. 45, No. 2



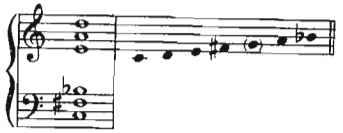

The opening five measures of Fantastic Poem provide an interesting example of this contrapuntal procedure. The excerpt is in C major, and the strategic placement of pitches (C, G, and B) would appear to support this tonality. However, the noncongruence of the melody, as well as the numerous accidentals, create a sense of hovering and a lack of harmonic motion. As you play this example, you are aware of pitches in whole tone relationship. If, for example, you were to assemble the pitches found on beats 2 and 3 of the first complete measure, using D♯ as the lowest note, you would find that they form a scalar pattern built on whole steps.





Because a series of whole tones divides the octave into equal segments, and allows neither for a perfect 5th nor for the half-step needed to create a leading-tone relationship, any sense of clear, traditional tonality is impossible. Furthermore, since three consecutive whole steps will create a tritone as the framing interval, a certain restlessness is inevitable.

Note, too, the pitch collection which occurs on beat 3 of m. 4 of the excerpt. This sonority is sometimes referred to as the Mystic Chord and is particularly favored by Scriabin. When distributed in 4ths, as shown below, it creates the unstable, hovering sound which characterizes the example. The scale itself may be loosely related to the overtone series, beginning with the 8th partial (and omitting the 12th). Again, if we collapse the chord into a scalar configuration, we see that once again the whole tone is a very prominent interval. The whole-tone scale and its use in twentieth-century composition will be discussed further in Chapter 28.



## TREATMENT OF DOMINANT HARMONY

The preceding examples, which dealt primarily with contrapuntal manipulation, illustrated instances in which the *spirit* of dominant harmonic function was maintained, although in some cases its vertical structure was modified and often obscured. Let us return now to the traditional major-minor seventh chord which played such an important role in the establishment of the tonal system with which this book is primarily concerned.

Certainly the single structural bulwark upon which the traditional tonal system rests is most aptly represented by the inviolability of the V-I progression. Rudolph Reti summed up this concept rather succinctly when he observed, in *Tonality in Modern Music*:*

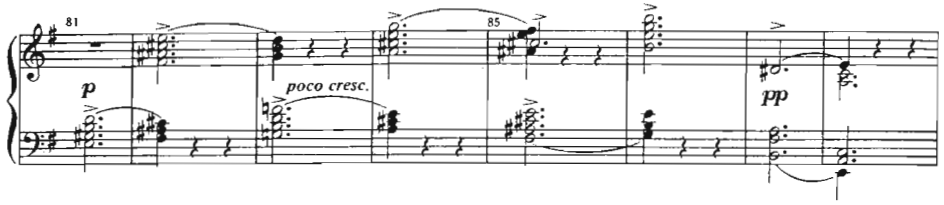
*Rudolph Reti, *Tonality in Modern Music* (New York: Collier Books, 1962), p. 28. (Originally published as Tonality-Atonality-Pantonality.) Used by permission of Hutchinson Publishing Group Limited, London, England.

> In fact the scheme I - x - V - I symbolizes, though naturally in a very summarizing way, the harmonic course of any composition from the Classical period. This *x*, usually appearing as a progression of chords, as a whole series, constitutes, as it were, the actual "music" within the scheme, which through the annexed formula V-I, is made into a unit, a group, or even a whole piece.

Inevitably, then, when this traditional relationship is tampered with, the ensuing musical result, despite surface consonance, represents a significant historical digression.

In the following example a chain of major-minor seventh chords, each suggesting a dominant function but forced to resolve deceptively, creates a strikingly parallel, and hence nontonal, effect.

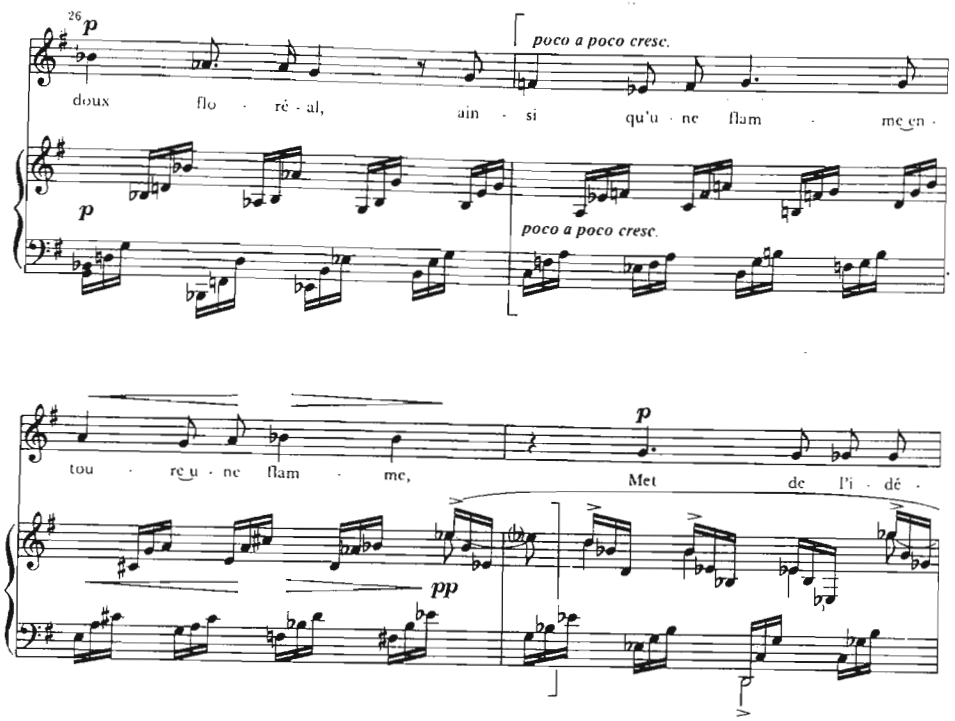
**Example 27-5.** Brahms, Symphony No. 4, Op. 98, IV (piano reduction)




Brahms has heightened the natural ambiguity of this brief passage still further by means of alternating registral displacement. In the following passage by Fauré, who is frequently mentioned as the most obvious predecessor of Debussy, we note $V^7$ sonorities, moving coloristically in parallel motion with no pretense of harmonic function, arriving finally at a brief but satisfying tonicization of E♭ (Ex. 27-6).

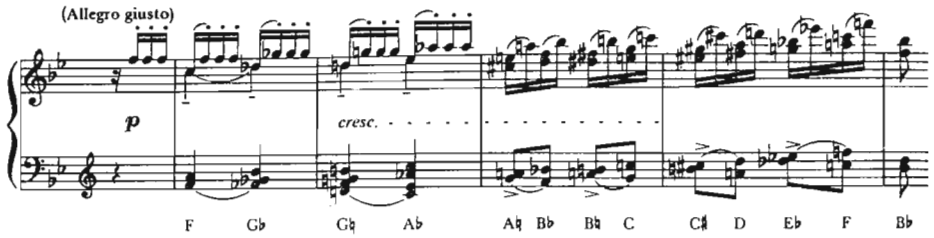


**Example 27-6.** Fauré, "L'hiver a cessé," Op. 61, No. 9



Example 27-7, a Tchaikovsky excerpt, is essentially in B♭ major. There is no real harmonic motion involved, but rather the harmonization of an ascending chromatic scale in order to enliven the progression from V to I. Although the succession of chord roots, as shown, is strictly parallel, the series of deceptive resolutions of major-minor seventh chords creates a pattern of intense harmonic activity.

**Example 27-7.** Tchaikovsky, *Nutcracker Suite,* Op. 71a, Overture (piano reduction)

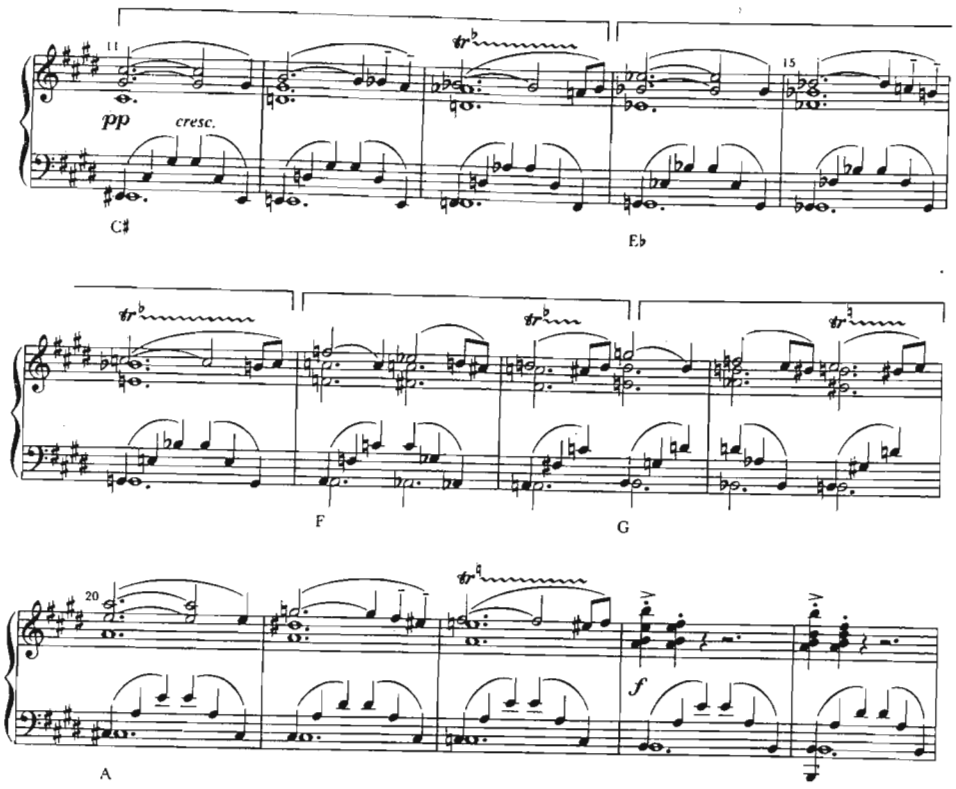



## SEQUENCE

The technique of sequence, illustrated in several of the preceding examples, played an important part in the music of many post-Romantic composers, especially in the process of modulation. The following example by Rimsky-Korsakov, whose influence was enormous, not only upon later Russian composers, but also on the craft of orchestration, reveals procedures in which sequential activity serves to "legitimize" nontraditional relationships.



**Example 27-8.** Rimsky-Korsakov, *Scheherazade* (piano reduction)



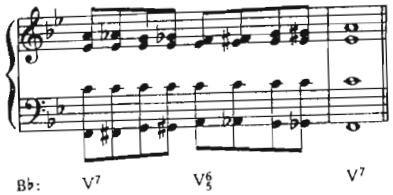



This passage, found near the beginning of the work, establishes the key of E major. The excerpt quoted here opens with C♯ major harmony, suggesting V/ii. The sequence that begins in the third measure of the excerpt moves through a series of tonicizations a whole step apart, from C♯ to A, and ultimately leads to a half cadence on B. Of interest is the second chord of the sequence, which vaguely suggests an $^{+}6$. This sonority, which embellishes the

third chord of the pattern ($V^7$ of the following tonal area) also shares a common tritone with it. The smoothness of the sequential movement renders convincing the somewhat tenuous relationship between the series of chords thus tonicized (C♯-E♭-F-G-A) and the overall tonality of E major.

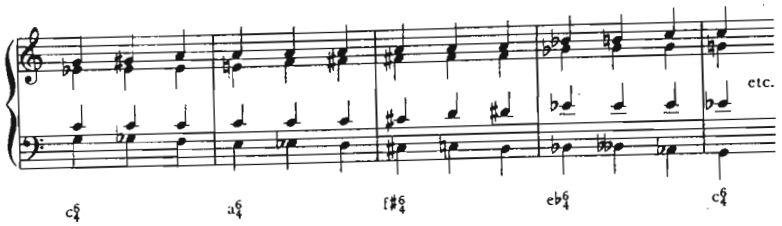
Perhaps the quintessence of a chromatically saturated sequential succession is the *omnibus*, a coloristic series of chords used to harmonize nonfunctional chromatic bass movement shown in Example 27-9.

**Example 27-9.** Omnibus




Although it would perhaps be possible to analyze the chords interpolated between root position $V^7$ and $V^6_5$ as tending to tonicize c minor ($Ger^{+6}$-$ii^6_4$-$Ger^{+6}$), the bravura tempo at which such passages are normally performed will more likely suggest extended $V^7$ harmony with chromatic passing tones in bass and soprano. The omnibus may also serve to harmonize a descending bass line as shown in Example 27-10.

**Example 27-10.**






You will notice that only one voice at a time is moving in contrary motion to the bass, and that this function is passed back and forth between soprano, alto, and tenor. Notice, too, that the minor triads found as every third chord bear a mediant relationship to one another. When incorporated into a modulation, this sequential scheme facilitates quick motion between disjunct keys, with the smoothest possible voice leading.

## SHIFTING KEYS

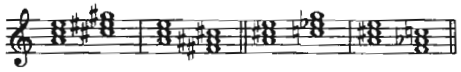
We find many post-Romantic composers seeking emancipation from the traditional key relationships. The chromatic mediant relationship was an important element throughout the Romantic period. Less likely to occur, however, was the double chromatic mediant, mentioned in Chapter 26. This, as you may recall, involves the association of two triads of contrasting quality (major to minor or vice versa) whose roots are located a third apart.

The movement between them will, of necessity, involve two chromatic inflections, as opposed to the previously encountered *chromatic mediant* (one chromatic inflection and one common tone, triads matching in quality) or the *diatonic mediant* (no chromatic inflections, two common tones, triads contrasting in quality). The possibilities for double chromatic mediant relationship to A are as follows:

a minor to C♯ major or F♯ major

A major to c minor or f minor

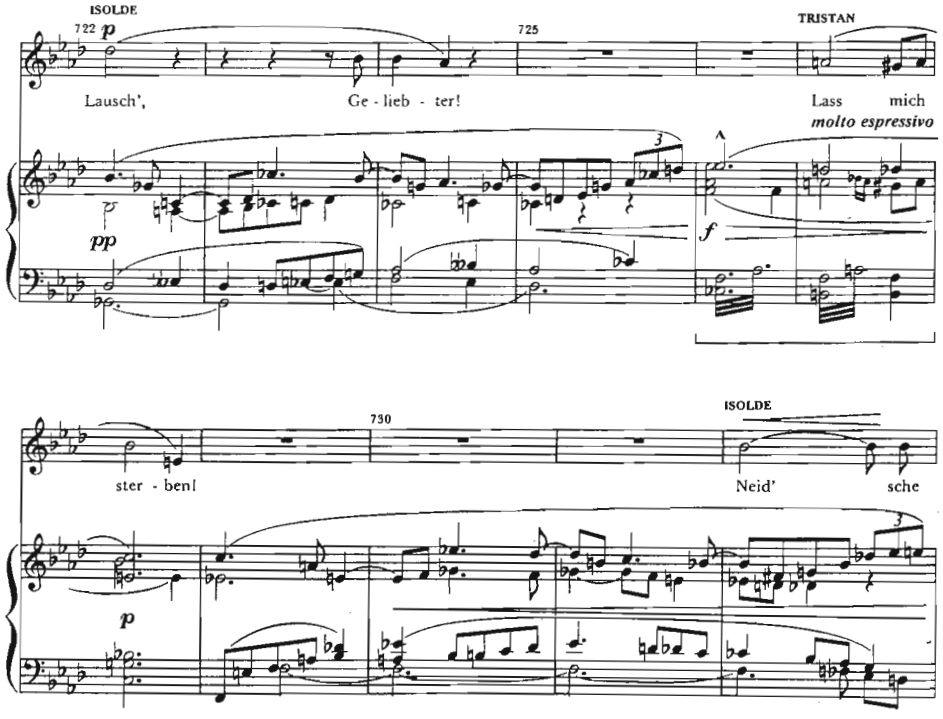
**Example 27-11.** Double chromatic mediant relationship



The chief significance of this chord movement lies in the incompatibility of the two sonorities, in terms of a single diatonic key, and thus in the assurance of a startling tonal shift.

Example 27-12, by Wagner, a modulation from G♭ to F (although, as is typical of the music of Wagner, the F never appears in the form of a consonant triad), shows a key shift accomplished essentially by linear means. The tonality changes between the fifth and sixth measures, when the $F^{\varnothing 7}$, representing $vii^{\varnothing 7}$, is chromatically inflected to become a $B^{\varnothing 7}$, suggesting $vii^{\varnothing 7}/V$ in the new key. Note the tritone root relationship that exists between these two chords; note, too, the smoothness of the contrapuntal motion. Once again the linear distraction provided by the moving inner parts, with their pervasive non-chord tones, continues to propel the harmonic motion forward, though at the same time defying the listener's prediction of the eventual tonal outcome.

**Example 27-12.** Wagner, *Tristan und Isolde*, Act II, Scene 2 (piano-vocal score)

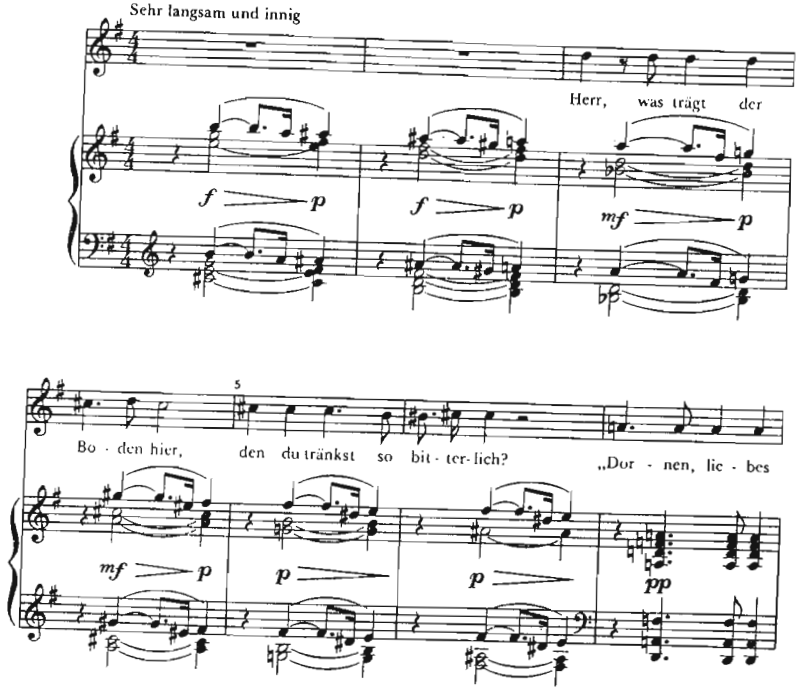





## EXPANDED TONALITY

The process of avoiding confirmation of tonic may sometimes be carried so far that the listener is never entirely sure of the primary tonal center of the piece. Examine Example 27-13.

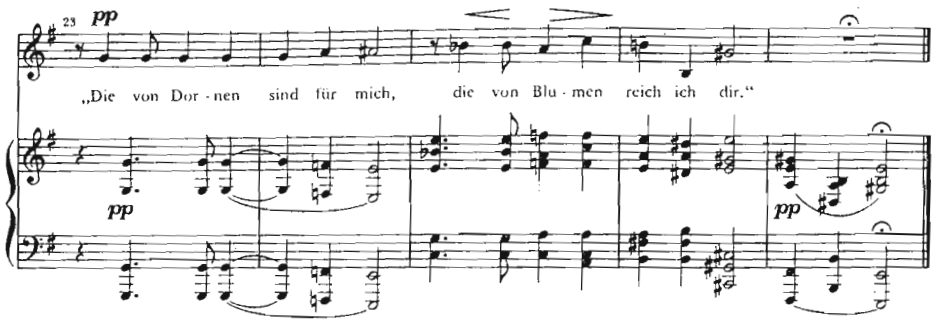
**Example 27-13.** Wolf, "Herr, was trägt der Boden"




Actually, the opening measures might lead us to expect eventual resolution to b minor as tonic, although the key signature contradicts this. However, m. 2 negates the leading tone of A♯, and m. 3 with its g minor sonority all but destroys any previous expectations. In m. 4 (minor v?), m. 5 ($iv^6$), and

m. 6 ($V^7$) we are brought seemingly back to b minor, only to be abruptly jarred by the d minor interruption of m. 7. (Note the double chromatic mediant root relationship between d minor and the preceding $F\sharp^7$ chord.) It is not until the final measures of the piece (Ex. 27-14) that E (albeit E major) is at last allowed to serve as tonal center of gravity.

**Example 27-14.** Wolf, "Herr, was trägt der Boden"

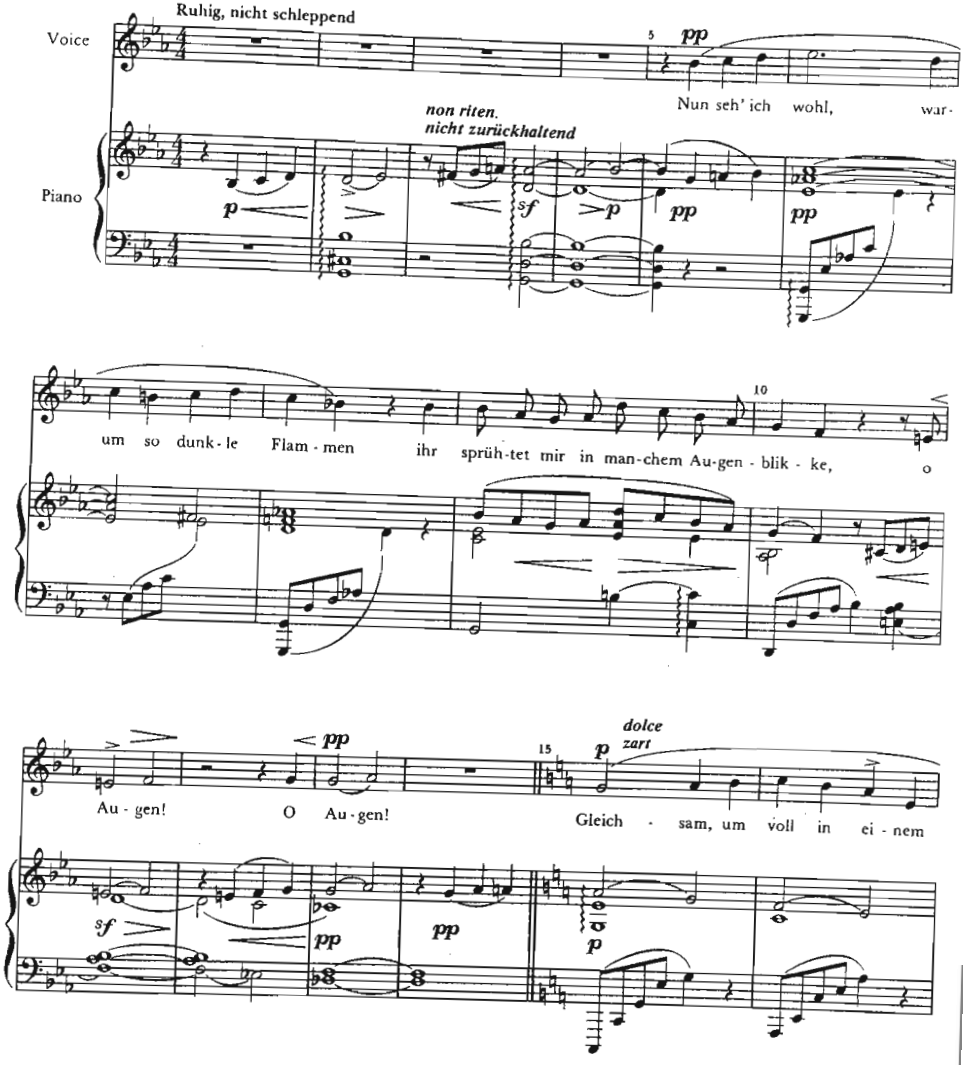



Even here we note a certain ambiguity suggested by the tonicization of the Neapolitan (m. 25), the harmonic enigma of the A♯/B♭, and the final attempt to hold back tonic by means of a deceptive cadence in m. 26. Still, the very functional root movement leading to the end (C♯-F♯-B-E) seems to compensate for the unexpectedness of this tonal goal.

Our final nineteenth-century example, by Mahler, also serves to illustrate the principle of what has aptly been described as *nonconcentric tonality:* that is to say, a change of tonal center between the opening and closing of a work or movement. The terms *concentric* or *centric* are sometimes employed to designate the common tonal practice in which opening and closing keys are in agreement, providing a tonal framework for the composition. Example 27-15 illustrates a striking departure from that tradition.



**Example 27-15.** Mahler, *Kindertotenlider,* No. 2



The opening measures suggest g minor, despite the key signature, which more logically would point to c minor. It is worthy of mention, in light of our preceding comments regarding the traditional inviolability of the dominant, that in both this example and the preceding ones by Wolf, the "wrong key" heard at the outset is, in fact, serving as a *minor* dominant for what ultimately proves to be the intended tonic. Let us note, too, that the tonicizing process for g minor takes place by means of Neapolitan and +6 sonorities, which are much prized in post-Romantic music, since they provide linear support with a minimum of functional root movement. Interestingly, at the point at which the music seems to move away from tonic toward the expected dominant, the tonality appears to be shifting toward E♭ (mm. 10-12).

Mahler's systematic manipulation of tendency tones within the established key is particularly crafty. As you play through the example, note the G♮ in m. 13 (which our ear perceives as $\hat{3}$ in E♭, moving on to A♭, its expected destination). In the meantime, however, the bass E♭, which our ear has interpreted as a tonic passing tone headed for the leading tone of D♮, moves instead to D♭, and suddenly we find ourselves expecting a resolution to G♭ major, the soprano G♮ having been transformed into a leading tone to the supertonic. Yet before this is allowed to happen, our expectations are once again thwarted as the D♭$^7$ in m. 14 is treated unexpectedly as an +6 chord and drops to C major, while the passing tone A♮, seeming to drive upward, resigns itself to function as a suspended submediant in C.

The techniques which have been discussed in this chapter represent those typical of the most prominent figures of the post-Romantic era. These are composers whose work is considered to represent the most striking and ultimately influential departures from established traditions. Although it is not within the scope of this chapter to address the influence of folk music upon the further development of music in the twentieth century, it should be noted that its impact was profound. The work of Bartók clearly springs from his native roots, as does much of the music of Vaughan Williams. Traces of Spanish influence can be heard in many works of Debussy and Ravel, while elements of jazz have been incorporated into the music of composers such as Gershwin, Milhaud, and Stravinsky. Many historians, in fact, consider the interest in ethnic or folk music as a significant cause for the extraordinary diversity which, as you are about to see, characterizes the twentieth century.



## SUMMARY

It is possible to identify a number of trends during the approximately forty-year period comprising the post-Romantic age. For one, we note a resurgence of interest in contrapuntal manipulation, particularly as a means of obscuring harmonic rhythm and tonality. The technique of sequence was increasingly used as a means of creating relationships between seemingly disparate musical elements, embellishing otherwise conventional relationships, or, in some cases, as a means of prolonging a single tonality. Composers began to lead toward less traditional key associations, particularly those that confound conventional analysis. The means for establishing a key became largely coloristic, rather than functional. Irregular treatment of dominant harmony and a lessening of control by any single key as an organizing factor also represent a significant departure from the practices associated with earlier tonal music.

As we have noted, neither an investigation of larger formal practices nor an examination of ethnic music (including that of the United States) can be accommodated within the scope of this brief chapter. If you wish to gain a more accurate understanding of this transitional period, you will need to study large musical structures. You will also need to gain some familiarity with the striking political, sociological, and philosophical movements that characterized the era.

## SELF-TEST 27-1

(Answers begin on page 649.)

A. Harmonic and melodic procedures. The Prelude by Scriabin, though brief, illustrates some interesting departures from tradition. Play through the piece and answer the following questions:

**1.** What is the overall key of the piece? _____

**2.** In what way does the opening melody obscure this key? _____

_____

_____

**3.** Show roman numeral analysis for mm. 4-6.

_____ _____ / _____ _____ / _____

**4.** Mm. 7-8 contain two somewhat deceptive progressions. Where do these occur?

_____ and _____

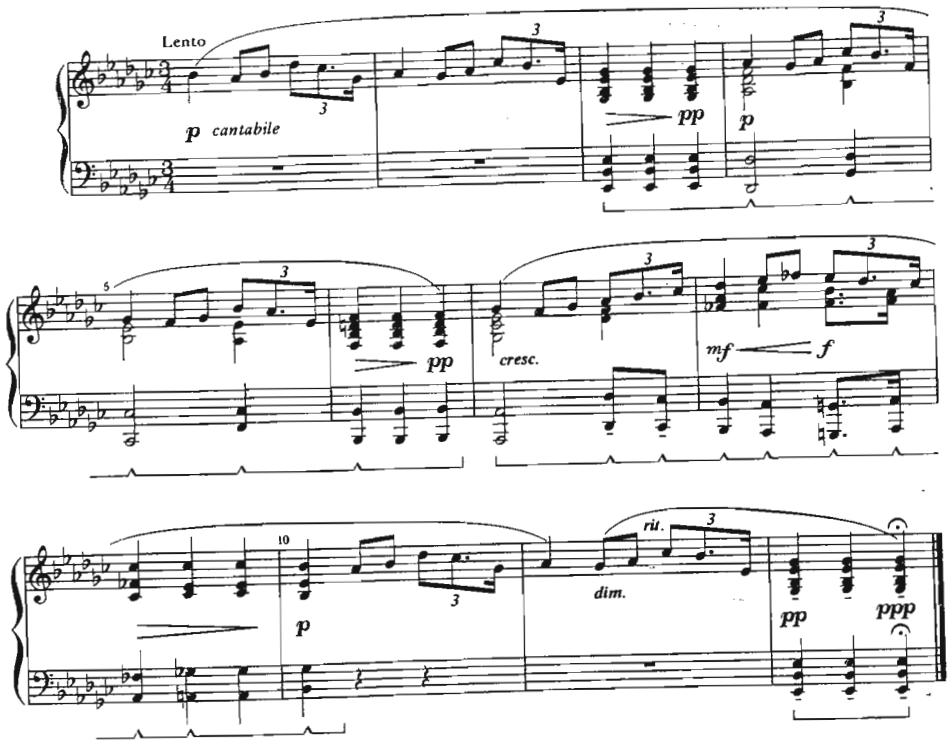
**5.** Locate an augmented sixth chord in the composition. _____

**6.** What is unusual about the end of the piece? _____

_____

_____

Scriabin, Prelude, Op. 16, No. 4






B. Mediant relationship of triads. You are given a triad built on F. Show all triads, above and below, which illustrate:

**1.** Chromatic mediant relationship (one common tone with one chromatic alteration)


**2.** Double chromatic relationship (no common tones, two chromatic alterations)


C. In the excerpt below:

**1.** Show roman numeral analysis in mm. 1-16. Do all work on the music. Note the absence of a clear dominant-tonic cadence anywhere in the excerpt. Locate illustrations of avoided tonic cadence and describe the manner in which this is accomplished. _____

_____

_____

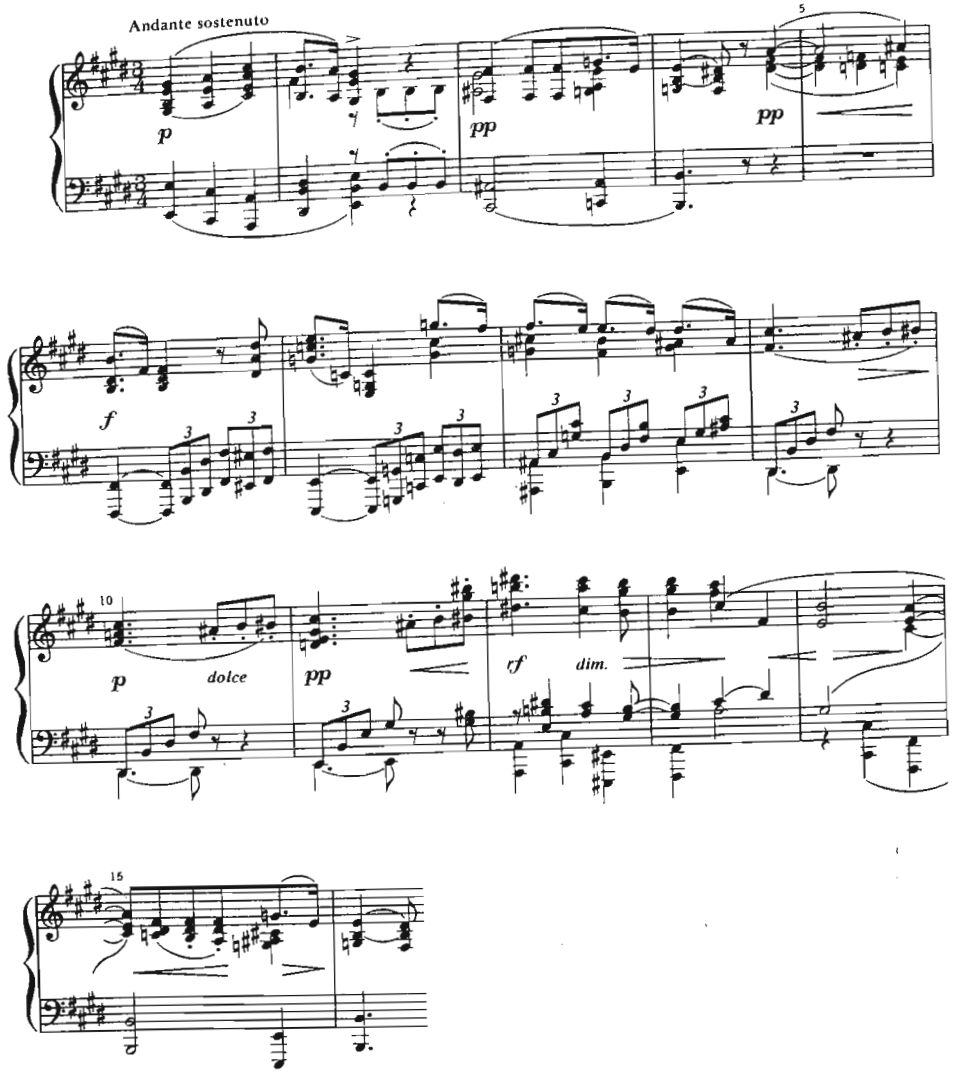
**2.** What other procedures mark this as a late Romantic work? _____

_____

_____

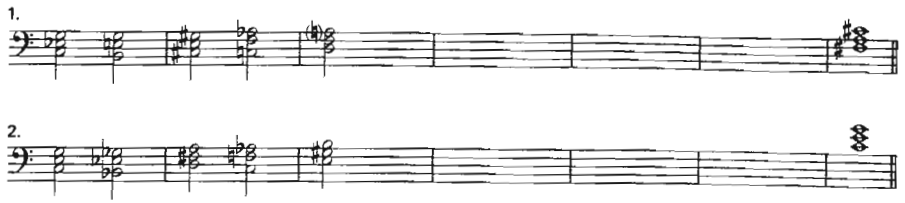
_____

Brahms, Symphony No. 1, Op. 68, II (piano reduction)






D. Chromatic sequence. Analyze the following chromatic sequences; then continue each as indicated.




E. Nontraditional harmonic movement. Although the Arietta by Grieg clearly begins and ends in E♭, the harmonic activity within the key is far from conventional. Answer the following questions about this short composition:

**1.** How would you analyze the prevailing harmony in mm. 2-3?

_____

**2.** The chord succession in mm. 5-6 (repeated in mm. 7-8) suggests tonicization of the closely related key of _____, and may be analyzed with roman numerals as follows:

/ _____ _____ / _____ _____ /

**3.** What is unusual about the cadence which occurs in mm. 11-12? _____

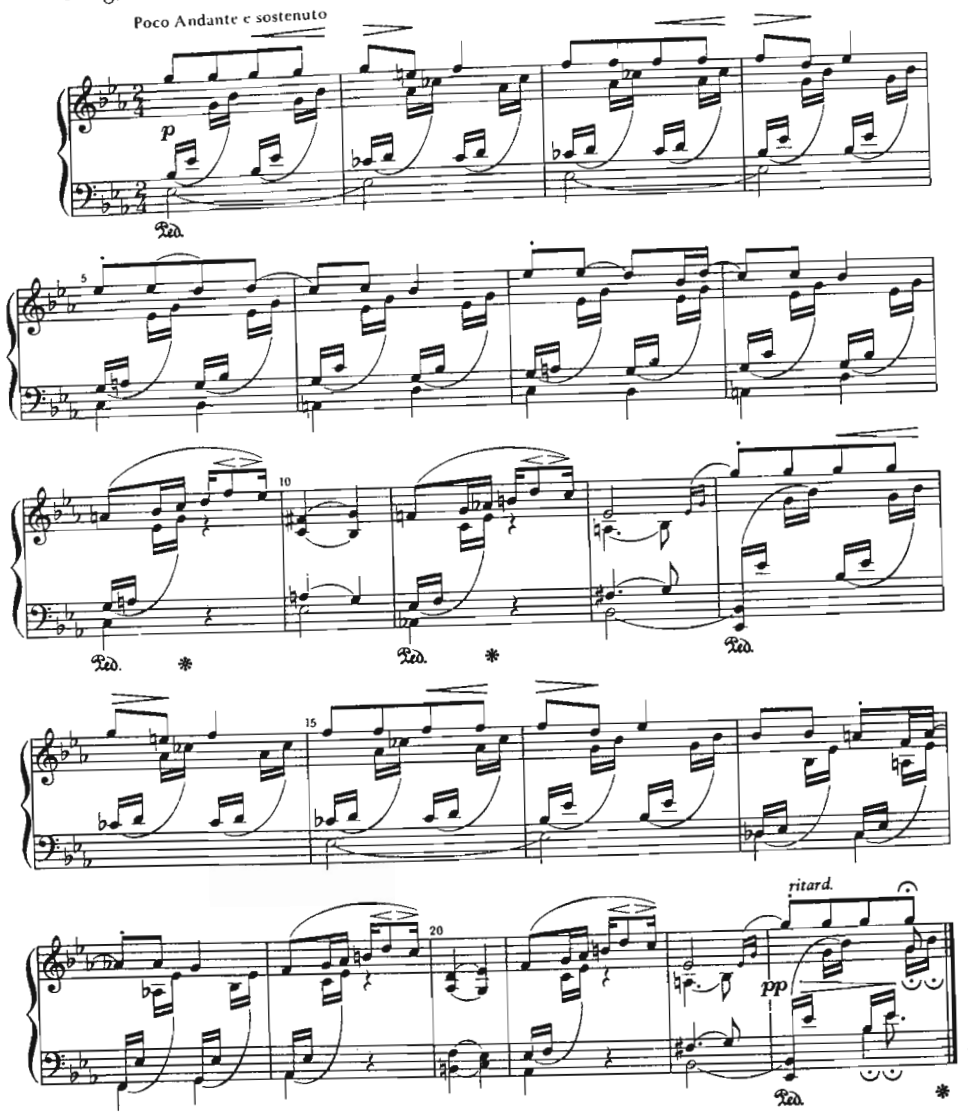
_____

Where is this pattern found later in the piece? _____

**4.** Locate a deceptive cadence. _____

**5.** How would you describe the form of this piece? _____

Grieg, Arietta, Op. 12, No. 1






F. Nontraditional treatment of tonality. *Das Verlassene Mägdlein* by Hugo Wolf provides an interesting mixture of traditional and nontraditional procedures. Play through the piece (most of the essential harmonic notes are contained in the piano part) and answer the following questions:

1. What is the key of the piece? _____ By what means do the opening twelve measures establish that key? Can you assign roman numerals to this passage? In what way are the chord voicings nontraditional? _____

2. Mm. 13-14 illustrate what type of relationship? _____

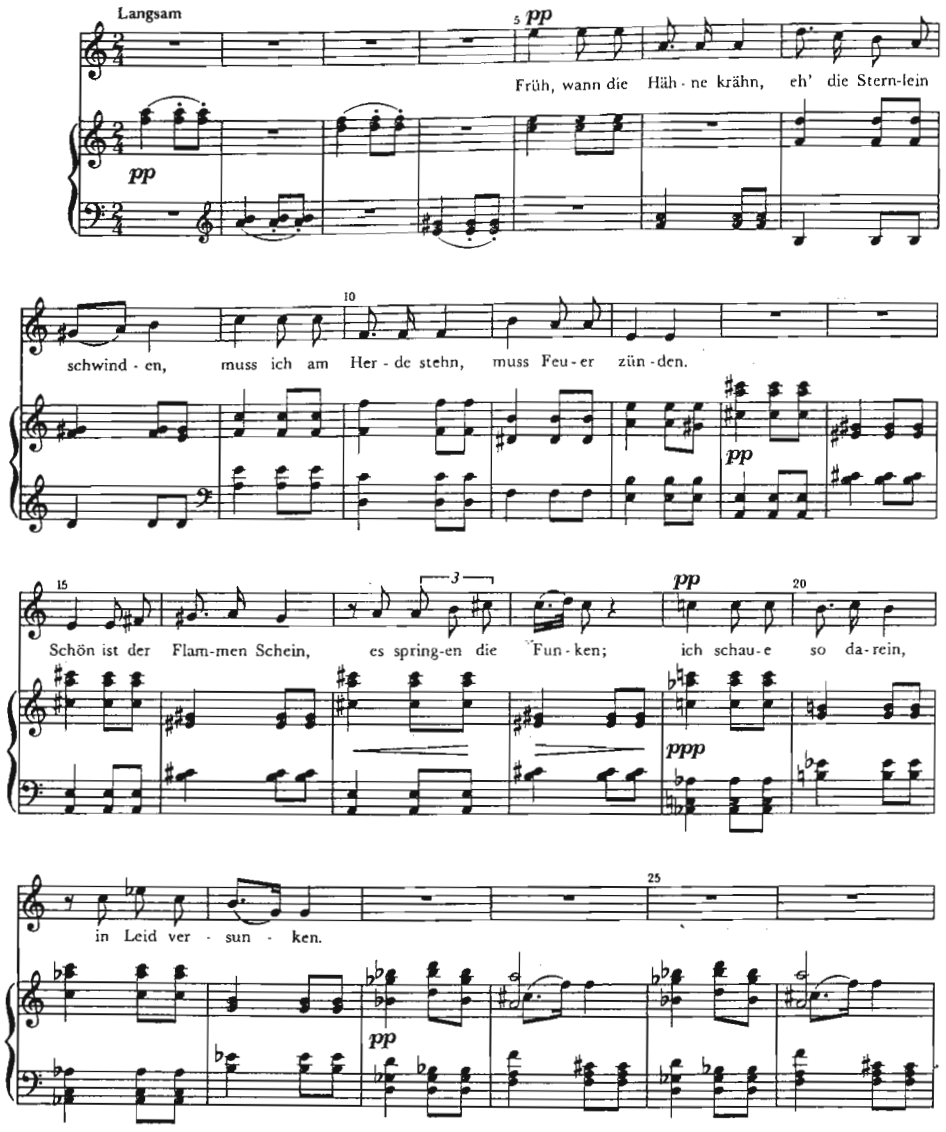
3. Mm. 19-22 do not clearly define a tonality. Why not? _____

4. What tonal center is suggested in m. 27? _____ How is it established? _____

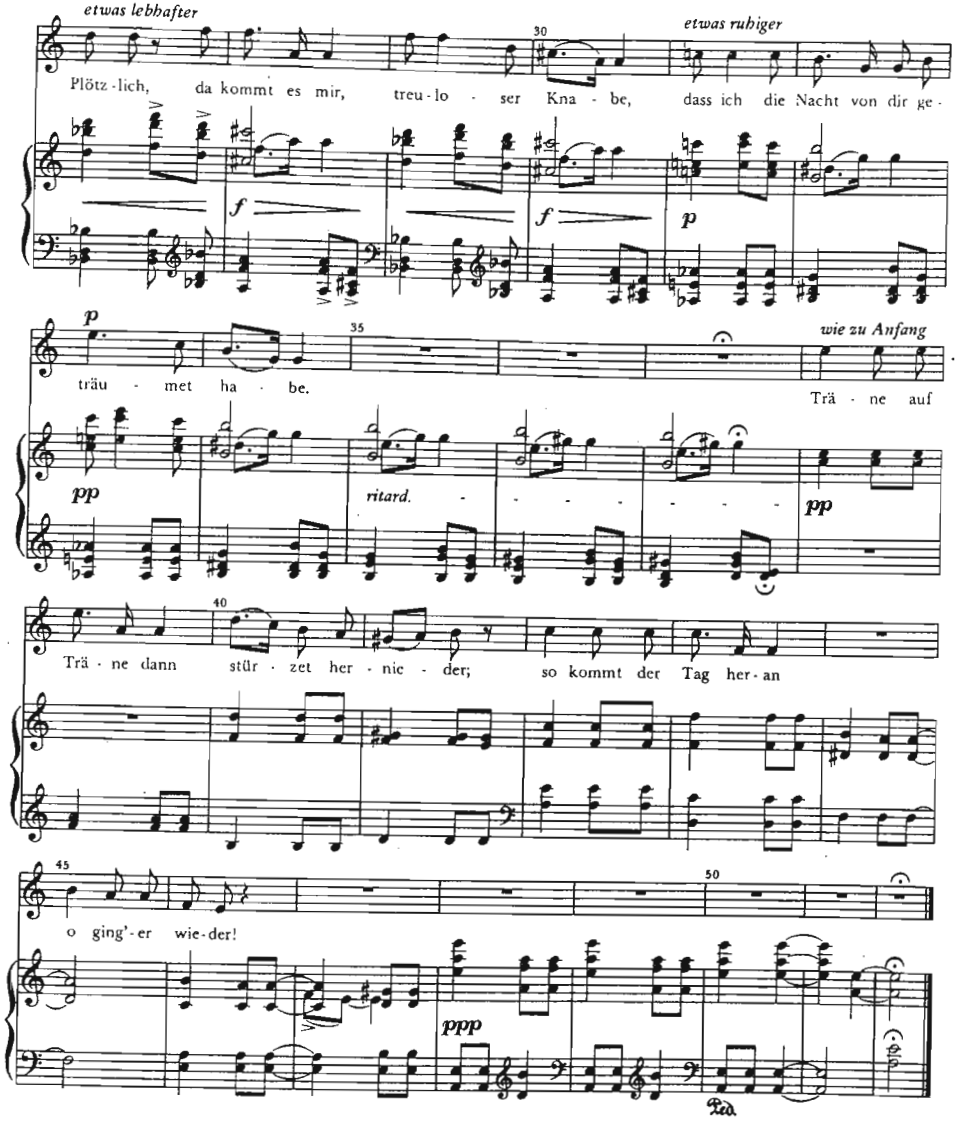
5. M. 38 returns to the opening material. In what way has this return been prepared in the preceding four measures? _____

6. How would you describe the overall form of the piece? _____

Wolf, Das verlassene Mägdlein






*EXERCISE 27-1. See Workbook.*

# CHAPTER 28 *An Introduction to Twentieth-Century Practices*

## INTRODUCTION

As the traditional tonal system was being stretched to its limits, composers became increasingly aware of the growing need for alternative means of musical organization and for a vocabulary which would adequately deal with new methods and concepts. Basic elements that seemed to lend themselves to significant modification included scale, chord structure, harmonic succession, rhythm and meter, and overall musical texture. The early experiments that took place seemed to lead along two somewhat different paths: one, an extension of the principles of ultrachromaticism; the other, a reaction against chromatic excess. The former path may be seen to have culminated in the development of the twelve-tone system, while the latter caused many composers to investigate the pre-tonal era, along with folk music, as a source of materials. Increasingly, many of today's musicians are turning to non-Western cultures as a source of fresh musical ideas.

Throughout the unfolding of the twentieth century, we have found each of these paths themselves branching off in various directions, creating a vast array of musical styles, philosophies, and practices. In some instances, one may observe the inexorable overlapping of seemingly disparate patterns of musical thought. In others, particularly the realm of film and commercial music, we note a continued reliance upon principles of tonality. Worthy of note is the relative speed with which this expansion has taken place, especially in comparison with the time span from c. 1650-1900, sometimes referred to as the Common Practice period, during which Western music composition was based on the principles of tonal harmony.

The richness and diversity of today's musical experience present problems for any musician attempting to synthesize, codify, or define the prevailing trends in twentieth-century music, even as that very century draws to a close. This chapter will serve primarily as an overview of certain historically significant events which ultimately resulted in the definition of today's cultural environment. It may also provide a springboard for continued study and analysis.



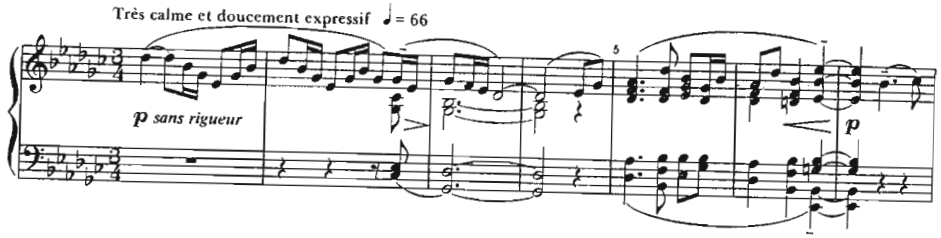


## IMPRESSIONISM

Debussy, whose music represents a move away from the chromaticism characteristic of the post-Romantic era, is considered by many to have made some of the most significant contributions to the evolution of early twentieth-century musical thinking. His compositional style reveals departures from previous practices which, though easily accessible to the tonally oriented ear, clearly defy traditional tonal expectations.

You will notice the clear suggestion of G♭ major in Example 28-1.

**Example 28-1.** Debussy, "La Fille aux cheveux de lin," from *Preludes*, Book I




But notice, too, the nontraditional procedures he employs.

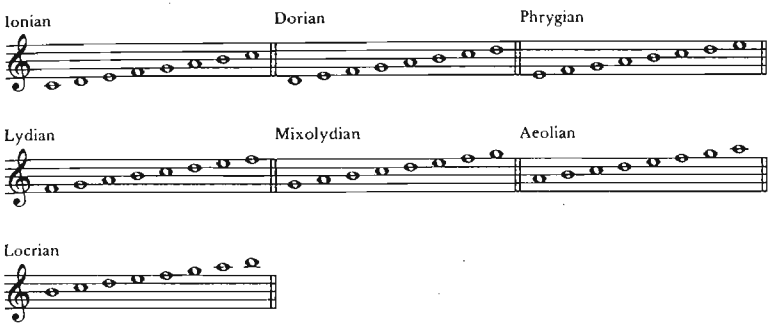
1. The opening measures outline an e♭$^7$ chord, whose function is far from obvious.
2. The first cadence leading to tonic is plagal and thus avoids functional use of the leading tone.
3. The progression beginning in m. 5, with its predominance of mediant relationships, serves to render the G♭ tonic still more elusive.

In general, the most revealing aspects of early twentieth-century music may be discovered through an examination of the treatment of tonality. The analyst should ask the following questions: Does the piece seem to have a tonal center or centers? If so, how is tonality accomplished? If not, how is it avoided? The answers to these questions will do a great deal to shed light upon a composer's style and musical inclinations.

## SCALES

One reaction to the chromatic saturation of the late nineteenth century was a renewed interest in the church modes, given below (Ex. 28-2). The simplest way to represent each of the modes is by using the pitches of the C major scale, but with a pitch other than C serving as tonic or *final* for each mode.

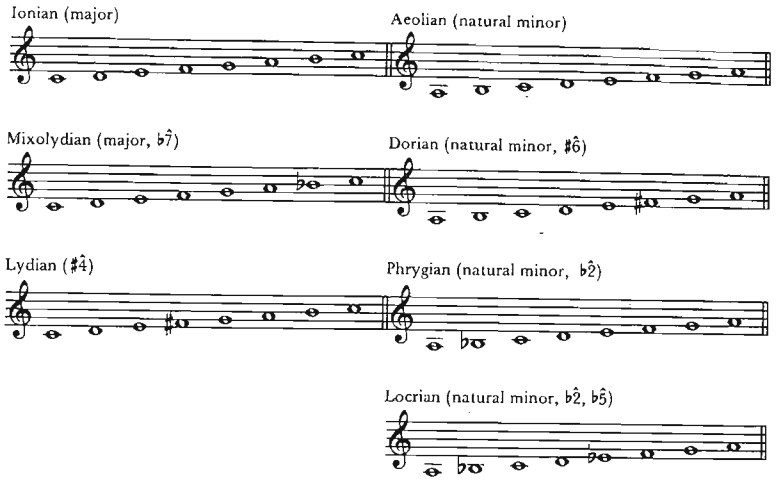
**Example 28-2.**




If we compare the modes directly to major and minor scales (Ex. 28-3), we find that the Ionian and Aeolian modes are identical to the major and natural minor scales, respectively, and that the remaining modes (except Locrian) may be likened either to a major scale or to a natural minor scale with one alteration. This method of identification has the advantage of providing an aural description, clearly related to familiar scales, of each modal pattern.



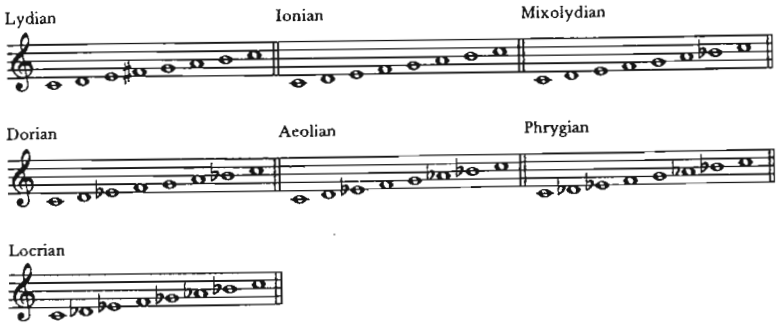
**Example 28-3.**




The Locrian mode, which requires two accidentals compared to natural minor, and which lacks a true dominant, is found far less often in musical composition, although it is commonly employed by jazz performers as a pattern for improvisation.

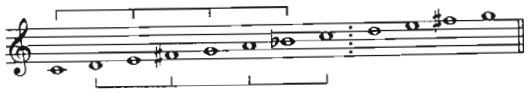
The modes may also be arranged as shown below, in decreasing relative order of "brightness," that is, according to the number of major or augmented intervals above the final. For comparison each mode in Example 28-4 is built on C.

**Example 28-4.**




A scale Debussy particularly favored is the Lydian-Mixolydian, or $\sharp\hat{4}$, $\flat\hat{7}$ scale. This hybrid collection of pitches may well have resulted from the juxtaposition of two major-minor seventh chords with roots a whole step apart, as indicated by the brackets in Example 28-5.

**Example 28-5.**



You will notice, given the presence of both B♭ and F♯, that it would be impossible to realize this scalar pattern using only the white keys of the piano. Just as each of the diatonic modes possesses unique color characteristics, the scale discussed above may be made to sound quite different with different pitches serving as "tonic." For example, beginning on D will result in a major scale with a $\flat\hat{6}$ and $\flat\hat{7}$. Likewise, beginning on A will yield a Phrygian/Dorian pattern (a minor with $\flat\hat{2}$ and $\sharp\hat{6}$). When G is used, an ascending melodic minor scale is created.

When we start this scale on the note B♭, the resulting pattern begins with five pitches in whole-tone relationship to one another. For this reason, you may occasionally see the designation *4 + 1*, indicating that this type of scale may be arranged so as to consist of four whole steps, separated by a half step from the one remaining whole step, as follows:



B♭ - C - D - E - F♯ - G - A - B♭

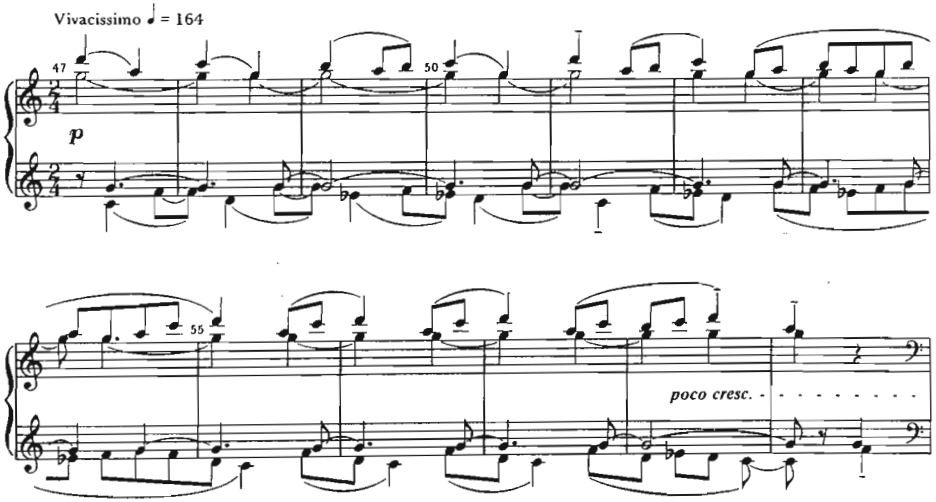
Accordingly, the white key scale could be designated *3+2* when arranged as follows:

F - G - A - B - C - D - E - F

Obviously the nonspecific nature of these labels would be useful only to distinguish between the two scalar patterns used, say, in a passage which contains no clear tonal center.

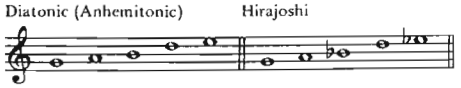
Example 28-6 shows this scale resulting from the canonic mirroring of two voices.

**Example 28-6.** Bartók, "Subject and Reflection," *Mikrokosmos* No. 141



The *pentatonic*, or five-note, scale has played a significant role in music, particularly non-Western music, for centuries. Although the term pentatonic literally denotes any collection of five pitches, the two forms of the scale shown in Example 28-7 tend to be encountered the most frequently in the literature.

**Example 28-7.**

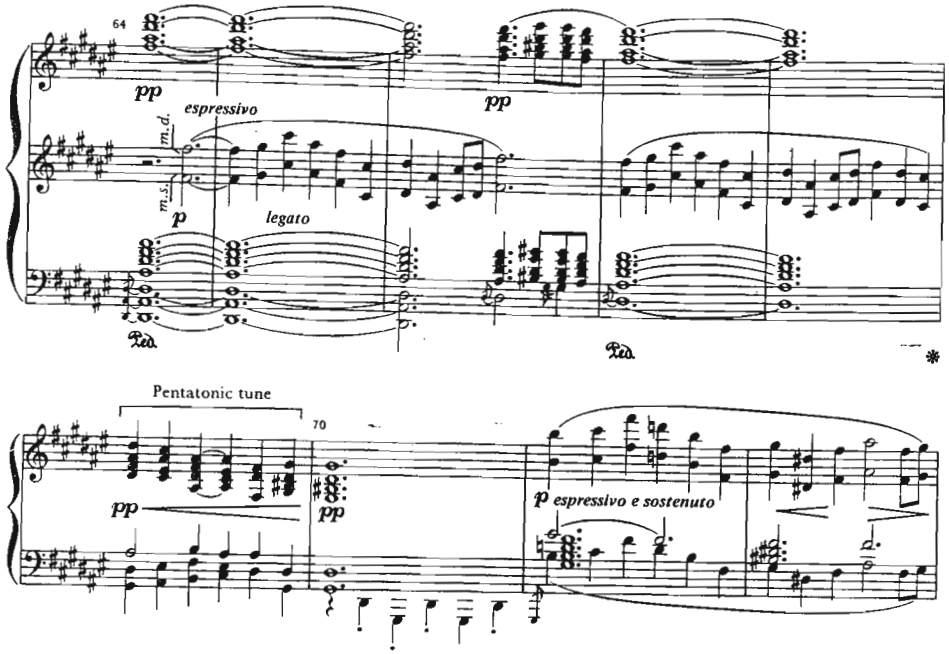



Both of these pitch sets can obviously occur within a diatonic series. You will notice, however, that there are no half steps or tritones in the anhemitonic scale, which may be likened to the pattern of the black keys on the piano. Any one of its five pitches may be made to serve as tonic by means of reiteration and metric accent. The effect of the scale is likely to be harmonically static, however, particularly if its use is prolonged. For this reason, a composer will seldom use the pentatonic scale as the basis for a composition of any length.

Debussy's use of the diatonic pentatonic scale is illustrated in Example 28-8.



**Example 28-8.** Debussy, "Nuages," from *Nocturnes* (piano reduction)

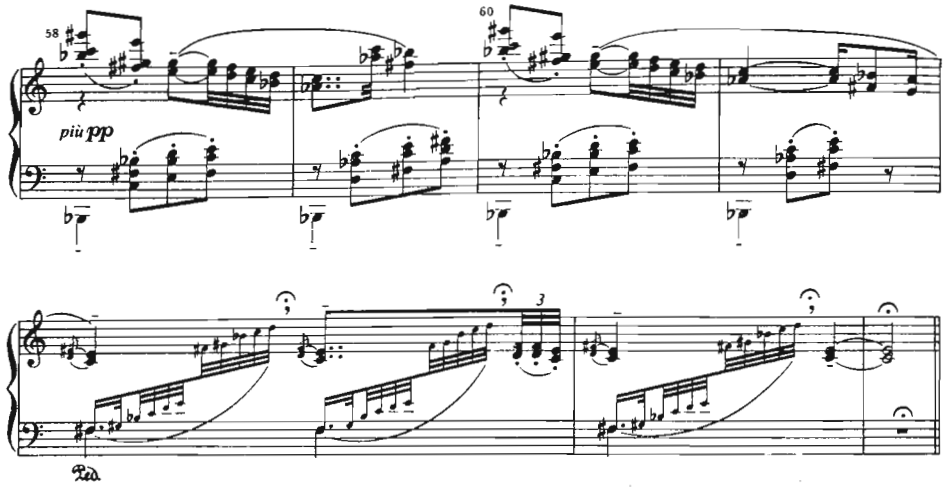





The pentatonic tune, appearing in octaves, centers around F♯ and is harmonized by d♯ minor and G♯ major sonorities. To the traditional ear, this might possibly suggest ii-V in C♯ major, or perhaps a D♯ Dorian key center. At no point in the piece, however, is either C♯ or D♯ permitted to function decisively as tonic.

The pitch collections we have discussed so far bear a clear resemblance to scales or fragments of scales associated with the diatonic system. Composers have also, however, made extensive use of *artificial* or *synthetic scales*. One of the most prominent of these, the *whole-tone scale*, composed entirely of major 2nds, was also a favorite of Debussy's. This scale is used in Example 28-9. It is of interest to note that "Voiles," the closing section of which appears below, is composed in ABA structure, the B section being based exclusively on the pentatonic scale.

**Example 28-9.** Debussy, "Voiles," from *Preludes*, Book I

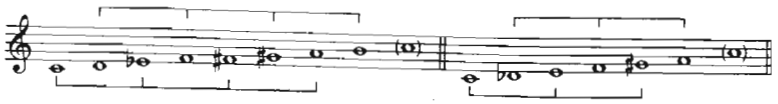



Like the pentatonic scale, the whole-tone scale possesses several structural limitations, since it contains basically only three intervals: the major 2nd, the major 3rd, and the tritone (along with their inversions). Its symmetry and its total lack of perfect intervals (and hence of major and minor triads) bestows upon it an elusive, tonally ambiguous quality that has proved attractive to many composers. The vertical sonorities that may result from whole-tone simultaneities are often referred to as *whole-tone chords*. (The $Fr^{+6}$ chord, though used in tonal contexts, may be structurally derived from the whole-tone scale.)

The available variety of synthetic scales is, obviously, limited only by the composer's imagination. We shall mention here only two additional ones (Ex. 28-10) that are interesting because of their symmetrical structure: the *octatonic* or *diminished scale*, derived from the superimposition of two diminished seventh chords at the interval of a half or whole step, and the *half-step minor 3rd scale*, derived from the juxtaposition of two augmented triads at the interval of the half step.



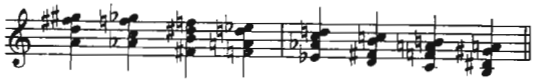
**Example 28-10.**



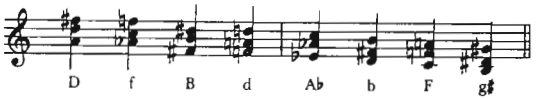
Example 28-11 shows the interesting possibilities for chord structures derived from the octatonic scale. Note the alternation of major triads in second inversion with minor first-inversion triads in the first part of the example. Note too the exotic result when a seventh above the bass is added to each of the sonorities. This scale, frequently employed by composers from the Russian Five (mentioned in Chapter 27) also intrigued Olivier Messiaen (1908-1992), who applied symmetrical procedures to rhythm as well as to pitch.

**Example 28-11.**

Four-note chords in the octatonic scale

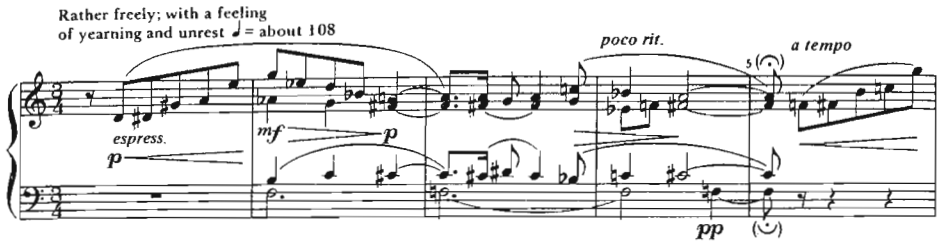


Triads in the octatonic scale




The term *dodecaphonic* refers to music based on a twelve-note scale. Although seemingly synonymous with the more traditional term "chromatic," its use tends to avoid any implication of "functional" tendency tones (the significance of ♯6 versus ♭7, and so on) in non-tonal music. You will find that in some cases, music based on the dodecaphonic scale may suggest a tonal center, as may be seen in Example 28-12.

**Example 28-12.** Kennan, Prelude No. 1






The opening four measures make use of all twelve pitch classes; yet through the bass position and reiteration of the note F, we are made aware of its function as tonal center.

*SELF-TEST 28-1*
(Answers begin on page 652.)

A. Scale characteristics.

**1.** Which three of the diatonic modes are essentially major in quality?

_____, _____, and _____

**2.** Which *two* of the seven diatonic modes begin with a minor second?

_____ and _____

**3.** Name two six-note symmetrical scales, and the derivation of each.

_____ and _____

Derivation: _____

**4.** What scale is created by the juxtaposition of two major-minor seventh chords whose roots are one whole step apart?

_____



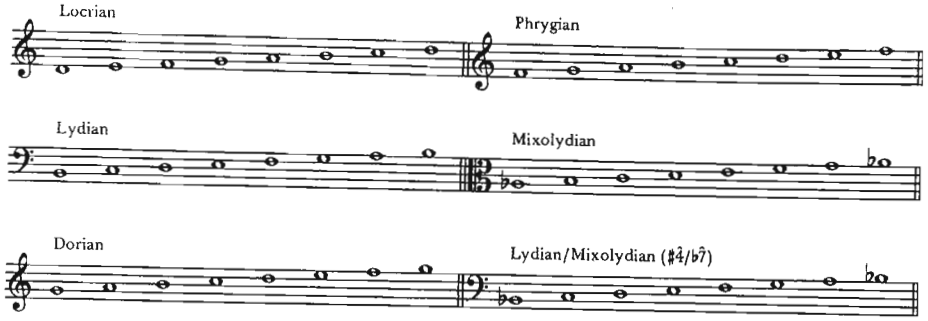
**5.** What traditional seventh chord type forms the basis for derivation of the octatonic scale? _____

**6.** Three of the four traditional triad types may be derived from the octatonic scale. They are _____, _____, and _____

**7.** What two intervals are missing from the anhemitonic (diatonic) pentatonic scale?

_____ and _____

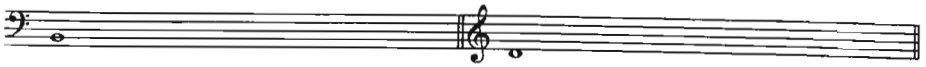
B. Add the appropriate accidentals to create the type of scale asked for:



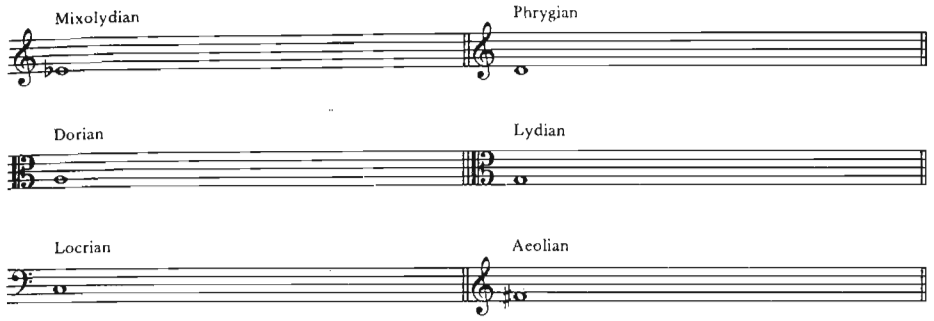

C. Scale transposition.

**1.** Taking the pentatonic pattern C-D-E-G-A as a model, transpose the set so that the set will begin, respectively, on each of the pitches indicated:

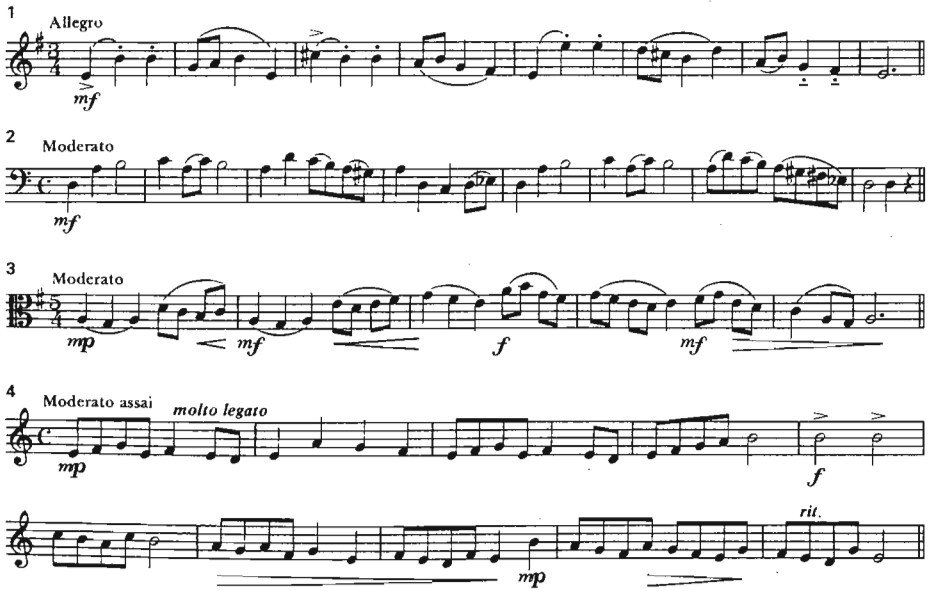
**2.** Notate whole-tone scales starting on each of the following pitches (remembering that it is permissible, in a six-note scale, to mix sharps and flats).



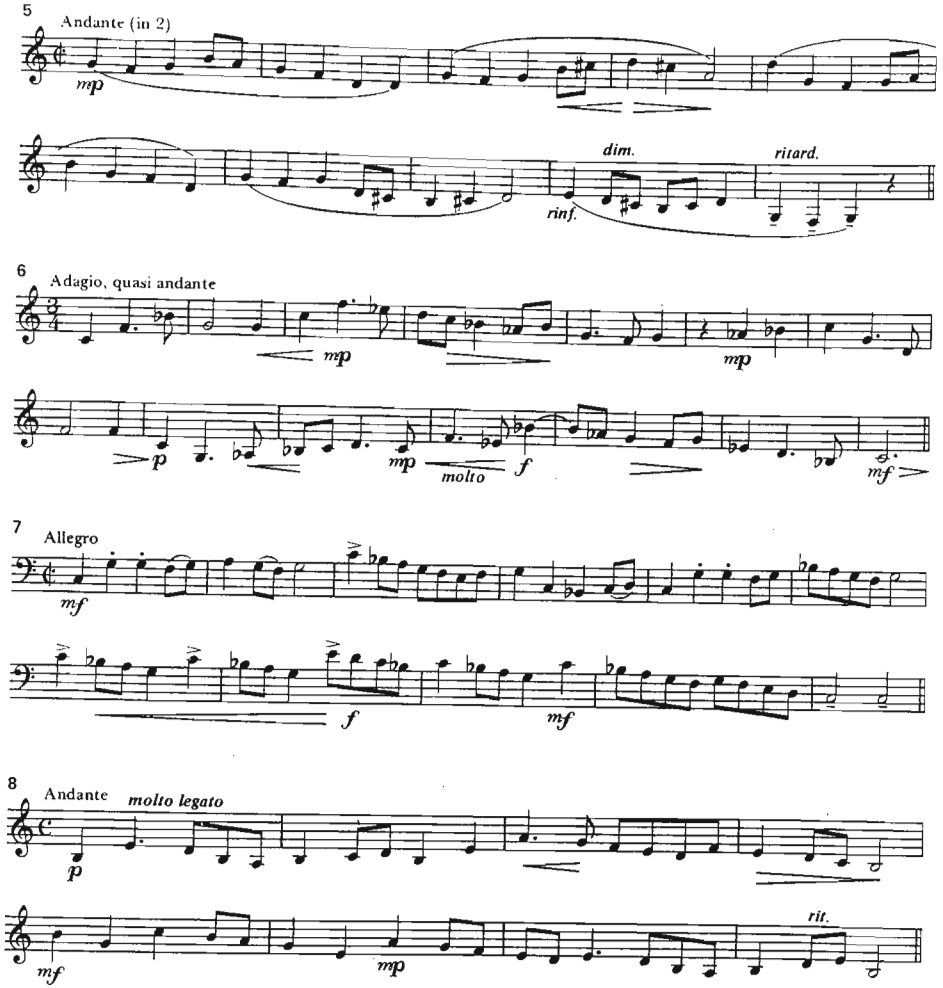
**3.** Notate the following modal scales in the clef indicated:




D. Identify the scale which forms the basis of each of the following melodies:





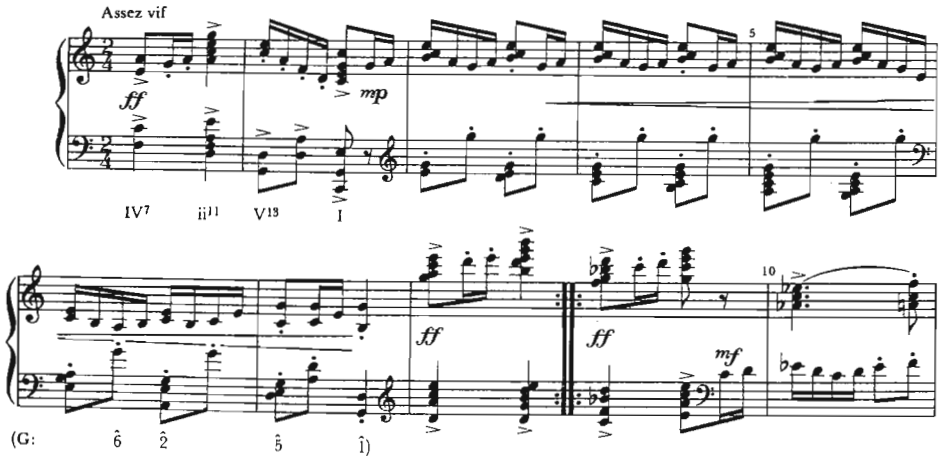

*EXERCISE 28-1 (A–G). See Workbook.*

## CHORD STRUCTURE

You will recall a brief discussion in Chapter 26 regarding the occasional use of ninth chords in tonal music. In most cases, these sonorities represent dominant function, with the ninth often treated as a non-chord tone and resolving down by step. Functional dominant ninth chords, while far less common than dominant seventh chords, may be found in the music of such composers as Schumann, Chopin, and Beethoven. Eleventh and thirteenth chords, on the other hand, were rarely encountered prior to the twentieth century. For that reason, the increased use of ninth, eleventh, and thirteenth chords on the part of some twentieth-century composers represents an obvious extension of the post-Romantic tradition of tertian harmony. These chords may occur in both functional and nonfunctional settings.

Example 28-13 by Ravel, shown below, illustrates a coloristic use of tall chords in the sense that traditional rules of resolution fail to apply. Notice the clear sense of root movement in mm. 1-3, as indicated in the analysis. The texture of succeeding measures continues to employ tall chords, created through the scalewise motion of the bass line. The effect of this passage is to prolong the sense of C as tonal center until the music slips unobtrusively into G in m. 7 of the excerpt, again employing a functional bass line.

**Example 28-13.** Ravel, "Rigaudon," from *Le Tombeau de Couperin*

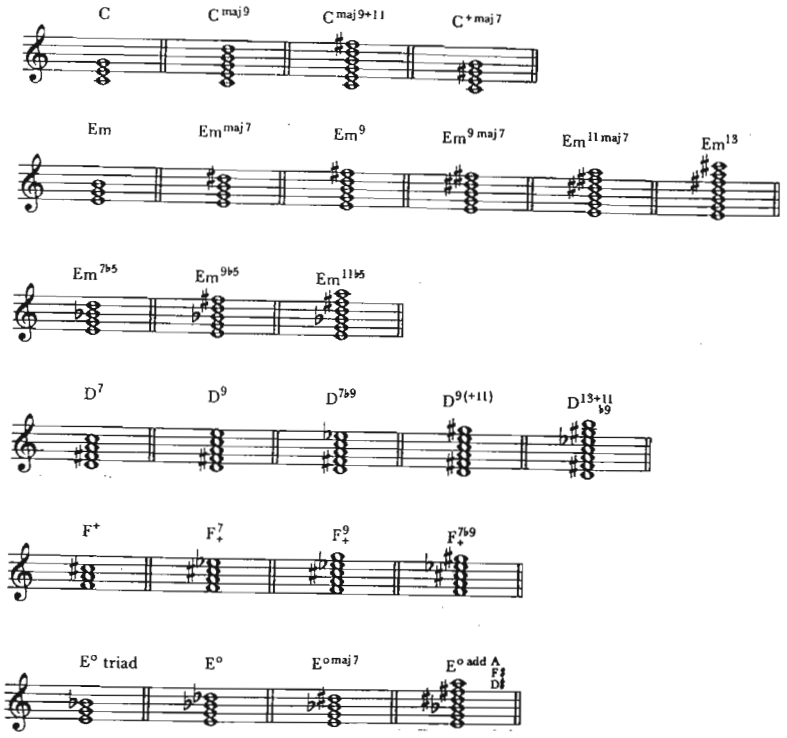






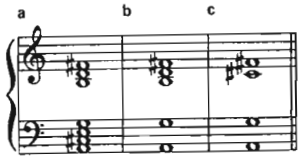

As has been noted in Chapter 26, tall chords are created through the stacking of major and minor 3rds. The most frequently encountered of these are shown below with lead sheet or "pop" symbols. Although widely differing labeling systems exist, those given in Example 28-14 are generally considered to be standard.

**Example 28-14.**




Frequently, in the interests of lightening up the texture and achieving greater flexibility, a composer may omit some components of a tall chord, such as the 5th or the 11th. Depending on the context, this omission may tend to alter the listener's perception of the basic chord structure. Play the three chords of Example 28-15.

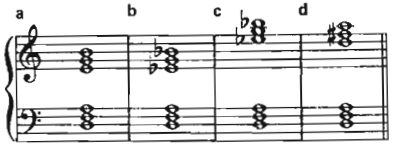
**Example 28-15.**




Example 28-15a is clearly a thirteenth chord. If we interpret the root A as being a dominant, we can see that all pitches of the D major scale are being sounded. This adds a certain heaviness to the sonority, which a composer might prefer to avoid. The omission of the 3rd and 5th of the chord, as shown in Example 28-15b, does little to alter our perception of the sonority. In Example 28-15c, however, when we systematically omit the 5th, 9th, and 11th, we might interpret the sonority as a $V^{7\text{subs}}_{6\text{th}}$, or we might even hear the F♯ as a nonharmonic tone. The "correct" interpretation is obviously dependent not only on the previous musical experience that the listener brings to it, but also on the context in which the chord occurs. For example, a popular song arrangement that features almost exclusively tall tertian sonorities will logically suggest analyzing such a chord as a thirteenth chord.

Yet another extended tertian harmony is the *polychord*—superimposed triads—several versions of which are shown in Example 28-16.

**Example 28-16.**



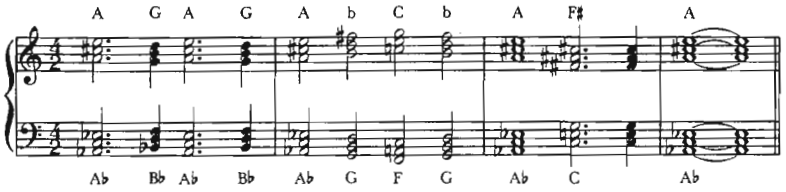

In Example 28-16a the diatonic relationship of the pitches might well suggest a chord of the thirteenth. Example 28-16b might still be perceived as a d minor ninth chord with upper extensions, but the chromatic inflection of the upper triad is far more likely to suggest two independent triads with



their roots a m9 apart. This effect is greatly enhanced by the separation occurring in Example 28-16c between the two sets of pitches. The sonority occurring in Example 28-16d is often referred to as a *split-third chord*, as it represents both major and minor quality built on the same root.

Now play Example 28-17 which is polychordal.

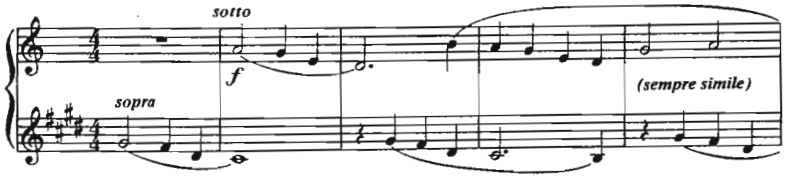
**Example 28-17.**




Notice the sharp dissonance created by (1) chords whose roots are a half step or tritone apart and (2) chords containing even a single contrasting chromatic inflection, such as G/B♭, as opposed to pairs of chords that may be found in the same key signature, such as F/C or G/b minor.

When two or more key centers are heard at the same time—which occurs considerably less frequently than polychordality—we refer to *bitonality* or *polytonality*. In order for the listener to perceive duality of key, it is necessary for the harmonic motion of each key to be relatively uncomplicated and very diatonic. Bitonality is illustrated in Example 28-18.

**Example 28-18.** Bartók, "Playsong," *Mikrokosmos* No. 105



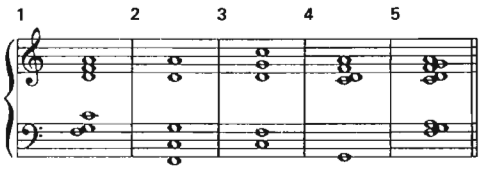
While we may theorize about the possibility of three or more independent and simultaneous tonal centers, as suggested by the term polytonality, we would nonetheless be hard pressed to locate examples of literature in which this tonal multiplicity is aurally perceptible.

This observation suggests an interesting aspect of sonorities found in twentieth-century composition. Whereas in the tonal system the pitches of a tertian triad or seventh chord may be perceived as a discrete and identifiable unit, despite doubling, inversion, and even the presence of non-chord tones, the aural effect of sonorities in a less traditional setting is far more dependent on doubling, spacing, and arrangement in general.

Example 28-19 shows five possible arrangements of the pitches of a pentatonic scale. As you play each of the five, you will probably hear in turn:

1. a major triad with added 6th and 2nd
2. a stack of perfect 5ths
3. a 4th-rich sonority
4. an implied $V^9$ with suspension
5. a tone cluster (chord built from 2nds)

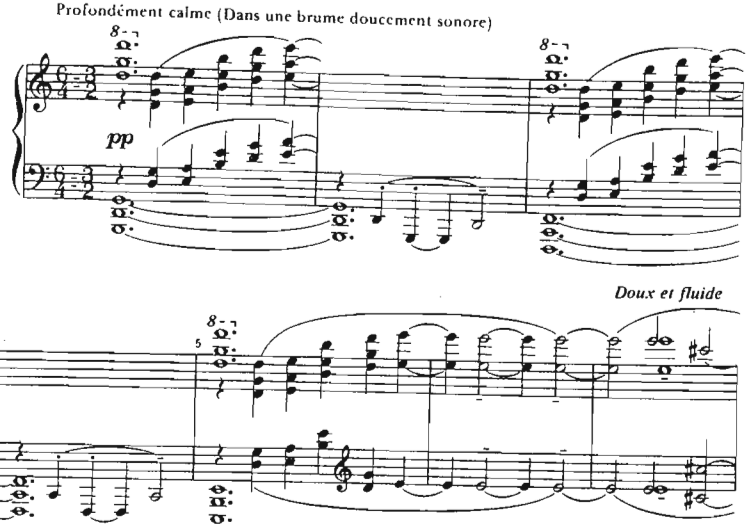
**Example 28-19.**




It may well have been the intervallic "accidents" occurring as the result of tall stacks of 3rds that suggested to composers the possibility of experimenting with other intervals for constructing chords. The P5 and its inversion, the P4, seem particularly well suited to avoiding any commitment to traditional major or minor implications. Example 28-20 illustrates the use of chords built in 5ths and 4ths.



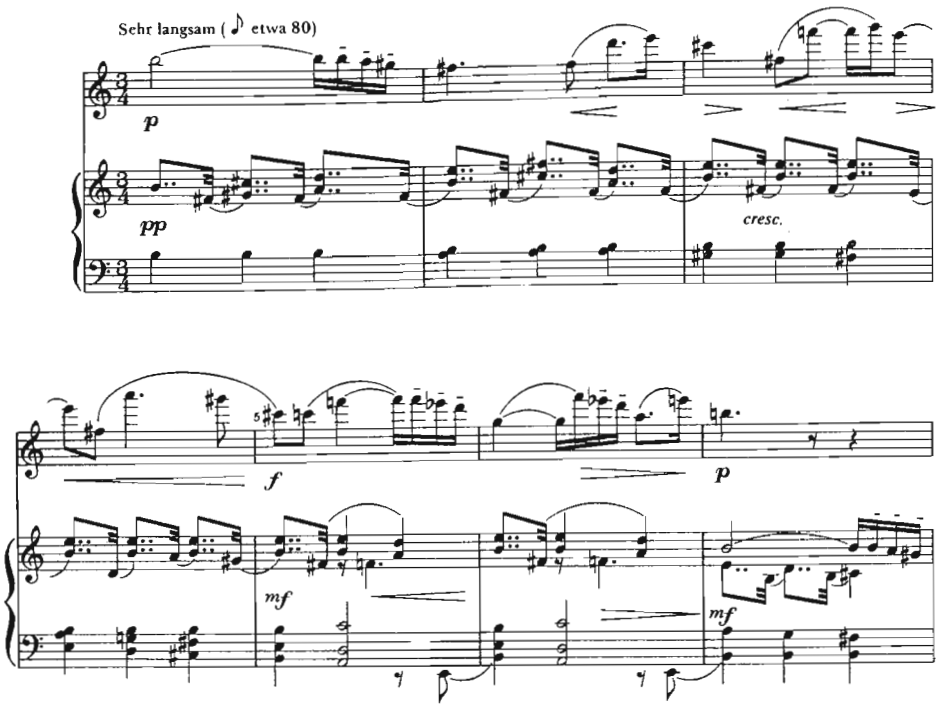
**Example 28-20.** Debussy, "La Cathédrale engloutie," from *Preludes*, Book I




Except for the moving bass line, the pitches used adhere strictly to the diatonic pentatonic scale (G-A-B-D-E). If we view the pentatonic scale in terms of its derivation from stacked 5ths (G-D-A-E-B), this interdependence of scale and chords seems almost inevitable.

A predominantly *quartal* harmony (based primarily on 4ths) may be observed in Example 28-21.

**Example 28-21.** Hindemith, Flute Sonata, II



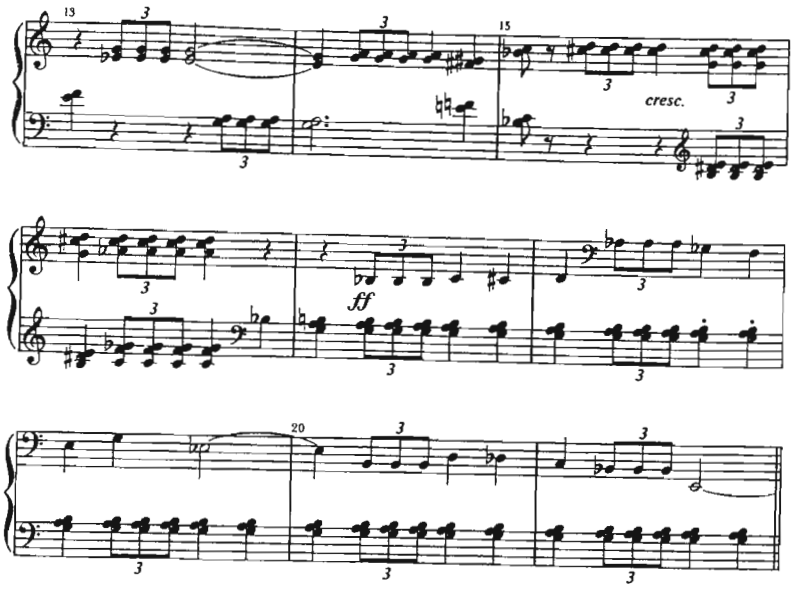



Notice how the sense of B as tonal center is maintained by the bass line, which consists of a descending Dorian scale based on B, as well as frequent reference to F♯ by the solo flute and in the right hand of the accompaniment.

The use of 2nds as a method of chord construction also proved attractive to many composers. Example 28-22 illustrates the use of secundal harmony by Ross Lee Finney.



**Example 28-22.** Finney, "Playing Tag"

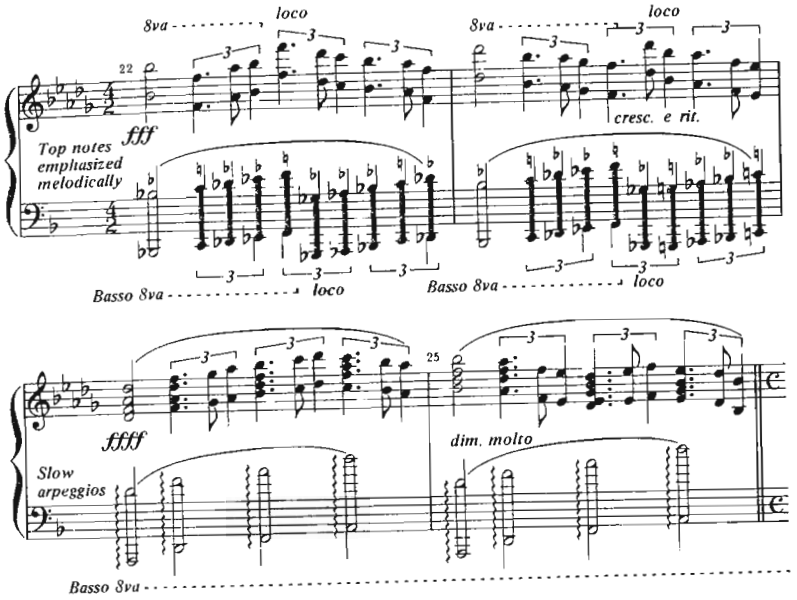





Notice how, in addition to the accentuation and forward motion provided by the secundal chords, the fragmentary melody is based primarily on 2nds as well.

Any collection of three or more pitches in secundal relationship may correctly be referred to as a *tone cluster*. The term was coined by the American composer Henry Cowell, whose early experiments called for pianists to play certain passages with fists, palms, and, frequently, the entire forearm. Example 28-23, an excerpt from *The Tides of Manaunaun*, illustrates this technique. The sonorities thus created are powerful and richly programmatic.

**Example 28-23.** Cowell, *The Tides of Manaunaun*






The concept of cluster chords, especially when used in conjunction with the rich timbral palette of an orchestra or chamber group, has continued to prove extremely useful for composers in the latter half of the twentieth century and will be further explored in this chapter.

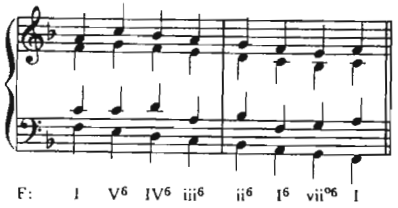
## PARALLELISM

You may have noticed by now that the treatment of texture plays a significant role in our perception of twentieth-century music. The instrumental timbre, the structure of the chords, the doublings, the vertical spacing, the melodic construction, and the method of movement from one musical event to another—all of these aspects contribute significantly to our impression of the piece as having a tonal center or not.



One of the earliest indications of a break with traditional procedures of harmonic progression was the use of parallelism. In some forms, of course, parallelism has been known before the twentieth century; you have already been exposed to parallel sixth chords in a tonal context, as illustrated in Example 28-24.

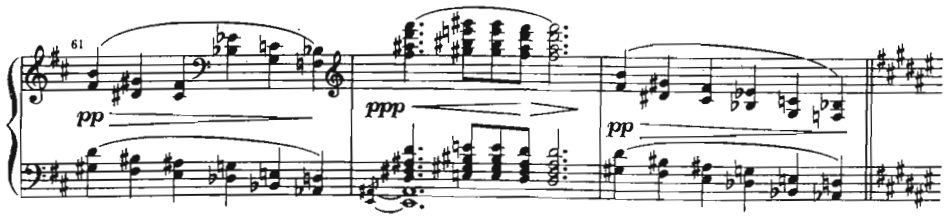
**Example 28-24.**




Even in this diatonic, triadic progression, the ear experiences at least a brief confusion in the space between the beginning and the ending tonic chords, due to the sliding effect produced by parallel movement between the outer voices.

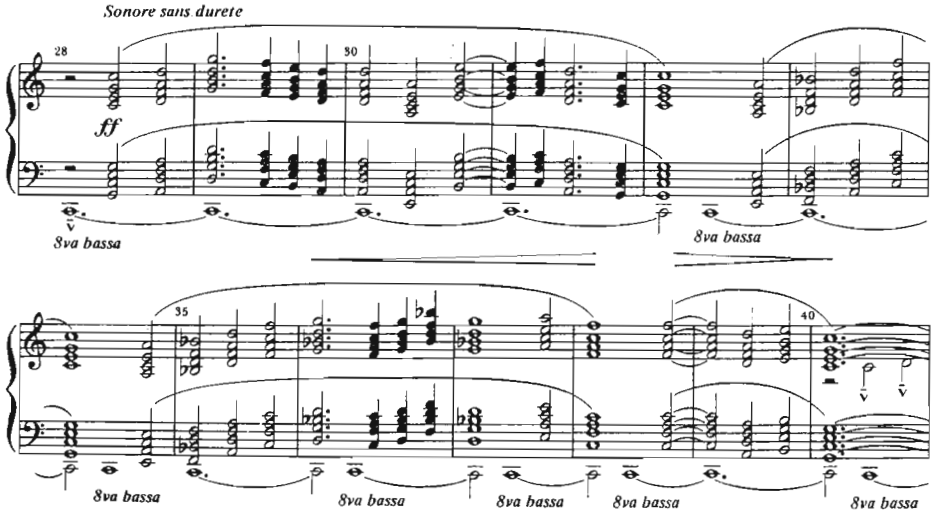
Even more challenging to the ear is Debussy's use of parallel movement of dominant seventh chords, contrasted in the intervening measure with parallel movement of augmented triads (Ex. 28-25). The term *planing*, essentially synonymous with parallelism, is frequently used to describe this device when it occurs in twentieth-century music—perhaps to avoid the pejorative connotations of the formerly used term.

**Example 28-25.** Debussy, "Nuages," from *Nocturnes* (piano reduction)



Following the first beat of mm. 61 and 63 the melody outlines the pitches of a dominant ninth chord on A♭, enharmonically respelled for convenience. The planing observed in this example is referred to as strict, since the vertical intervals remain unchanged. This type of parallel motion will inevitably require a substantial number of accidentals, since such consistent chord quality does not normally occur within a diatonic key; as a result, the feeling of tonal center will be unclear. In contrast, diatonic planing involves parallel movement of vertical sonorities whose quality is determined by the prevailing diatonic scale. Example 28-26 shows parallel triads used to harmonize a chantlike melody in C.

**Example 28-26.** Debussy, "La Cathédrale engloutie," from *Preludes*, Book I

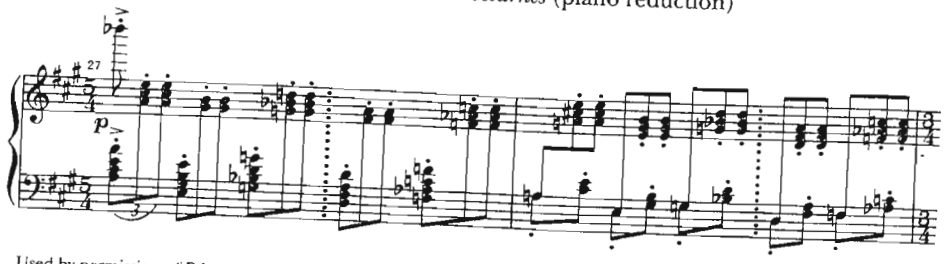



The pedal on C and the rhythmic emphasis on C, E, and G all serve to maintain a strong sense of C as tonal center of gravity. Notice, however, that B♭ is substituted for B♮ in the melodic line in order to maintain the consonant quality of major and minor triads. Although the B♭ could suggest a Mixolydian scale on C, the previous establishment of C major causes us instead to hear merely a brief tonicization of the subdominant, with C functioning temporarily as $\hat{5}$.



We occasionally encounter parallel chord movement that can be explained neither by consistency of chord type nor by the limitations of a single scale. Such a passage is shown in Example 28-27.

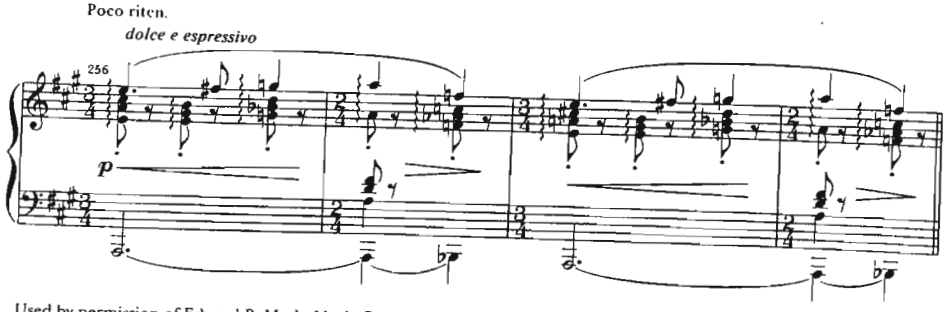
**Example 28-27.** Debussy, "Fêtes," from *Nocturnes* (piano reduction)






In this case, the composer's aim is harmonization of the upper fourth of the chromatic scale below A (A-G♯-G-F♯-F-E). This descending line is further enhanced by the secondary line (C♯-B-B♭-A-A♭) which doubles it in 3rds. The concluding A♭ might be considered a misspelled leading tone in A. This seems especially plausible when we encounter a recurrence of this material in the closing section of the work (Ex. 28-28), harmonized to sound almost functional in the key of A. Here the juxtaposition of A♭ against B♭ clearly suggests an +6, serving as a means of tonicization.

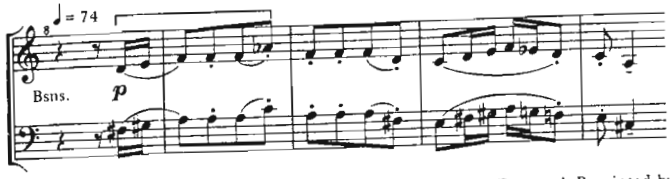
**Example 28-28.** Debussy, "Fêtes," from *Nocturnes* (piano reduction)



Obviously, the principle of parallelism may be applied to other structures, such as quintal and quartal chords, as well as to simple melodic doubling at intervals other than the traditional octave.

The second movement of Bartók's *Concerto for Orchestra* provides us with a virtual catalogue of doublings. The movement opens with a duet for bassoons doubled at the 6th, as illustrated in Example 28-29.

**Example 28-29.** Bartók, *Concerto for Orchestra*, II (reduction)






This is followed by a passage featuring new material for oboes (Ex. 28-30), doubled at the m3 with a occasional M3.

**Example 28-30.** Bartók, *Concerto for Orchestra*, II (reduction)




Following a brief transition by the strings, the work continues with other pairs of instruments: clarinets doubled at the m7, flutes doubled at the P5, and trumpets playing parallel major 2nds.

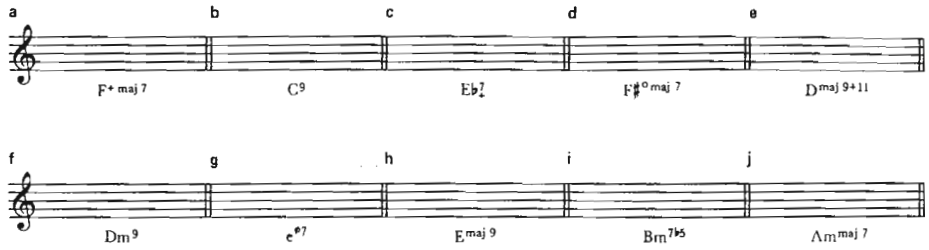


## *SELF-TEST 28-2*

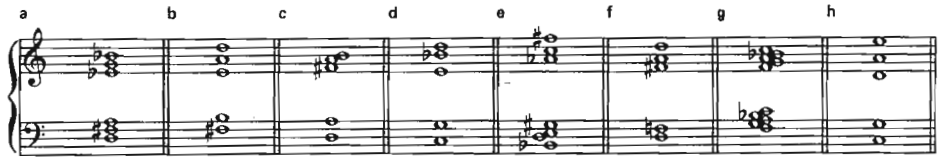
(Answers begin on page 654.)

A. Vertical sonorities

**1.** Review the chord types illustrated in Example 28-14. Then create each of the tertian chords specified below.




**2.** Review the nontraditional chord structures described in Chapter 28. Then describe the structure of the chords shown below.




B. Analysis

**1.** Identify the scale upon which the following composition is based.

_____

**2.** What is the tonal center at the opening of the piece? _____

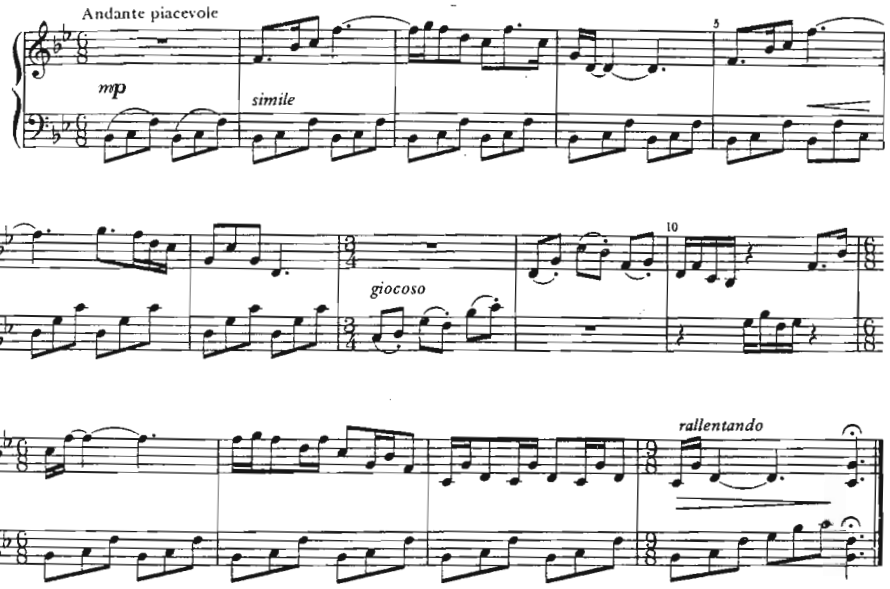
In what measure does it change? _____ To what? _____

**3.** What technique is used for most of the accompaniment? _____

**4.** What is the most prominent melodic interval in this composition? _____

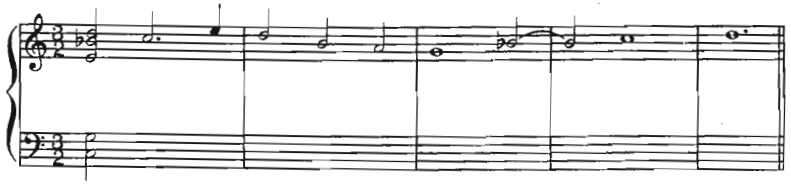
**5.** Where do you notice *hemiola* occurring? _____

Payne, *Skipping*



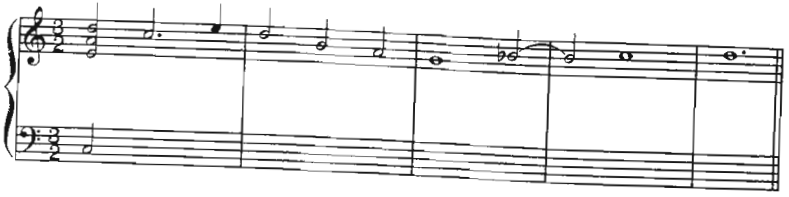

C. Sequence construction

**1.** Harmonize the following phrase by continuing the parallel motion of dominant ninth chords, in the spacing indicated.





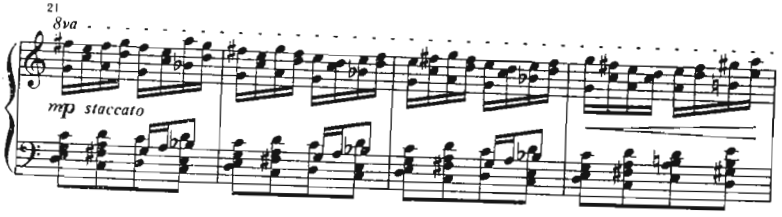
**2.** Now provide a quartal harmonization, again continuing to use the chord structure provided for the first chord.



## PANDIATONICISM

The technique of *pandiatonicism* represents an attempt to equalize the seven pitches of the diatonic scale so that no single pitch is heard as tonic. The texture of pandiatonic passages tends to be contrapuntal, while individual lines are likely to be somewhat angular. Example 28-31 is a typical pandiatonic passage.

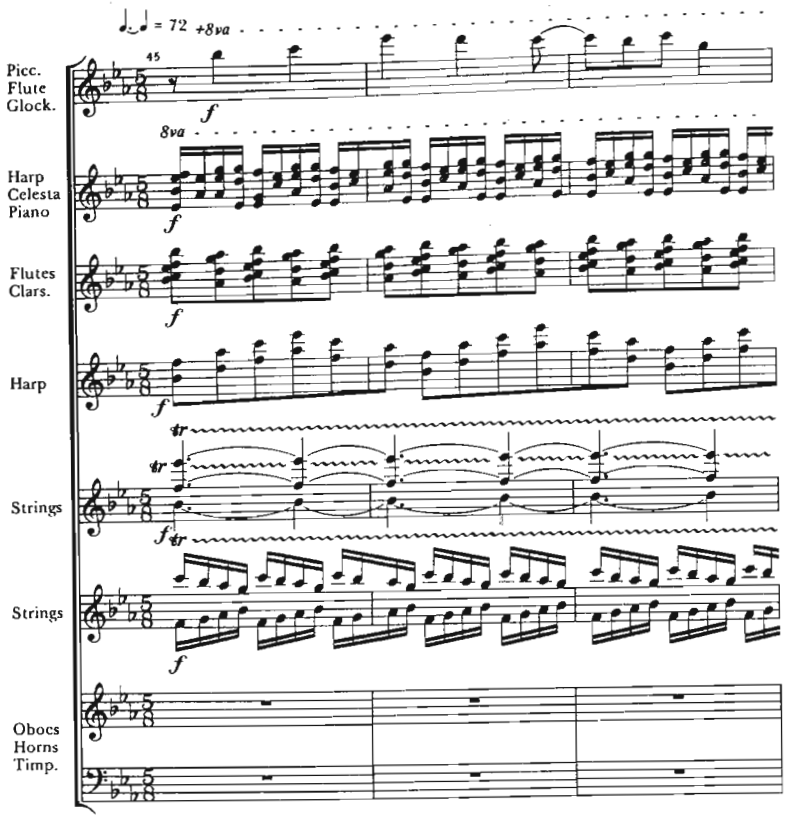
**Example 28-31.** Stravinsky, "Danse russe," from *Petrouchka* (piano reduction)






Using C, the lowest pitch, as a reference point, we discover the excerpt to be based on a $\sharp\hat{4}$, $\flat\hat{7}$ scale; yet at no point is the ear permitted to accept C as tonic. In this instance the designation *4+1* scale might prove useful. In another example from the same ballet (Ex. 28-32), E♭ seems to serve as a kind of tonal center.

**Example 28-32.** Stravinsky, "The Masqueraders," from *Petrouchka* (piano reduction)






*EXERCISE 28-1 (H–N). See Workbook.*



## SET THEORY

Music of the post-Romantic period remained sufficiently tonal to yield, albeit imperfectly, to traditional methods of study and analysis. As composers moved farther and farther from conventions of the Common Practice period, however, it became increasingly clear that previously employed analytical procedures were inadequate to deal with the new harmonic and tonal language.

Early attempts to address this problem came, in many cases, from composers grappling with these issues in their own work. Two of the most notable of these, Paul Hindemith and Howard Hanson, sought to clarify and codify new materials and means of organization, and to relate these resources to broader musical principles.

Hindemith's goal was to formulate an acoustic basis for consonance and dissonance, and thus to discover extensions to traditional practice that could be derived, or at least defended, through "natural musical laws." His theories attempted to define levels of harmonic tension, and are perhaps most illuminating when applied to music which retains a clear allegiance to principles of tonality.

Hanson, on the other hand, sought to explore and catalogue all possible pitch relationships within the tempered scale.

Investigation of music based on a chromatic pitch collection offers unique problems to the analyst. Much atonal music, that is to say, music without a perceptible tonal center, employs intricate systems of pitch organization which require precise analytical language. It was to address this need that the procedures of *set theory* were developed. Although mathematical set theories have existed for some time, Allen Forte is generally recognized as having first codified and refined this system for use by musicians in *The Structure of Atonal Music.**

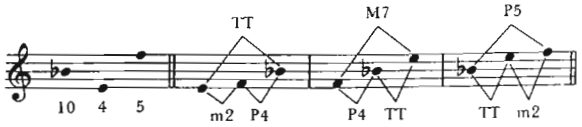
The term *set* applies to any collection of pitches. For the purposes of this system, each pitch class may be designated by a number as follows.

| C | C♯/D♭ | D | D♯/E♭ | E | F | F♯/G♭ | G | G♯/A♭ | A | A♯/B♭ | B |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

Thus the sonority shown in Example 28-33 may be seen to consist of the pitch numbers 10, 4, and 5.

*Allen Forte, *The Structure of Atonal Music* (New Haven: Yale University Press, 1973).

**Example 28-33.**




Having defined the pitch contents, it is then appropriate to designate a "normal" or consistently used order for the set. If this is not done, the six possibilities for arrangement [4,5,10; 5,4,10; 4,10,5; 5,10,4; 10,4,5; or 10,5,4] would render the analytical method confusing and impractical. *Normal order* for a set requires two conditions.

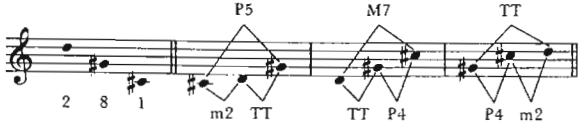
1. The interval framing the set must be the smallest possible.
2. Pitch numbers must appear in ascending order, from left to right.

Given these conditions, we may correctly conclude that the normal order for these three pitches is [4,5,10]. Since it is a three-note set or *trichord*, we may also designate it as being of *cardinality three.*

As we examine the various positions of the set [4,5,10] as illustrated in Example 28-33, we find that the requirements for normal order have been fully satisfied.

Example 28-34 illustrates yet another trichord which contains the pitches 1, 2, and 8.

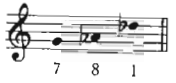
**Example 28-34.**




Normal order for this set might logically seem to be [1,2,8], yet upon closer examination, we find that it does not satisfy condition 1 which requires the smallest possible interval between the outer pitches of the set.



The position [8,1,2] is the only arrangement which will fulfill this condition. This seeming discrepancy may be explained if we consider 0 to be the *modulus* from which numbering begins over again. (Were this not the case, then the *octave* C would logically become 13, C♯ would become 14, etc.) Thus, by adding 12 to each of the numbers *above* zero—that is, 1 and 2—we arrive at the "expanded" values of [8,13,14], thus proving that condition 2 has been met. Similarly, if we were to transpose the pitches of the preceding example up a m3 as shown below:




the normal order of [7,8,1] would be obtained by adding 12 to the digit beyond zero—that is 1+12 becomes the equivalent of 13 for purposes of transposition.

Intervals, like pitches, may be assigned numerical values according to size, as shown below:

| *Interval* | *Number* | *Interval* | *Number* |
|---|---|---|---|
| m2 | 1 | P5 | 7 |
| M2 | 2 | m6 | 8 |
| m3 | 3 | M6 | 9 |
| M3 | 4 | m7 | 10 |
| P4 | 5 | M7 | 11 |
| TT | 6 | P8 | 12 |

You will note that in each case, the numerical value corresponds to the number of half steps which comprise the interval.

As you compare the trichords discussed in the previous two examples, you will notice a similarity of intervallic content, despite the nonconformity of pitch content or shape. In order to demonstrate this equivalence, we must reduce each of the two intervals to its *prime form.* This requires two operations; the first of these requires the reduction of the twelve discrete intervals to *six interval classes.* The following table summarizes the content of each class.

| *Interval class* | *Interval* |
|---|---|
| 1 | m2 (1)<br>M7 (11) |
| 2 | M2 (2)<br>m7 (10) |
| 3 | m3 (3)<br>M6 (9) |
| 4 | M3 (4)<br>m6 (8) |
| 5 | P4 (5)<br>P5 (7) |
| 6 | TT (6) |

Note that the class of any interval larger than 6 may be obtained by subtracting the value of the larger integer from 12.

Finally, we arrive at the prime form by listing the order of intervals from smallest to largest, beginning with zero. This requires that we read the original trichord from left to right and the subsequent one from right to left, in order that the half step may be the first interval represented. Thus we discover that both trichords share the prime form of [0,1,6].

The *interval content* of this set would be expressed as a series of numbers, or *vector*, showing the number of times each interval class is represented in the sonority. The vector for the trichord above would be represented as follows:

| | ⟨1, | 0, | 0, | 0, | 1, | 1⟩ |
|---|---|---|---|---|---|---|
| Interval classes: | 1 | 2 | 3 | 4 | 5 | 6 |

We see that the system of set theory provides a logical and consistent mechanism for determination of (1) pitch content, (2) interval content, and (3) fundamental classification for any sonority. For this reason it has proved to be enormously useful to today's theorists as they seek to discover underlying motivic patterns in atonal works. Obviously it is not within the scope of this chapter to explore the various applications of this system in any depth. The reader wishing a more complete discussion is referred to *Basic Atonal Theory* by John Rahn or the more recent publication by Joseph Straus entitled *Introduction to Post-Tonal Theory.**

*John Rahn, *Basic Atonal Theory* (New York: Longman, Inc., 1980); Joseph N. Straus, *Introduction to Post-Tonal Theory* (Englewood Cliffs, N.J.: Prentice Hall, 1990).



## THE TWELVE-TONE TECHNIQUE

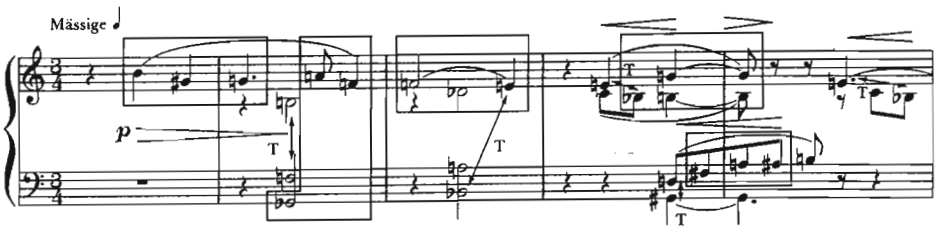
The procedure for composing with twelve tones is perhaps the most methodically revolutionary technique of the twentieth century. It was developed by Arnold Schoenberg, who, after a number of years of composing in the post-Romantic style, became intrigued with the concept of *atonality*, that is, the systematic avoidance of permitting any single pitch to sound as tonal center.

Even before Schoenberg had organized his ideas into an actual method of composition, certain procedures were operational in his music, such as the following:

1. Avoidance of the 8ve, either as melodic component or harmonic interval
2. Avoidance of traditional pitch collections, that is, any that might suggest major or minor triads, and hence a tonic
3. Avoidance of more than three successive pitches that might be identified with the same diatonic scale
4. Use of wide-ranging and extremely disjunct melodies

The *Klavierstücke*, Op. 11, composed by Schoenberg a number of years before his twelve-tone system had been codified, illustrates the application of some of these constructs. Example 28-35 shows the opening measures of the first of the three pieces.

**Example 28-35.** Schoenberg, *Klavierstücke*, Op. 11, No. 1



The tritone is prevalent as a vertical interval, and the composer makes extensive use of the three-note cell [0,1,4] that opens the work. The lush, Romantic texture of the piano writing is indicative of Schoenberg's close spiritual ties with the preceding era.

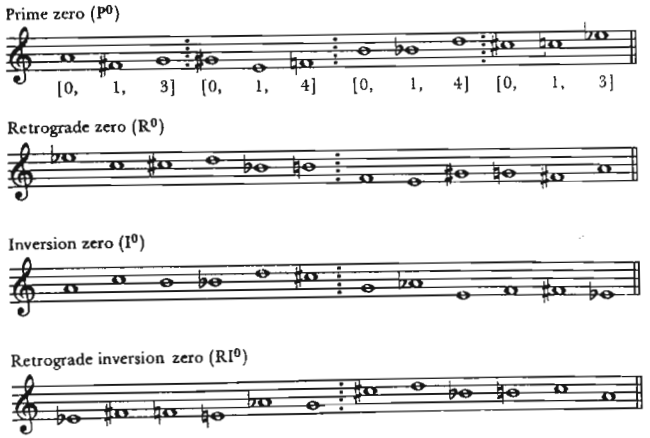
The principles mentioned above continued to hold true in much of Schoenberg's twelve-tone music, as well as in that of his early followers, especially Webern and Berg. His system was designed to methodically equalize all pitches of the dodecaphonic scale by the following means:

1. A twelve-tone composition is to be based on an arrangement or series of the twelve pitches that is determined by the composer. This arrangement is the *tone row* or *set*.

2. No pitch may be repeated until all other pitches have been sounded. There is one exception to this restriction: a pitch may be repeated immediately after it is heard. Repetition may also occur within the context of a trill or tremolo figure.

3. The tone row may, within the confines of the system, legitimately be used in retrograde (reversed order), inversion (mirroring of each interval), or retrograde inversion (reverse order of the mirrored form), as shown below in Webern's row that forms the basis for his Symphony Op. 21 (Ex. 28-36).

**Example 28-36.** Webern, Row forms of Symphony Op. 21

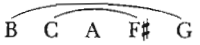




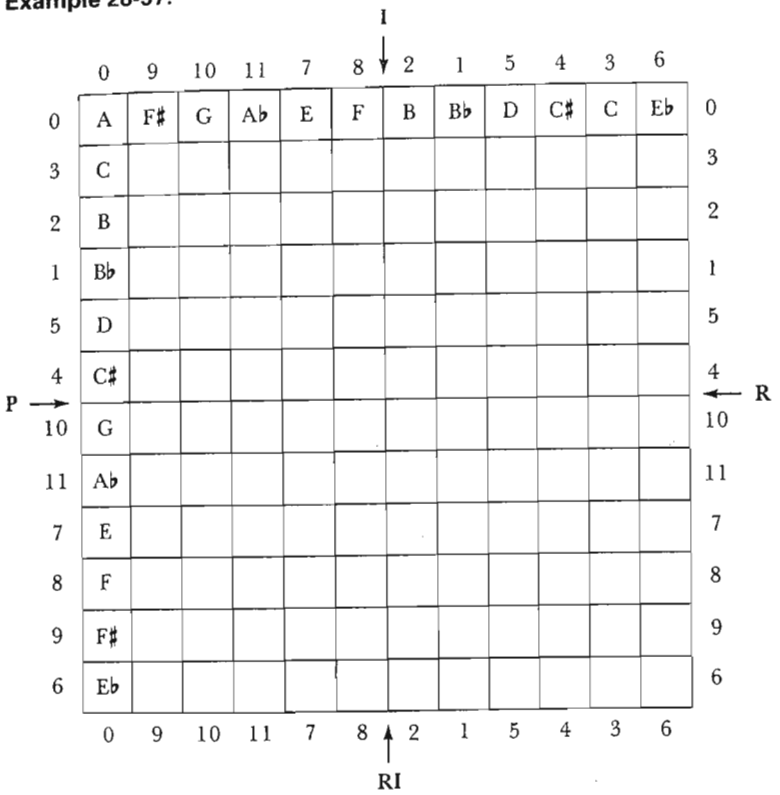

Note the consistency and symmetry of arrangement in the trichords which comprise the row. [0,1,3] begins and ends the set, while two versions of [0,1,4] appear in the middle.

Any one of these forms may be transposed to begin at any pitch level; thus the process may yield up to forty-eight versions of the row (in most instances). It is important to remember that the original series of pitches is in no way comparable to the theme of a theme and variations. While the intervallic arrangement of the row may tend to bring about the recurrence of melodic and harmonic cells, tremendous variety results from the rhythmic manipulation and octave displacement typically found in early twelve-tone works.

When you examine a twelve-tone composition, it is helpful to have immediate access to the forty-eight possible forms of the series. This is most conveniently obtained by use of a *matrix*, illustrated in Example 28-37 with the original or prime form of the series of Example 28-36 shown as its top row of pitches. The inversion zero form is laid out in the first vertical column, from top to bottom. This is accomplished by inverting or mirroring the intervals in $P^0$, that is, A-F♯ (M6 up) inverts to A-C (M6 down). F♯-G (m2) equates with C-B. The symmetry of this operation may be viewed in the following diagram in which the note A serves as the axis of involution.



**Example 28-37.**




Using this method, we find that the interval which begins each prime row form will be a M6. Thus A-F♯ will be followed by C-A, then B-G♯ (A♭), etc.

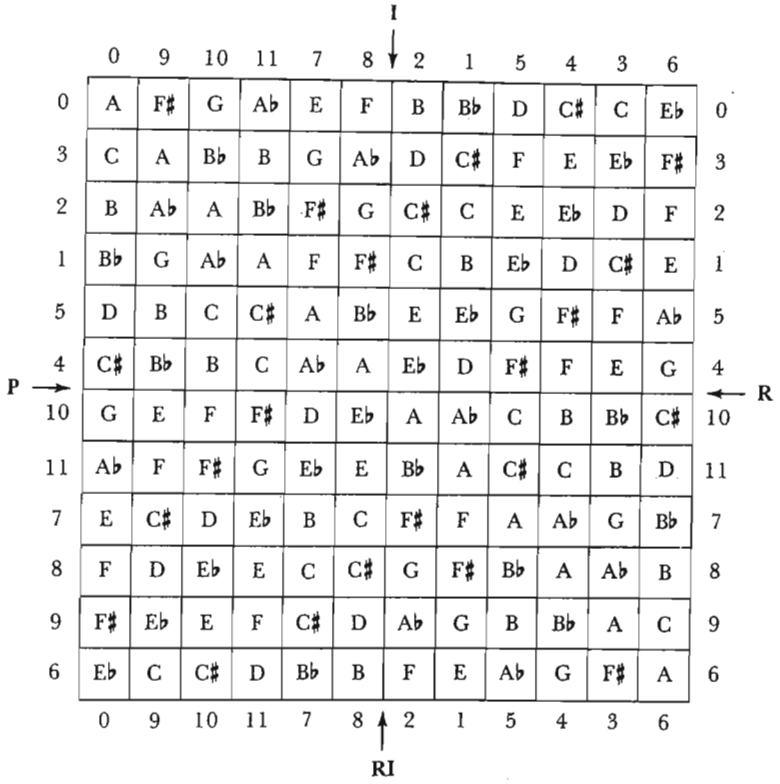
Index numbers on each side of the matrix designate levels of transposition, arranged in ascending chromatic order from zero. The $P^0$ set, for example, transposed up a M3 to begin on C♯, would be designated as $P^4$. You will note that the index number reflects, in each case, the number of half steps contained within the interval of transposition. The retrograde $P^4$ would be labeled as $R^4$ and would begin on G. When correctly done, the sum of the index numbers for a prime form and its inversion should equal 12—that is, P,3+I,9; P,2+I,10, etc. Likewise, RI,3 will correspond with R,9, etc.

We should mention here that the actual procedure for labeling set forms tends to vary somewhat, depending on the theorist cited. In the writ-



ings of earlier twelve-tone composers, we find the term *original* used in place of prime. The inevitable confusion arising between the letter "o" (original) and the numeral "0" (zero) may have prompted the change in terminology. Precise intervallic spellings are unnecessary; for example, the half-step transposition of D-F may be represented by E♭-F♯, since the music under discussion is not governed by traditional rules of consonance and dissonance. It is advisable, however, to strive for consistency: always choose F♯ rather than G♭, for example, or vice versa. Example 28-38 illustrates the completed matrix.

**Example 28-38.**



The construction of the Op. 21 pitch set is an interesting one from many standpoints. Each half of the row is made up of adjacent pitches of the chromatic scale. In addition the second *hexachord* (set of six pitches) represents the retrograde of the first. Upon comparing $R^6$ (the retrograde of the row, transposed up a °5), we discover that it is identical with $P^0$. We may then assume that for each transposition of the prime set, there is a matching retrograde pattern; likewise, for each inversion, there will be a matching retrograde inversion form.

This built-in correlation between set forms will, of necessity, reduce the available pitch series to twenty-four possibilities, rather than the usual forty-eight. The term *combinatoriality* is often used to describe this feature. The distinguishing property of a combinatorial set is its capability of generating a number of hexachords that are mutually exclusive, that is, in which no pitches are duplicated.

The availability of complementary hexachords will often play an important role in a composer's choice of particular set forms and will tend to bring about maximum structural cohesion in a work. To be sure, not all combinatorial rows exhibit the intricate symmetrical relationships found in Webern's. An exhaustive discussion of combinatoriality is better suited to advanced study in serial techniques than to this introductory chapter. If you would like to pursue these topics further, you should look into the writings of George Perle or Milton Babbitt.

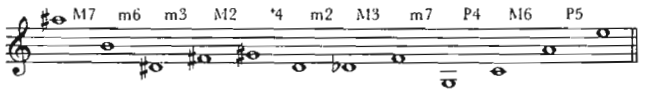
Certain rows, such as those of Example 28-39, have achieved a certain reknown, by virtue of their having formed the basis for well-known serial compositions.



**Example 28-39.**

Berg, Tone row for Violin Concerto

Dallapiccola, Tone row for *Quaderno musicale di Annalibera*

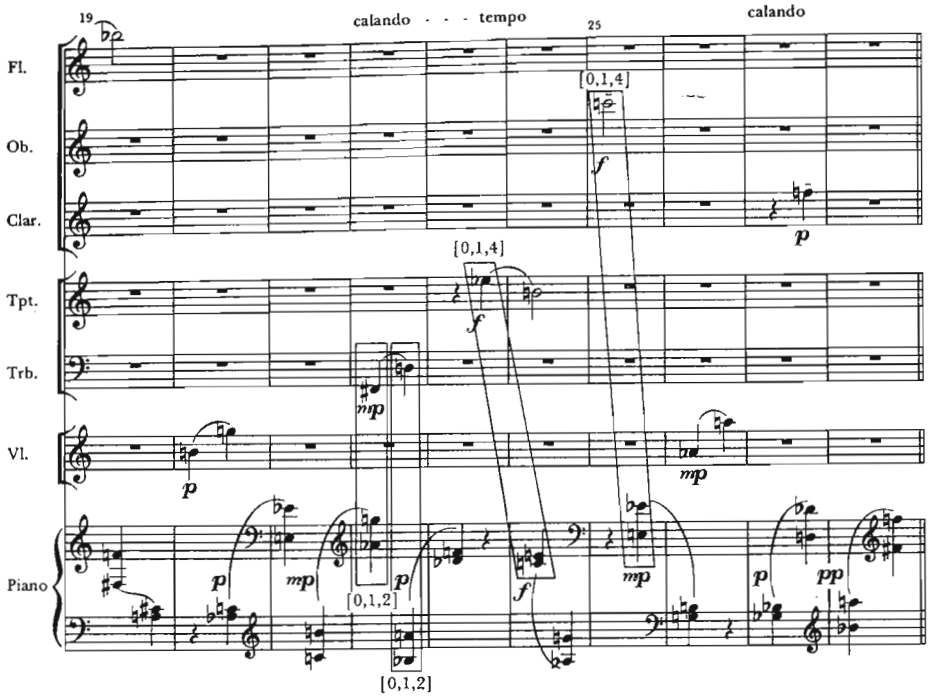



These rows illustrate the care composers lavished on the melodic and harmonic possibilities of the original set. The predominance of the 3rd in the Berg row, for example, plays an important role in bringing about an almost triadic texture within the body of the work. Also in the Berg row, pitches 1, 3, 5, and 7 of the series (bracketed) represent the open strings of the violin, while the last four pitches, which comprise a segment of a whole-tone scale, represent the opening notes of "Es ist genug," the Bach chorale prominently featured in the last movement. The second example, from Dallapiccola's *Quaderno musicale di Annalibera*, illustrates an all-interval set, in which eleven different intervals make up the series.

Example 28-40 illustrates two processes, both of which occur with some frequency in atonal music. The first is the atomization of the melodic line, a process known as *pointillism*. The second is the deliberate juxtaposition of minute melodic fragments of contrasting timbre and register; this compositional device, in which melody is in a sense created by the rapid shifting of tone colors, is referred to as *Klangfarbenmelodie*, or, literally, "sound color melody," and it is a concept that continues to fascinate many composers in the second half of the twentieth century. As you listen to a recording of this work, it may be helpful to try to suspend previously studied tonal listening habits.

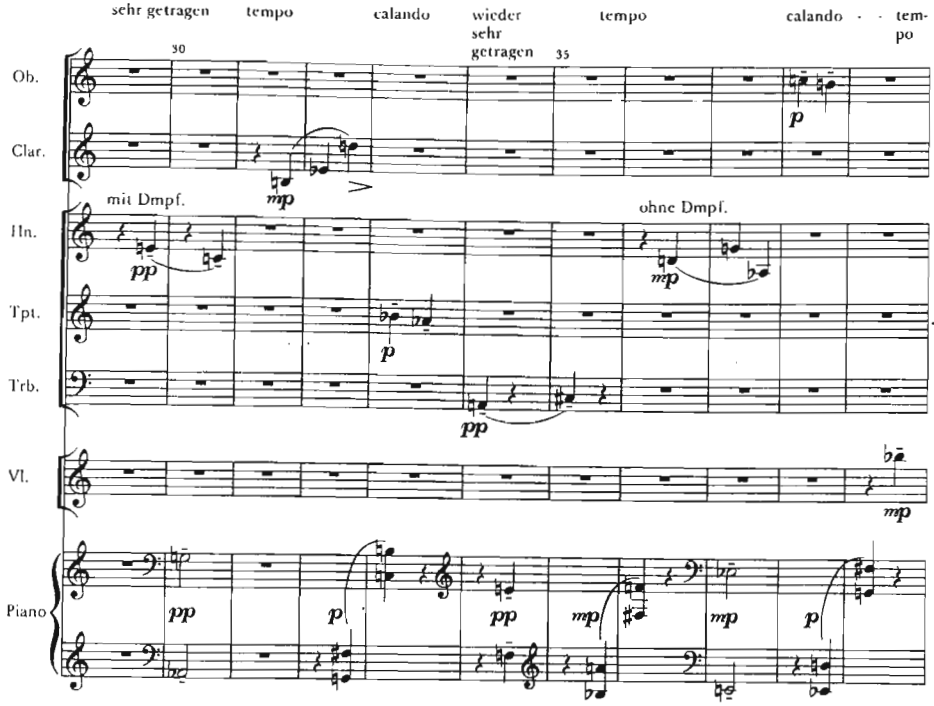
**Example 28-40.** Webern, Concerto Op. 24

This composition, like most compositions by Webern, lends itself to analysis of set types. Notice the consistency of use of [0,1,2] and [0,1,4] trichords, several of which are labeled.








We should also mention here that the twelve-tone procedure, while conceived specifically as a systematic means for avoiding (or rather, for providing alternatives to) tonality, has been adapted by later composers as an effective means for organizing more tonally oriented music. The row may even be employed as a quasi-pandiatonic procedure. Stravinsky, for example, makes use of a twenty-eight-note series for the variations found in the second movement of his Sonata for Two Pianos and a five-note set for *In Memoriam Dylan Thomas*, consisting of the pitch series E-E♭-C-C♯-D.

*SELF-TEST 28-3*
(Answers begin on page 655.)

A. Set theory

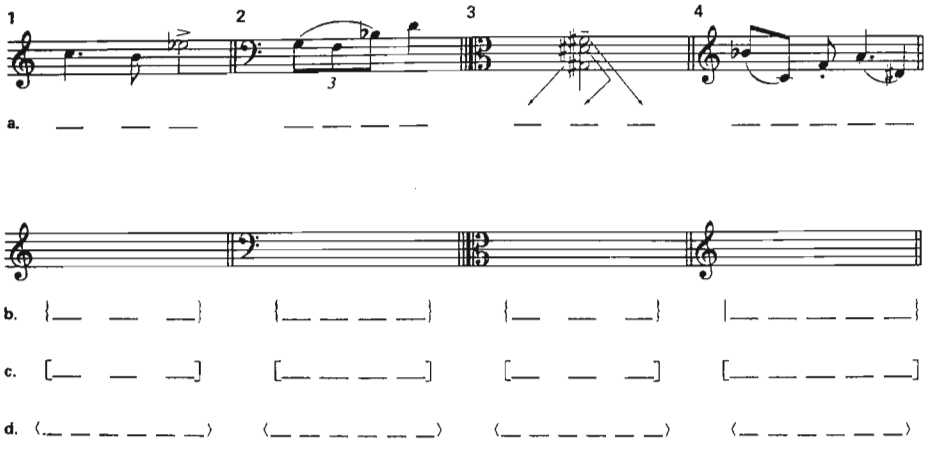
**1.** For each collection of notes:

a. Express each pitch class as a number from 0 to 11.

b. Rewrite the pitch classes in normal order on the staff (octave transposition may be necessary) and use numbers to show the normal form.

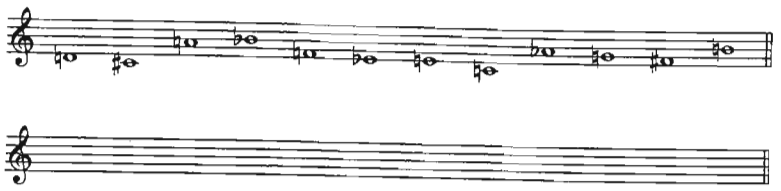
c. Give the "prime form."

d. Calculate the interval vector.

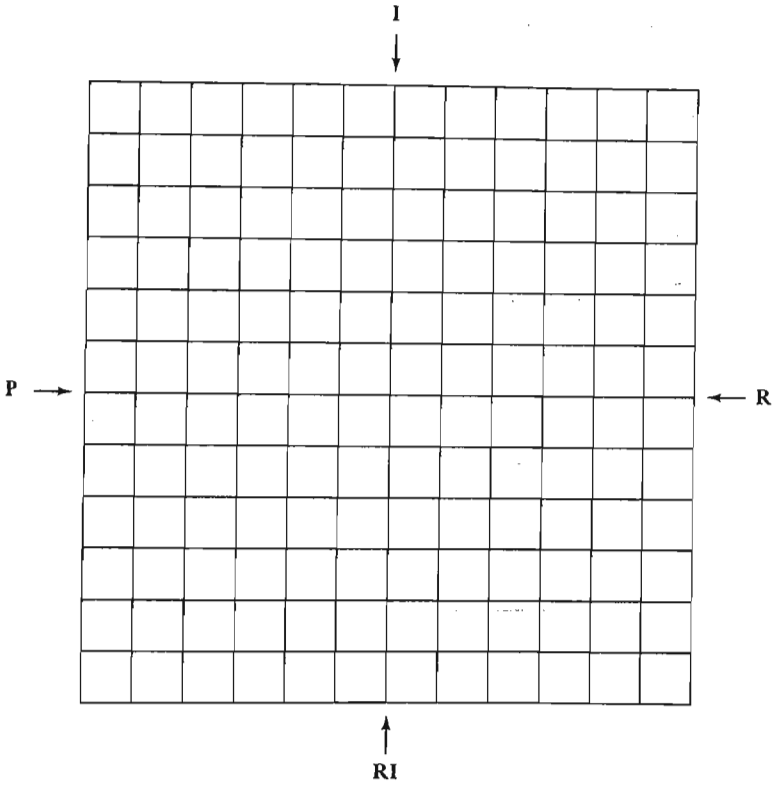




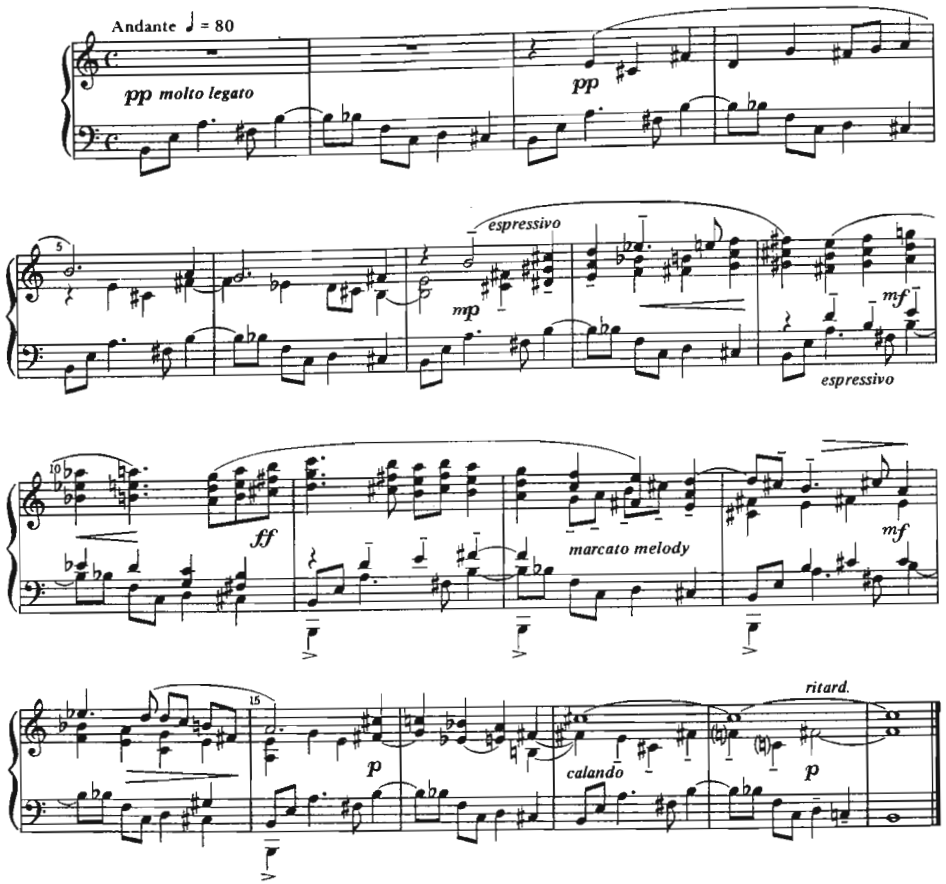

B. Twelve-tone exercise. The row given below forms the basis for Schoenberg's String Quartet, No. 4, Op. 37. Notate the inversion of the row on the blank staff, then fill in the matrix using the guidelines found on page 516.







Payne, *Arch*






C. Try to play or listen to the preceding example, and answer the following questions:

**1.** What technique is used to create form in this piano composition?

_____

**2.** Notate the scale which forms the basis of the opening *four* measures:

Does the piece have a tonal center? _____ If so, what is it? _____

If you do not perceive one, why? _____

**3.** What are the distinguishing characteristics of the opening two measures? _____

_____

_____

**4.** In what ways is the character of the opening maintained throughout the piece?

_____

_____

**5.** What is the derivation of the thematic gesture found in m. 3 of the right-hand part?

_____ Locate three other instances in which that intervallic pattern appears (other than in the bass line).

a. _____

b. _____

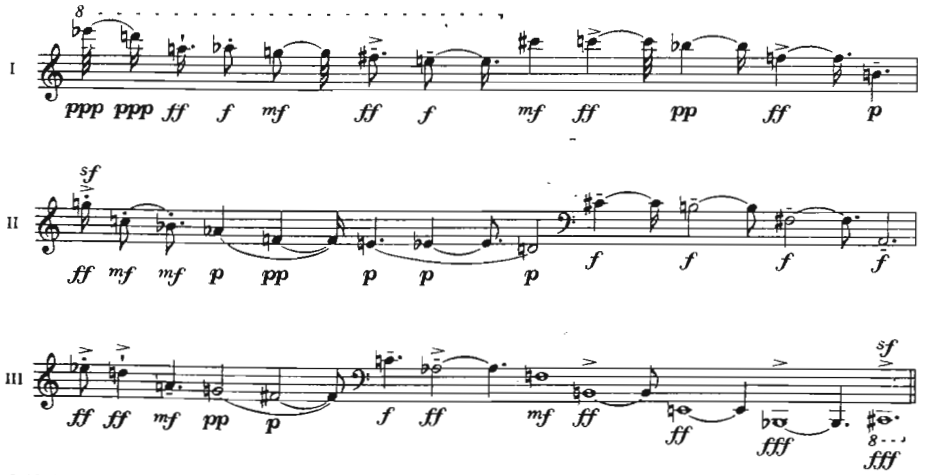
c. _____

*EXERCISE 28-1 (O–U). See Workbook.*

## TOTAL SERIALIZATION

Inevitably, as composers became fascinated with the concept of ordering pitches, there evolved a keen interest in ordering other parameters of a piece, such as rhythm, dynamics, and articulation. The term *serialization*, which earlier in the twentieth century has been considered by some to be synonymous with *twelve-tone method*, came to denote the process whereby such aspects of music as the subdivisions of the beat, dynamic level of individual pitches, and in the case of instrumental music, choice of timbre, were decided on by means of a predetermined rhythmic, dynamic, and/or timbral series. It is sometimes referred to as *integral serialism*. Two composers associated with the origins of this practice are Anton Webern, whose fascination with the problem of ordering we have already observed, and Olivier Messiaen, whose 1949 piano etude, *Mode de valeurs et d'intensités*, exerted a profound influence upon his pupil, Pierre Boulez. Example 28-41 shows the Messiaen pitch set, along with its rhythmic, dynamic, registral, and attack characteristics, while Example 28-42 illustrates the set used by Boulez in *Structures*. We perceive Boulez's debt to his teacher in the fact that the pitch set used is identical to Series I of the Messiaen piece.

**Example 28-41.** Messiaen, Set forms for *Mode de valeurs et d'intensités*



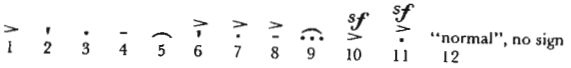





**Example 28-42.** Boulez, Set forms for *Structures*, Ia

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Notes ($P^0$) | E♭ | D | A | A♭ | G | F♯ | E | C♯ | C | B♭ | F | B |
| Durations | | | | | | | | | | | | |
| Dynamics | *pppp* | *ppp* | *pp* | *p* | *quasi p* | *mp* | *mf* | *quasi f* | *f* | *ff* | *fff* | *ffff* |
| Mode of Attack | > | > | • | | normal | 𝄐 | , | *sfz* ^ | > | | : | ⌒ |

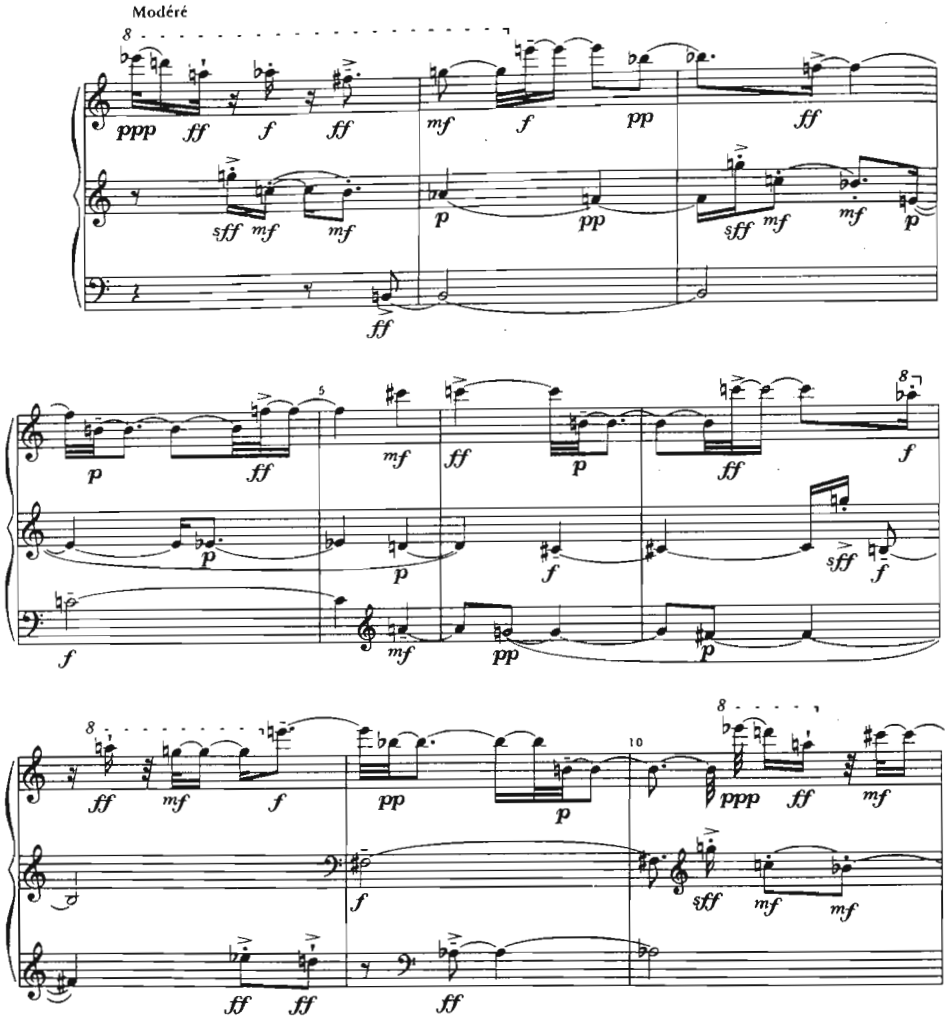
On the introductory page of *Mode de valeurs*, Messiaen explains that he has employed a thirty-six-pitch series (that is, three separate pitch sets, each of which is assigned to a specific register of the piano) and twelve methods of attack as follows:




He notes that there are seven dynamic levels ranging from *ppp* to *fff*, while the register is to a certain extent controlled by the pitch series being used. Thus no two appearances of the same pitch class will be identical.

Example 28-43 shows the beginning of the Messiaen work. Clearly the range of dynamic shading called for presents a singular challenge in pianistic control and a still more formidable challenge to even the most sophisticated listener.

**Example 28-43.** Messiaen, *Mode de valeurs et d'intensités*








As you might imagine, the mathematical possibilities for systematic ordering or reordering of sets are virtually limitless, and they continue to present a fascinating avenue of exploration for many composers as well as a challenge for speculative theorists. The term *stochastic music* refers to music composed through computer-generated choices, based on the laws of probability. This procedure, which has been used by Lejaren Hiller and Iannis Xenakis, may be viewed as the ultimate extension of total serialization.

There is a striking similarity between two seemingly contradictory compositional processes—namely, the effort to achieve total control and the effort to abdicate control entirely through chance or aleatory procedures. Both these processes reflect a composer's desire to break free from conscious aural choice, thereby discovering sounds or effects that might not otherwise occur to him or her. Later in the chapter we will turn our attention to various aspects of aleatoric composition. First, however, we will discuss some experiments in rhythm and meter that preceded the move toward *multiparametric serialization* (the serialization of several aspects of a composition, as we have just discussed).

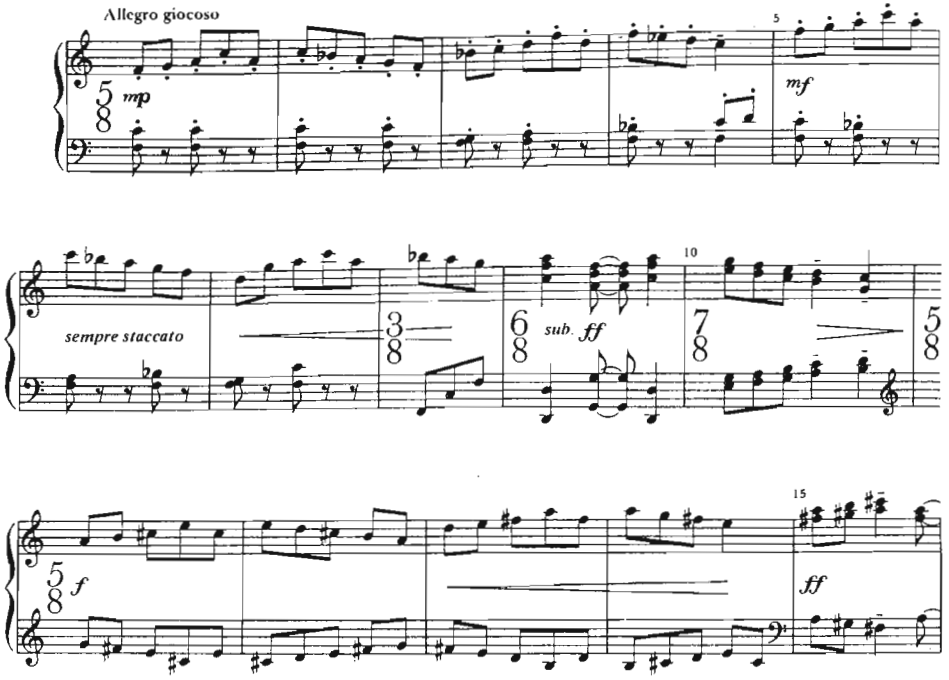
## RHYTHM AND METER

Because the study of pitch associations constitutes the primary bulwark of the traditional tonal system, it would seem reasonable that most attempts to establish alternative systems of organization would tend to concentrate on that area. Nonetheless, the mainstream of early twentieth-century composition saw significant innovations in the areas of rhythm and meter, procedures that impart a distinctive twentieth-century flavor to the music involved.

Primarily, these efforts lay in escaping from the established norm of regularly recurring pulses subdivided into groupings of two or three. Various methods have been employed to this end, with an enormous variety of results. Perhaps the most common of these is that of asymmetric meter such as $\frac{5}{4}$ or $\frac{7}{8}$, or a composite meter such as $\frac{3+3+2}{8}$, which we encounter frequently in the music of Bartók. These are used to provide what we might describe as a "regular irregularity" in that the groupings in a $\frac{5}{4}$ piece are likely to occur consistently as either 2+3 or 3+2. When these two groupings alternate, however, the effect becomes one of considerably more unpredictability.

A composer may achieve this desired irregularity either by cross accentuation, or by rapidly changing meter signatures—a process referred to as *mixed meter*. This latter technique is illustrated in Example 28-44, where we also observe irregular subdivision of the $\frac{5}{8}$ measures.

**Example 28-44.** Adler, "Capriccio"



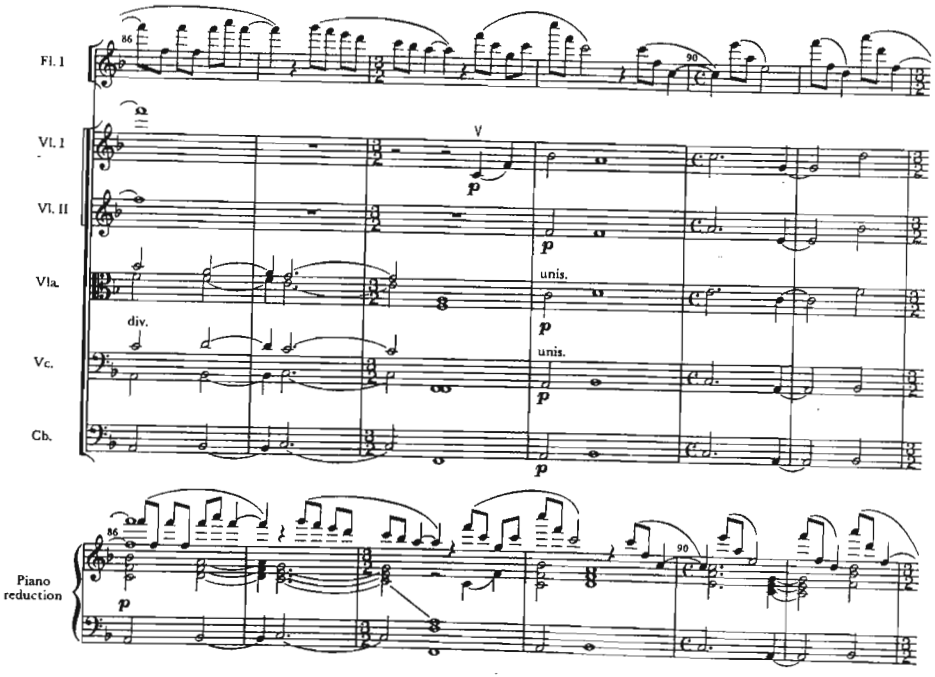


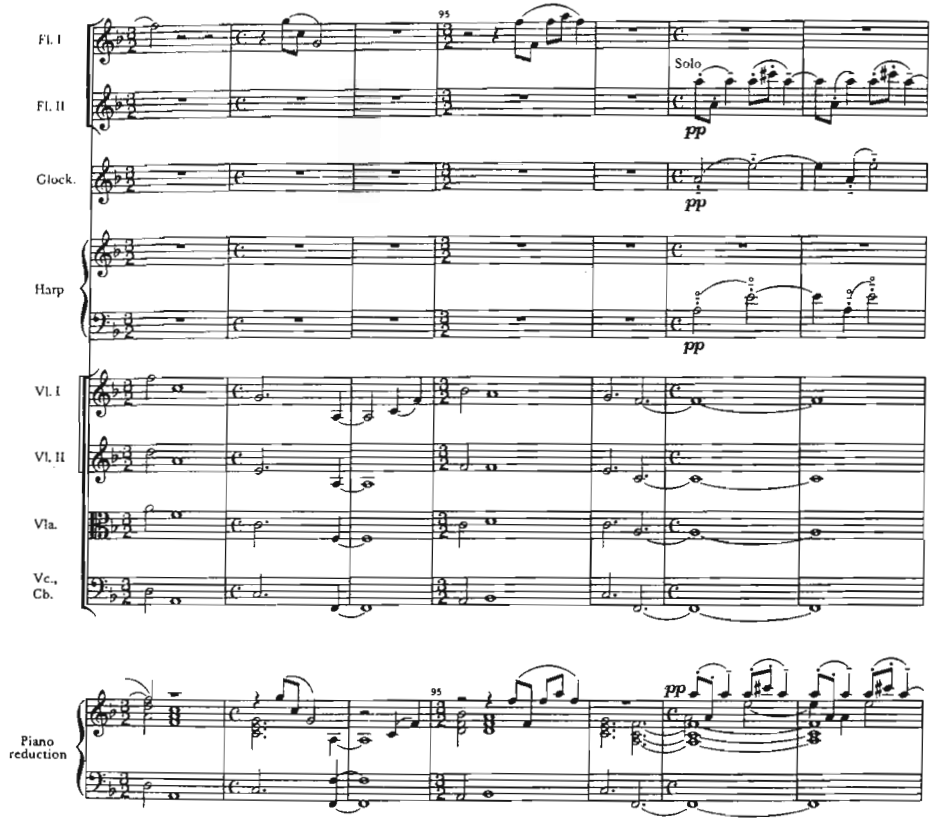

Both these procedures provide the listener with a sense of intense rhythmic activity coupled with constantly shifting metric accentuation. Since the effect upon the listener is one of unequal groupings of subdivisions being added together, the process may be referred to as *additive* rhythm.



The term *polyrhythm* has been coined to denote a musical texture in which the listener is made aware of more than one musical stream or layer, each responding to an independently recurring metric downbeat. In some instances the listener may be unaware of the presence of any downbeats in the texture. (This phenomenon occurs in the example by Messiaen, Ex. 28-43.) In the following example by Copland, we observe a chorale-like passage being played by the strings. Irregular note values and ties across the barline make it difficult to ascertain a downbeat. The flute part, however, maintains a militantly duple obbligato line which appears to exist in a separate rhythmic stream. Notice the beginning of a polytonal section (F and A) in the last two measures of the excerpt.

**Example 28-45.** Copland, *Appalachian Spring*, mm. 86-98

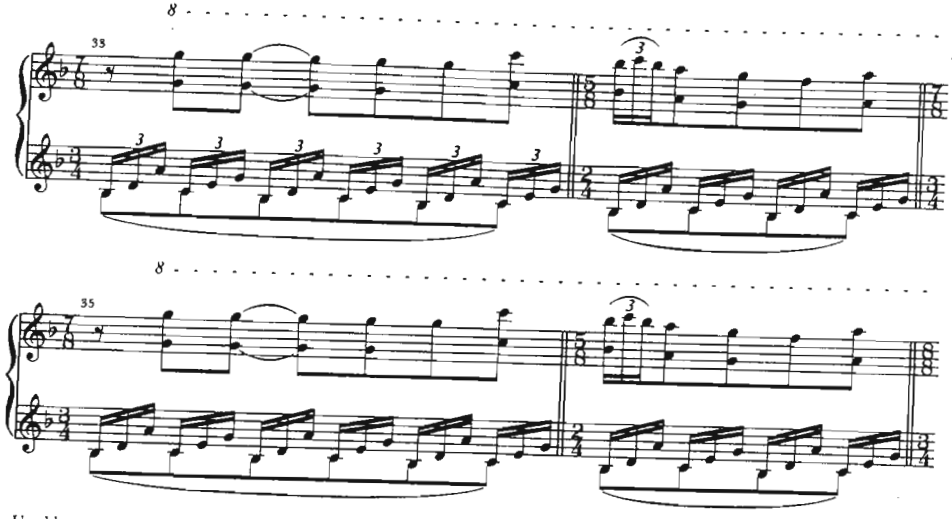







The term *polyrhythm* is sometimes confused with another term in common usage, *polymeter*. We use the former to denote the aural phenomenon of simultaneous rhythmic streams, and the latter to refer to the notation of two or more meters at once. It is possible for a passage to be polyrhythmic and polymetric at the same time, as shown in Example 28-46.

**Example 28-46.** Stravinsky, "Danse de la foire," from *Petrouchka* (piano reduction)

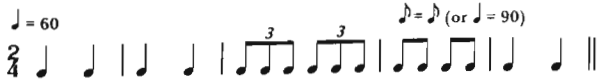





The effect of this passage upon the listener may imply a total lack of bar lines. Instead, one is aware of a constant triplet background against which seemingly spontaneous bursts of rhythmic activity occur. You should keep in mind that *Petrouchka*, which we most often hear performed in the concert hall, was first composed as a ballet score. In this particular scene, the conflicting musical events represent specific actions taking place on the stage.

The term metric modulation was used by Elliott Carter to describe a method of changing tempo by equating a particular note value to a proportional value of that, or another, note value.

A simple example of this procedure might be as follows:



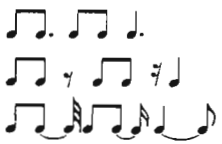

More complex usage occurs in the *Fantasy for Woodwind Quintet*, by Carter, in which the unit of a quarter note is subjected to the following modifications during the course of a five-bar segment. The passage begins in $\frac{2}{4}$. It consists exclusively of sixteenth notes, and ♩ = 126.

1. Meter changes to $\frac{14}{16}$, ♪ = ♪ (♩.. =72)
2. Return to $\frac{2}{4}$ with ♩.. = ♩ = 70

Because of the complexity of this procedure and the rapid shift of the rhythmic groupings involved, the listener's perception tends to be one of little or no feeling of pulse, although recurring rhythmic cells may be noted.

The final rhythmic concept we will present is that of *added value*, which is not to be confused with *additive rhythm*, mentioned earlier. Like metric modulation, this process—developed largely by Olivier Messiaen and described at length in his book, *The Technique of My Musical Language*—creates rhythmic irregularity through the addition of a note, a dot, a tie, or a rest to what otherwise appears to be a perfectly regular rhythmic pattern. For example, consider the following grouping:

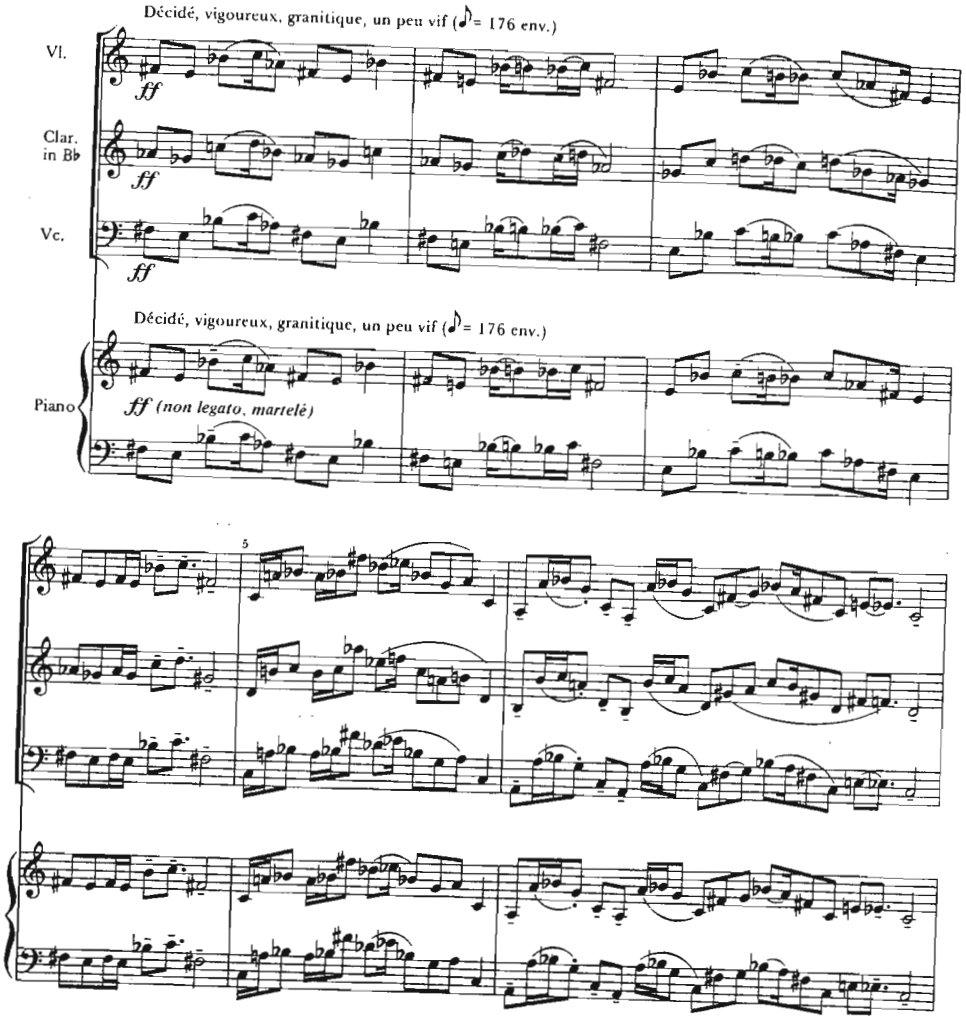
This figure might be transformed in any of the following ways, to mention but a few of what are almost limitless possibilities:



Messiaen himself admitted to a fondness for the subtleties of Indian rhythms, and we see abundant evidence of this in much of his music. Example 28-47 shows the principles of added value in operation.



**Example 28-47.** Messiaen, "Dance of Fury for Seven Trumpets," from *Quartet for the End of Time*



The opening two measures, except for one sixteenth beat, would fit a $\frac{4}{4}$ framework. The third measure contains one eighth-note value too many, while the fourth measure has been lengthened by three sixteenths. As the movement proceeds, any comparison with a time signature becomes pointless; in fact, the listener would have difficulty perceiving an implied regular meter even at the beginning.

## ALEATORY OR CHANCE MUSIC

*Aleatory* refers to music in which various elements of a composition are, in varying degrees, determined by chance. While the term is essentially a twentieth-century addition to the vocabulary of music, the idea of chance is by no means new to the realities of musical performance. Composers have long been at the mercy of poor performers, inadequate instruments, cough-racked audiences, and imprecise musical notation.

To a certain extent, the time-honored practice of improvisation, particularly as it pertains to the spontaneous music-making of a group of jazz performers, may be considered to involve the element of chance, although obviously to a more predictable degree than the events mentioned above.

The application of *chance* to music composition may manifest itself in one of two ways: the overall plan of the piece may be precisely notated, with specific details left either to the performer or to chance, or the compositional process itself may be indeterminate. The best-known, and perhaps the earliest, advocate of indeterminacy as a valid approach to music performance and composition was the American John Cage. His *Imaginary Landscape for 12 Radios* is a model of precise notation. Each pair of twenty-four performers is furnished with a radio and an individual part, on which is indicated tuning, volume, and tone control. There is, in addition, a conductor equipped with a stopwatch. Obviously, despite the precision of performance instructions, every performance will differ greatly from every other one, dependent upon geographic location and time of day. A performance in New York City, for example, will always be a totally different experience than one in Omaha, Nebraska (where the premiere performance took place in 1951).

The piece with which Cage was most widely identified may well be the one usually referred to as 4′33″. The first performance (from which the title derives) took place at Woodstock, New York, on August 29, 1952, and featured David Tudor, a pianist and longtime professional associate of Cage. The piece consisted at that time of three movements, the beginnings of which were indicated by the closing of the keyboard lid; the opening of the keyboard lid signaled the end of each movement. For the duration of each movement (33″, 2′40″, and 1′20″ respectively), the pianist remained motionless on stage. The published score of the piece consists of a single page, and gives the playing instructions "Tacet" for each movement. It further specifies that the work is "playable" by any instrument or instrumental ensemble, and that it may last any length of time. The chief importance of this seemingly tongue-in-cheek work, whose aural effect relies entirely upon miscellaneous noises occurring in the concert hall, lies in the obligation it places upon the listener to incorporate what would normally be disturbing noises (a cough, the hiss of a radiator, the rustling of a program, a plane passing overhead) into the framework of a musical experience.

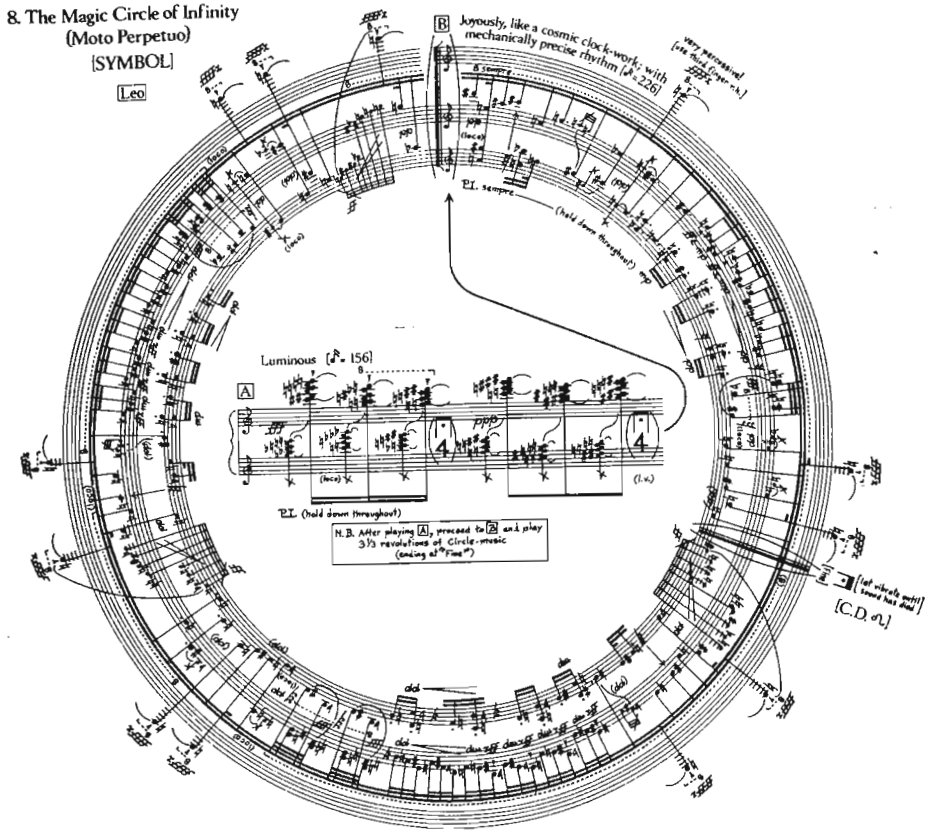


Cage's pioneer efforts inspired a host of followers, and the result was an incredible diversity of experimentation. The length to which Cage disciples carried his original ideas may be seen in a group of pieces by Max Neuhaus, composed between 1966 and 1968. The set comprises six sound-oriented compositions, specifically designed for a situation other than that of the concert hall. The first of these, "Listen," specifies that the audience, who arrive expecting a concert or lecture, are to be put on a bus, have their hands stamped with the word "Listen," and then driven through an existing sound environment. One such "performance," for example, took place in the Consolidated Edison Power Station at Fourteenth Street and Avenue D in New York City. "Drive-In Music," the fifth piece in the group, is designed for people in automobiles. The original score consists of a street map of a small area in Buffalo, New York, designating the streets along which the listener is to drive. At various locations along the route, radio transmitters, which may be heard only through an AM radio, are mounted on telephone poles or trees. Their broadcast areas are designed to overlap, so that at any given time the listener is hearing a combination of signals. Since the actual "music" heard by the concertgoer is subject to such a multitude of fluctuations, brought about not only by the choice of sounds (which might range anywhere from noise to snippets of classical repertoire), but also by the weather, speed of travel, engine noise, and so on, we simply cannot conceptualize or describe the resulting musical effect without having experienced it.

Compositions such as those just described tend, of necessity, to be notated either by means of specific verbal instructions, or in a graphic manner. The earliest use of graphic notation was often viewed as a means of saving the composer tedious hours of copying, while providing a more dramatic and descriptive representation of his or her musical intent to the performer. But the unique notational requirements of some types of aleatoric music spawned an interest in the artistic layout of the score itself, even in the case of music intended for performance by traditional instruments.

One such example, scored for solo piano and showing a great deal of pitch and rhythm detail, is illustrated in Example 28-48, by George Crumb.

**Example 28-48.** Crumb, "The Magic Circle of Infinity," from *Makrokosmos I*








It should be noted here that Crumb's interest in exploring all available timbral possibilities (creating in many cases extraordinary challenges for the performer!) has been widely recognized and acclaimed.

The concept of *phase* or *process* music may be seen as a logical extension of the aleatoric procedure. Use of this terminology is generally credited to Steve Reich, who introduced the technique in a 1965 tape piece, *It's Gonna Rain*, and later applied it to an instrumental work, *Piano Phase* (1967). Phase music consists of the constant repetition, over an extended period of time, of a given number of musical elements by an ensemble which may or may not be precisely specified. The musical segments are most often performed in a predetermined order; the unique property of this music results from the indeterminacy of the time lapse between each event, thus causing the instruments to move in and out of "phase" with each other as the music progresses. *Piano Phase* consists of thirty-two musical fragments, to be played either by two pianos or two marimbas.

The instructions and first page of the score of *Piano Phase* are given below in Example 28-49.

In "Music as a Gradual Process," taken from his book of essays, *Writings about Music*, Reich articulates the type of thinking that led to this procedure:*

> I do not mean the process of composition, but rather pieces of music that are, literally, processes. The distinctive thing about musical processes is that they determine all the note-to-note (sound-to-sound) details and the over all form simultaneously. (Think of a round or infinite canon.) I am interested in perceptible processes. I want to be able to hear the process happening throughout the sounding music. To facilitate closely detailed listening a musical process should happen extremely gradually.
>
> Performing and listening to a gradual musical process resembles: pulling back a swing, releasing it, and observing it gradually come to rest; turning over an hour glass and watching the sand slowly run through to the bottom; placing your feet in the sand by the ocean's edge and watching, feeling, and listening to the waves gradually bury them.

*Steve Reich, *Writings about Music* (Halifax: The Press of the Nova Scotia College of Art and Design, 1974), p. 9.

## Example 28-49. Reich, *Piano Phase*

Directions for Performance

*Repeats*

The number of repeats of each bar is not fixed but may vary more or less within the limits appearing at each bar. Generally speaking a number of repeats more than the minimum and less than the maximum should be aimed for. The point throughout, however, is not to count repeats, but to listen to the two voice relationship and as you hear it clearly and have absorbed it, move on to the next bar.

*Duration*

Although duration may obviously vary, experience has shown that it should be about 20 minutes.

*Performance*

The first performer starts at bar 1 and, after about 4 to 8 repeats, the second gradually fades in, in unison, at bar 2. After about 12 to 18 repeats getting into a comfortable and stable unison, the second performer gradually increases his or her tempo very slightly and begins to move very slowly ahead of the first until, after about 4 to 16 repeats, he or she is one sixteenth note ahead, as shown at bar 3. This relationship is then held steadily for about 16 to 24 repeats as outlined above. The dotted lines indicate this gradual movement of the second performer and the consequent shift of phase relation between both performers. This process of gradual phase shifting and then holding the new stable relationship is continued with the second pianist becoming an eighth (bar 4), a dotted eighth (bar 5), a quarter note (bar 6), etc. ahead of the first performer until he or she passes through all twelve relationships and returns to unison at bar 14. The second performer then gradually fades out and the first continues alone at bar 15. The first performer changes the basic pattern at bar 16 and the second performer gradually fades in with still another pattern at bar 17. The second performer again very slowly increases his or her tempo and slowly moves ahead and out of phase until he or she arrives one sixteenth note ahead as shown at bar 18. This relationship is then held steadily as before. After moving through all eight relationships in this way the second performer returns to his or her starting point at bar 25. The first performer then gradually fades out and the second performer continues alone at bar 26. The second performer changes the basic pattern at bar 27 and the first fades in, in unison, at bar 28. The second performer again slowly increases his or her tempo and moves ahead and out of phase as before until he or she returns to unison at bar 32. After several repeats in unison one performer nods his or her head on the downbeat and, after 4 repeats, both performers end together.

*Rehearsal*

When first rehearsing the piece it may be useful for the first performer to play bar 1 and keep on repeating it while the second performer tries to enter directly at bar 3 exactly one sixteenth note ahead *without trying to phase there.* After listening to this two voice relationship for a while the second performer should stop, join the first performer in unison and only then try to increase very slightly his or her tempo so that he or she gradually moves one sixteenth note ahead into bar 3. This approach of first jumping in directly to bar 3, 4, 5, etc., listening to it and only then trying to phase into it is based on the principle that *hearing* what it sounds like to be 1, 2 or more sixteenth notes ahead will then enable the performer to phase there without increasing tempo too much and passing into a further bar, or phasing ahead a bit and then sliding back to where one started. Several rehearsals spread over several weeks before performance will help produce smooth phase movements and the tendency to phase too quickly from one bar to the next will be overcome allowing performers to spend due time - the slower the better - in the gradual shifts of phase between bars.

*Instruments*

When two pianos are used they should be as identical as possible. The lids should both be open or removed. The pianos should be arranged as follows:


When two marimbas are used they should be as identical as possible. Soft rubber mallets are suggested. *The piece may be played an octave lower than written, when played on marimbas.* The marimbas may be moderately amplified by conventional microphones if the hall holds more than 200 people. The marimbas should be arranged as follows:





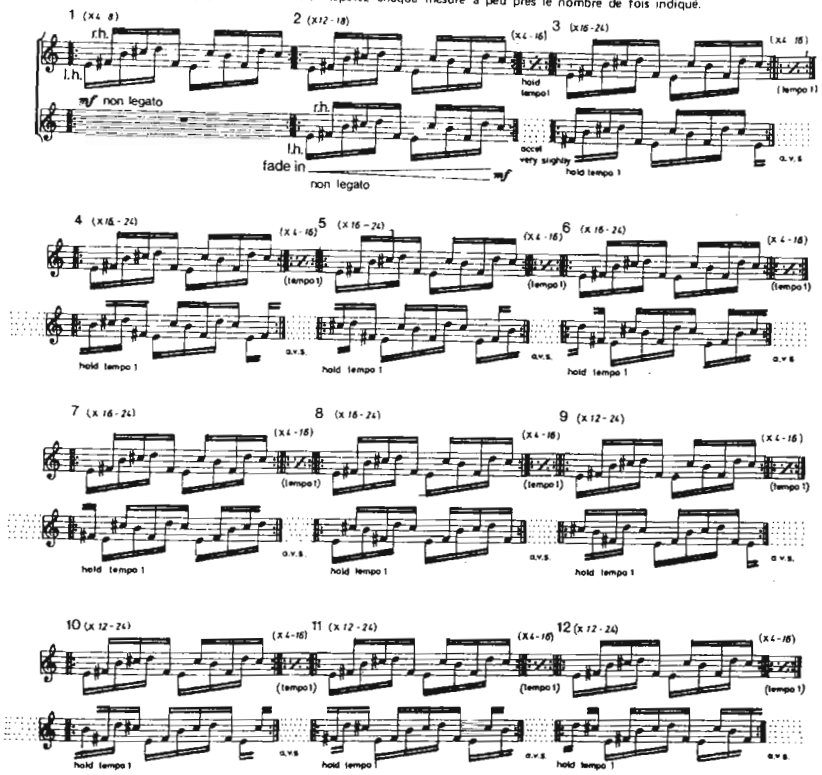

# piano phase

for two pianos
or two marimbas*

**steve reich**

♩. = ca. 72

Repeat each bar approximately number of times written. / Jeder Takt soll approximativ wiederholt werden entsprechend der angegebenen Anzahl. / Répétez chaque mesure à peu près le nombre de fois indiqué.




*hold tempo 1 / Tempo 1 fortsetzen / tenir le tempo 1.*

** The piece may be played an octave lower than written, when played on marimbas. / Wenn Marimbas verwendet werden, kann das Stück eine Oktave tiefer als notiert gespielt werden. / La pièce pourra être jouée à l'octave inférieure quand elle est exécutée par des marimbas.*

*a.v.s. = accelerando very slightly. / sehr geringfügiges accelerando. / très légèrement accelerando.*

In addition to Reich, both Philip Glass and Terry Riley have used this approach, which is sometimes referred to as *minimalism* because of the extreme economy of means which it represents.

Terry Riley's *In C* (1964) is composed of fifty-three melodic fragments, to be played in order and in tempo by an ensemble. The group may consist of any number of players, and may comprise any instrumental combination. Each player decides for himself or herself (1) when to enter and (2) whether, and how often, to repeat each fragment. Pulse is maintained by a pianist playing steady eighth notes on the top two C's of a grand piano. The aesthetic effect of a performance, which in some cases may extend beyond an hour, depends in large part upon the attitude and expectation brought to it by the listener. The subtle counterpoint and shifting pitches and colors can be compelling, despite the lack of a sense of forward motion.

More recently, John Adams has introduced more traditional rhythmic procedures into his use of the minimalist technique. One of his more recent works, *Short Ride in a Fast Machine*, was commissioned for the opening concert of the Great Woods Festival in Mansfield, Massachusetts, in 1986. It is a joyfully exuberant piece with a pervasive and infectious motor rhythm. Scored for full orchestra with the persistent presence of wood block, the work is occasionally suggestive of the earlier orchestral scores of Stravinsky. At the same time, the listener is aware of a new and contemporary language, one indigenous to the present day.

Yet another technique representing synthesis of the old with the new is illustrated by Joan Tower's *Petroushskates*, a chamber work for flute, clarinet, violin, cello, and piano, first performed in 1980. The piece in a sense "borrows" melodic fragments, textural effects, and rhythmic gestures from the famous ballet, but in a manner which, rather than providing a compendium of literal quotations, recalls the spirit of the work as viewed from a creative, contemporary perspective.



## TEXTURE AND EXPANDED INSTRUMENTAL RESOURCES

We have seen the increasingly important role played by texture in the evolution of twentieth-century musical thought. One reason for this lies in its capability to provide a convincing means of musical organization free from the traditional conventions of key and chord. Even in the relatively conservative textural style of Debussy we find an unusual preponderance of unaccompanied, angular melodies, figuration independent of functional considerations, and vertical sonorities used solely for the sake of color.

As composers turned their attention to further explorations of texture, changes occurred not only in the performance demands placed on players of traditional instruments, but also in the structure and size of ensembles. The massive orchestral forces favored by Berlioz and Mahler gave way to a renewed interest in chamber groups. Stravinsky's interest in nontraditional groupings of instruments did a great deal to legitimize the concept of a smaller, more heterogeneous instrumental body. His *L'Histoire du soldat* (1918), scored for clarinet, bassoon, horn, trombone, percussion, violin, and bass, became a model of innovative procedure which many composers chose to follow. Featured along with the varied instrumental forces found in this work was the aspect of theatre music; it includes a part for narrator, as well as speaking roles for one or more characters and specific directions for stage movement and dance (possibly indicative of Stravinsky's intense and continuing interest in music for the ballet).

Other methods of exploiting the coloristic properties of traditional instruments proved attractive to later composers. We have already noted Henry Cowell's experimentation with tone clusters on the piano in the 1920s. Another early work by Cowell, entitled *The Banshee*, calls for the performer to play inside the instrument. Effects created by plucking the strings or drawing the finger or fingernail across the length of the string are eerie, and reminiscent of the legendary figure of Irish folklore for which the piece is named.

The use of "prepared piano" is generally associated with John Cage. It calls for the pianist to place objects on or between the strings to create harmonics, as well as exotic timbres. The score might also call for strings to be damped with felt or pieces of rubber. In many cases the altered pitch and timbral characteristics produce a sound suggestive of a percussion ensemble.

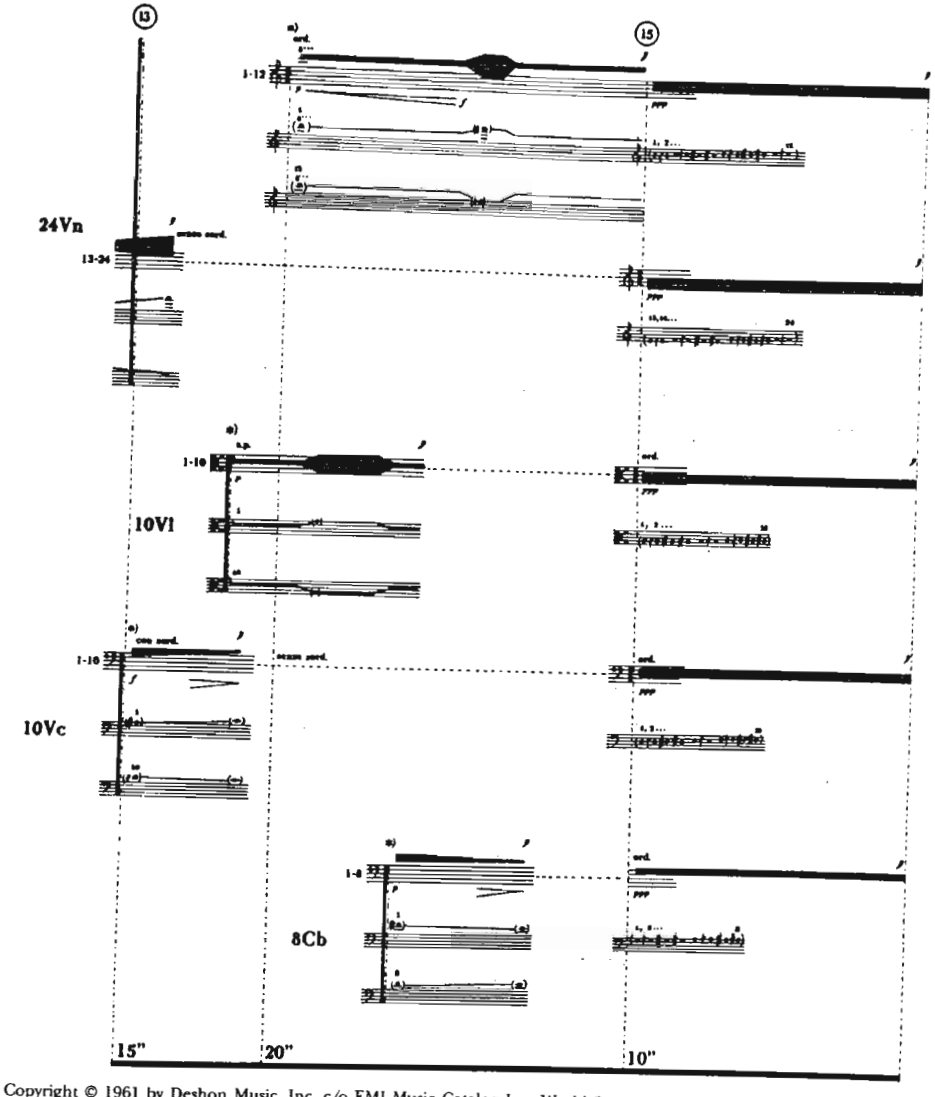
The role of percussion has been greatly expanded in the twentieth century. One of the earliest landmarks in this field is Edgar Varèse's *Ionisation*, composed in 1931. This work calls for thirteen musicians to play a total of thirty-seven percussion instruments, including, in addition to the standard battery, two sirens, bongos, guiros, slapsticks, Chinese blocks in three registers, maracas, and a number of less usual instruments. Despite the presence of chimes, celesta, and piano (all of which are saved exclusively for the Finale), the piece is essentially a study in non-pitched sonorities; its novelty has perhaps never been surpassed.

American composers, including John Cage and Lou Harrison, have experimented extensively with new percussive effects and music for percussion ensembles. Nontraditional instruments and techniques include brake drums and bowing of mallet instruments. In many cases, these composers have modeled their works on Eastern traditions, such as the gamelan. Also interested in oriental music and philosophy is American Harry Partch, known primarily as the inventor of new percussion instruments.

An important work, composed in 1960, *Threnody for the Victims of Hiroshima* by Krzysztof Penderecki, represents a striking departure from the conventional use of string sonorities. Although other composers had experimented with this medium, *Threnody* is generally considered a landmark work in the literature. Examine Example 28-50, a page from the score of this work.



**Example 28-50.** Penderecki, *Threnody for the Victims of Hiroshima*



The cluster effect, shown graphically in the score, involves very specific pitch indications on each player's individual part. For rhythmic direction, the performers must obviously rely heavily on cues from the conductor. This example shows the traditional concept of "chord" or vertical "event" being replaced by a shifting, iridescent fabric of sound.

In addition to the sustained cluster effects, one finds the composer employing nontraditional instrumental techniques. At various times the players are asked, for example, to raise or lower the pitch by a 1/4 or 3/4 tone, to play between the bridge and tailpiece, to play an arpeggio on the four strings behind the bridge, to play on the tailpiece or on the bridge, or to create a percussive effect by striking the upper sounding board of the violin with the nut or the fingertips. It is, in fact, the subtle alternation of tone clusters and percussive effects which ultimately creates the formal structure of the piece.

The composer Georgy Lygeti is also widely recognized for compositions which feature sustained chromatic clusters. His *Atmospheres* for orchestra (1961) and *Volumnia* for organ (1961-62) both served as models for subsequent composers.

Wind instruments have been subjected to a number of unusual techniques, including multiphonics (the production of more than one pitch at a time on a single instrument, using various means); blowing or humming into a disengaged mouthpiece; speaking into or playing the instrument without its mouthpiece; percussive effects created by tapping on or fingering the instrument; and others. Example 28-51 shows special performance instructions and two pages of score taken from *Ultra Mensuram*. This work, composed by William Penn in 1971, combines traditional and nontraditional techniques to produce both pitched and non-pitched sonorities. Note the unusual scoring which calls for three brass quintets. Like many of today's chamber combinations, this work requires a conductor for performance.



**Example 28-51.** Penn, *Ultra Mensuram* (performance directions and first two pages of score)

## SPECIAL SIGNS

1) Blow air through instrument.

2) Blow air through instrument and abruptly stop the flow of air with the tongue.

3) Blow air through instrument and clatter keys.

4) "Kiss" mouthpiece.

5) Clatter keys (valves), or any kind of exterior metal noise. Loosen valve caps.

6) Any note in the extreme low register of the instrument.

Any note in the extreme high register of the instrument.

Trill on any note in the extreme low register of the instrument.

Gliss from low note to any indeterminate higher pitch.

NOTE: All of the notes at the extreme registers (↑ and ↓) of the instrument must be played with a good, full sound. For example, ↑ means the highest note possible that can also be played fff.

↓ for trumpets and horns will probably be best achieved by using just the lower lip.

7) pp — For group C only – the expansion of the 2 parallel lines indicates a crescendo; the contraction indicates a decrescendo; the above would be played: pp < >

8) The beams indicate an accelerando of the note group.

The beams indicate a ritardando of the note group.

The beams indicate an accelerando followed by a ritardando of the note group.

The beams indicate a ritardando followed by an accelerando of the note group.

etc. In non-metered sections, the "slash" indicates as fast as possible.

9) Repeat the preceding material – with variation when possible.

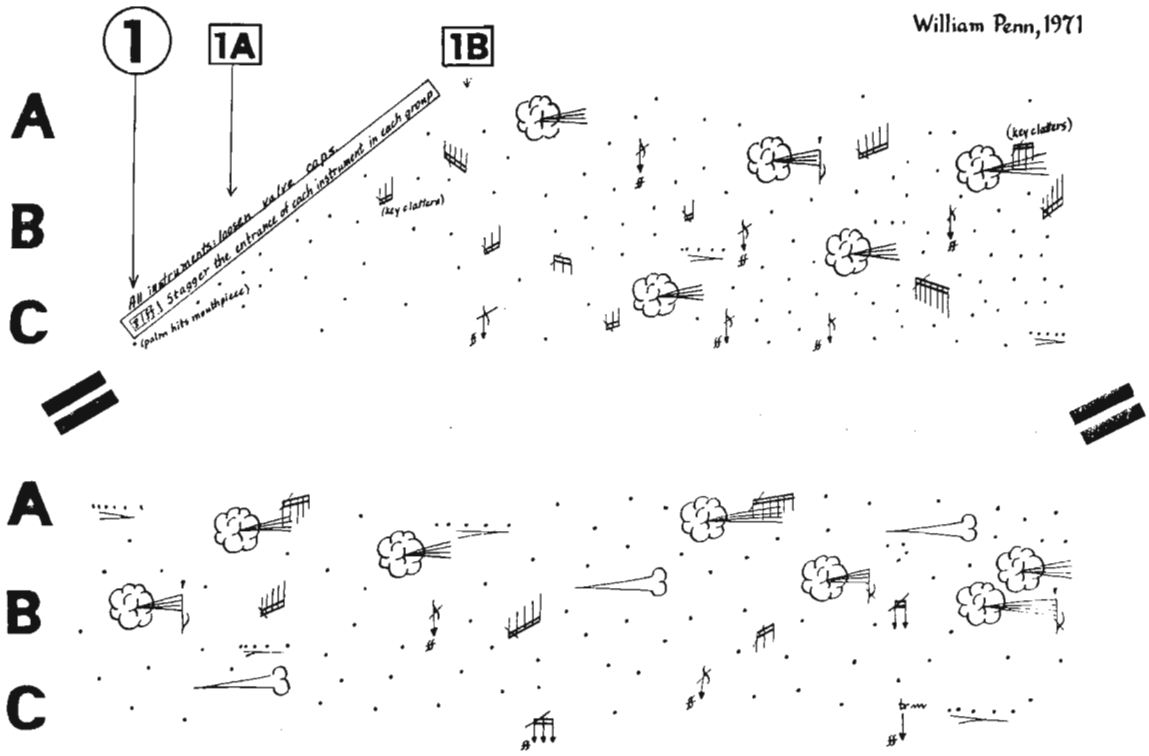
10) Continue in a similar manner.

11) Indicates the duration of the tone, proportionate to the length of the line. Breathe at random when the duration of the tone is too long to be sustained in one breath.

12) From ① to ③ only: palm hits mouthpiece. From ③ on, free staccato playing.

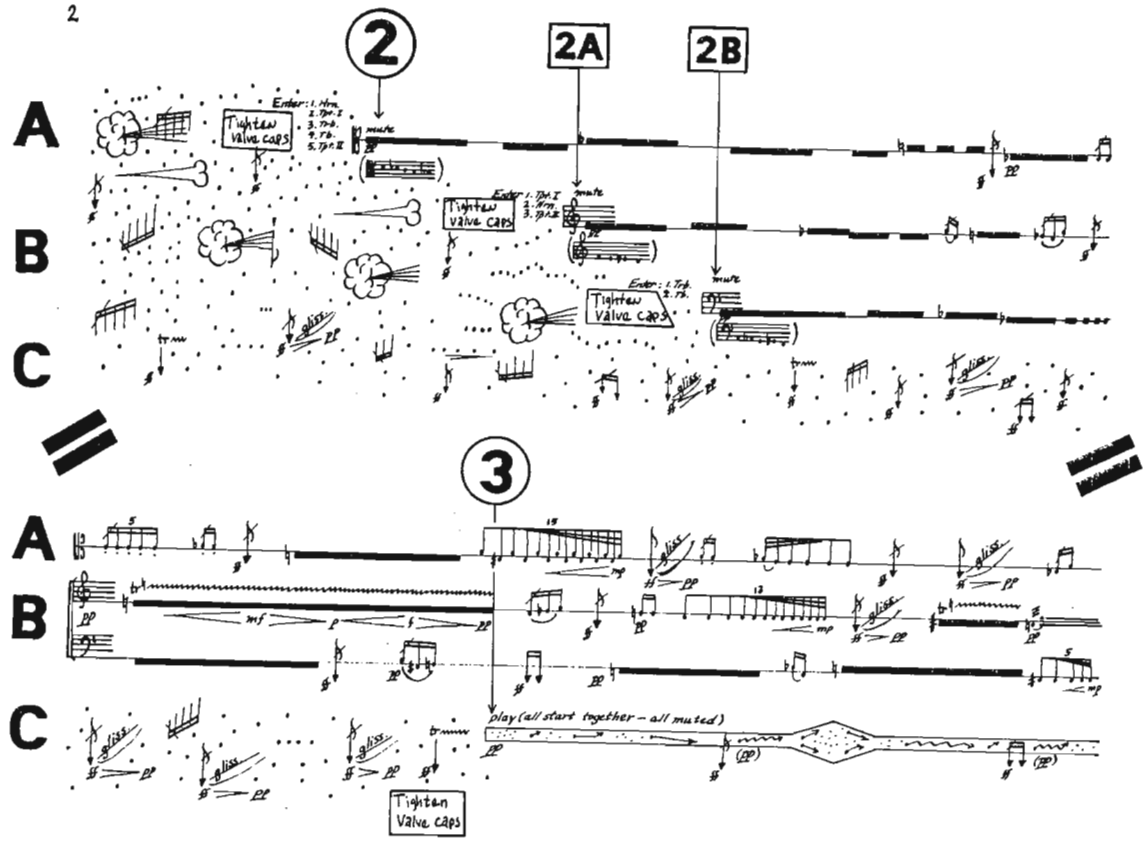
# ULTRA MENSURAM

William Penn, 1971




*The score is transposed.*





In terms of vocal effects, the technique of *sprechstimme*, a cross between singing and dramatic declamation, was used by Schoenberg in *Pierrot Lunaire* (1912), a work which calls for reciter accompanied by an ensemble consisting of five instrumentalists. The effect has been widely used since then, as have techniques of whistling, whispering, clucking, cooing, and laughing. Composers such as Penderecki, Stockhausen, and Oliveros have employed these sounds on a wide scale.

Further exploration of coloristic possibilities has resulted from the gradual incorporation of jazz techniques into concert literature. Besides its unique harmonic language, jazz represents a characteristic and readily identifiable approach to instrumentation. This frequently involves electric guitar, electric bass, keyboard synthesizers (to be discussed later), and extensive use of contact microphones.

Finally, one may find crystal wine glasses pressed into musical service by composers such as Crumb, Schwantner, Mayuzumi, Kagel, and Haubenstock-Ramati. The goblets, usually of varying sizes, produce beautifully pure pitches when stroked around the rim with wet fingers.

## ELECTRONIC MUSIC

Inevitably, with the mounting interest in coloristic effects, the possibilities for electronic sound generation began to be investigated more closely. The earliest instruments to have practical applications were developed in the 1920s and included the theremin, the trautonium, and the ondes martenot. All three instruments made use of electronic oscillators as tone generators; they differed only in the manner by which the performer played the instrument. The theremin enjoyed a period of renewed interest in 1945 when employed by Miklos Rozsa in the films *Spellbound* and *Lost Weekend*.

Toward the midpoint of the century, technical developments in the tape recorder resulted in the growing popularity of *musique concrète*, in which natural sounds—such as a voice, an instrument, or the ticking of a clock—were first recorded, then subjected to modification by means of altered playback speed, reversed tape direction, fragmentation and splicing of the tape, creation of a tape loop, echo effect, and other timbral manipulations. In 1948 Pierre Schaeffer, who is generally credited with introducing the above term, presented a concert featuring *musique concrète* exclusively over French radio.

Although the distinction would almost certainly not be audible to the listener, the term electronic music, strictly speaking, was initially reserved for music that was generated synthetically by means of an oscillator. The tones thus produced may be precisely controlled in terms of frequency, amplitude, and waveform. Discrete types of sound waves produced by these generators include the "sine" wave (a sound without overtones, suggestive of an open flute); the "sawtooth" wave (a jagged, nasal tone which contains all overtones); and the "rectangular" or "square" wave (a pitch containing only odd-numbered harmonics). The "white noise" generator produces a "hissing" sound, composed of all the audible frequencies at random amplitudes. These basic sounds were then manipulated by means of amplifiers, filters, modulators, equalizers, sequencers, and reverberation units.



It was the development of synthesizers around the midpoint of the twentieth century that allowed the composer freedom to generate and combine sounds without the former need for laborious splicing and mixing of tape. Edgar Varèse's *Poème Electronique*, performed at the Brussels World's Fair in 1958, was created directly on magnetic tape. It took place in a pavilion designed by Le Corbusier and specified the installation of four hundred loudspeakers which filled the curved space of the pavilion with continuous waves of sound. The *Poème* was accompanied by a series of film projections which interacted randomly with the music. The visual and sonic synthesis of this extraordinary work evoked reactions ranging from wild enthusiasm to stark terror among its audience.

The inevitable loss of drama in performances of purely electronic music was found by many composers to be an unacceptable trade-off. This spawned efforts to combine live performers and taped sound. Composers who experimented with this form of collaboration included Bruno Maderna, Vladimir Ussachevsky, Otto Luening, and Milton Babbitt. Champions of indeterminacy, such as John Cage, found that the theatrical possibilities of this combination were well-suited to their musical philosophies. More recent composers especially well-known for their work in this medium include Mario Davidowsky and Jacob Druckman. Davidowsky's eight *Synchronisms* for various solo instruments and tape, along with Druckman's series of compositions entitled *Animus* for tape and trombone, voice/percussion, and clarinet respectively, have become part of the standard contemporary recital literature for these instruments. In some instances, the collaboration calls for the performer to play into a tape recorder. The sounds thus generated are electronically modified and played back, providing an improvisatory partnership. In other cases, pre-recorded music by the solo instrument is combined on tape with electronic or *concrète* sounds. The final product may be the result either of strict control on the part of the composer, or may represent processes of indeterminacy.

The subsequent introduction of modular synthesizers, marketed under trade names of Moog, Buchla, and ARP, offered a wide palette of new

sounds. An interesting offshoot of this development may be found in the "Switched-On-Bach" series: a realization of the Bach Brandenburg Concerti and various orchestral works. The album was recorded entirely with a modular analog synthesizer. Some contend that the 1968 release of this album by Wendy Carlos, using the then exotic sounds of a modular Moog, in a sense may have launched the synthesizer era. Other synthesized adaptations of standard repertoire followed in rapid succession and achieved widespread (if, in some cases, brief) popularity.

Digital synthesizers, such as the Yamaha DX series and various sound-sampling devices, such as the Ensoniq Mirage, the Emulator II, and the Kurzweil, represented an important development in the evolution of electronic music. The Yamaha has become the mainstay of many popular music groups, not only because of its variety of timbres, but also because of its relative portability. Its essential unit is a digital oscillator which enables the composer to control the various parameters of a musical sound, creating new colors, as well as accurately simulating those of many acoustic instruments. The sampling devices, on the other hand, have the capability of recording and storing precise information concerning a given sound. The actual sampling involves the encoding of an analog signal by reading its level at precisely spaced intervals of time. The sound thus encoded may then be reproduced, either singly or in combination with other material.

It was the introduction of MIDI (Musical Instrument Digital Interface) that virtually revolutionized the field of electronic music. MIDI originally allowed the keyboard of one synthesizer to drive the sound generators of another, making possible the use of audio processors, drum machines, and even the control of multiple computers by a single performer. It could expedite changes in key velocity, pitch bend, and modulation; units are now available which notate a piece of music as it is being played or composed. Through the use of a *sequencer*, a digital recorder which stores "sequences" of musical information rather than actual sounds, a composer may significantly modify the timbre, tempo, or texture of a previously encoded piece.

One may get a sense of the extraordinary growth of music technology which has taken place during a quarter of a century simply by studying the equipment list used by Wendy Carlos in developing "Switched-On-Bach 2000," a recent album. She makes extensive use of contemporary tools such as Mark of the Unicorn Performer, Finale, and Performer's Tracks software. The studio of this innovative composer provides a virtual catalogue of technology available to today's composer, including various computers, keyboards, samplers, color monitors, mixers, assorted pedals, reverberation units, and a vast array of miscellaneous gear. In a two-part interview in *Keyboard* magazine (August 1992 and September 1992), Carlos observes that the second



album took considerably longer to complete than the first. This may have resulted partly from making decisions concerning her choice of equipment, but it was also because of her stated intention to realize the most creative interpretation possible—which included use of a modified meantone tuning system.

The implications of these technological developments for performing musicians, and indeed for the future of the music profession as a whole, are incalculable, particularly in the field of popular and commercial music. Whereas the production of a new recording at one time involved the services of a composer, studio musicians, a copyist, a recording engineer, and an editor (to name but a few), many of today's audio production studios make it possible for the composer working alone to accomplish all of the above functions in a fraction of the time formerly required, and often with a resulting product of high quality.

In light of the above observations, it is worth noting that a number of composers have chosen instead to pay homage to earlier and occasionally exotic sources. Composers such as George Rochberg, Peter Maxwell Davies, and Luciano Berio have, especially in later works, borrowed extensively from pre-existing materials, as well as earlier musical styles. These references may take the form of clearly recognizable themes from Common Practice composition, folk literature, or plainchant. An interesting example is found in George Crumb's *Makrokosmos I* (cited earlier in this chapter on page 538) in which Section II of the work (entitled "Gemini") is interspersed with partial quotations of Chopin's *Fantasie Impromptu*. An earlier section (No. 6) makes use of a quasi-pentatonic hymn tune, "Will There Be Any Stars in My Crown?" In both instances, the borrowed material forms the basis for many of the composer's pitch and motivic choices. The eclectic style which results may be described as a new language, but one whose traditional roots are unmistakable.

One may also note the lessening lines of demarcation between jazz and popular styles and so-called "serious" or concert music. Not only has the contemporary jazz idiom become more stylistically allied with its concert-hall counterpart, but major composers are increasingly inclined to incorporate clearly recognizable jazz references into their concert works. Furthermore, the rise of interest in world musics has, in many cases, had an effect upon composers' choices of musical ideas as well as instrumental combinations.

## *SUMMARY AND FORWARD LOOK*

We have observed that the early twentieth century was characterized by a curious dichotomy: on the one hand, an extension of post-Romantic tendencies, while on the other, a conscious (at times almost militant) attempt to establish a totally new musical language. Composers in both camps succeeded in developing distinctly new methods of expression that were clearly indigenous to their age. This early ambivalence has continued to manifest itself in the continuing diversity of musical language.

No one at present can know just how future historians will regard our era and evaluate the primary direction of our musical culture. Surely no component of musical style—pitch, harmony, rhythm, texture, form—has remained untouched by the stylistic explosion that marked the turn of the century. Yet as the century draws to a close, there seems to be an attempt by many to draw from earlier developments rather than to strike out on totally individual and innovative paths. We can see, in some cases, a fusion of trends that at one time seemed headed in opposite directions. The idea of serialism, for example, which was conceived as a systematic means of escape from the deeply entrenched conventions of tonality, has indeed been pressed into the service of what we hear as very tonal music. Recent efforts in electronic music frequently reflect a consolidation of ideas of color and movement from very early in the century. Some compositions borrow heavily from the jazz idiom, while many contemporary jazz groups perform works that are scarcely distinguishable from today's "serious" concert music. The pace of technological development has wrought profound changes upon the music profession itself. But whatever the direction we seem to be taking, it is indeed a challenging and exciting time in which to be a musician.



## *SELF-TEST 28-4*

(Answers begin on page 657.)

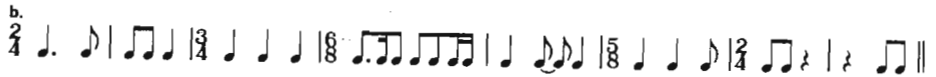
A.

**1.** How does the process of total serialization differ from the original twelve-tone method?

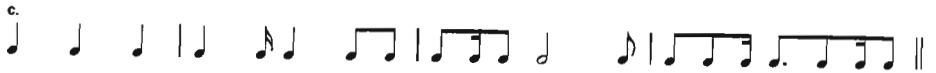
**2.** Which of the rhythmic procedures mentioned in Chapter 28 are illustrated by the following examples?

a.

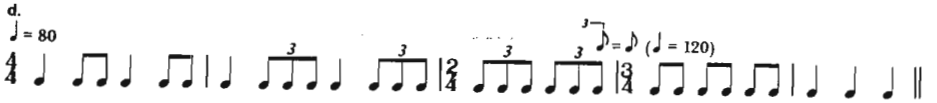
b.



c.



d.




B.

**1.** Define the term *aleatory* as it is applied to music.

**2.** What is the significance of the composition entitled *4'33"* by John Cage?

**3.** What contemporary compositional technique is derived from aleatory procedures? _____ Name at least three composers who are known for their compositions featuring this process: _____, _____, and _____.

C. Cite two composers mentioned in this chapter whose music includes borrowed material from earlier composers.

_____ _____

D. Briefly define the following terms associated with electronic music:

**1.** sine wave _____

**2.** white noise _____

**3.** oscillator _____

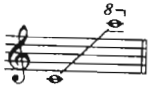
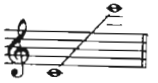
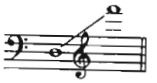
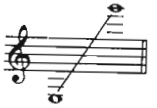
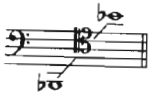
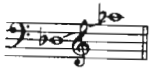
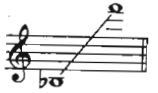
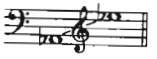
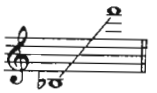
**4.** *musique concrète* _____

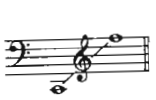
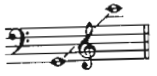
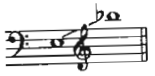
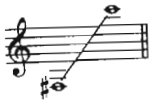
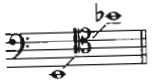
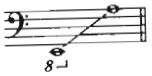
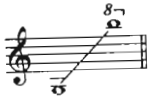
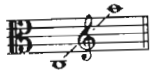
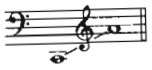
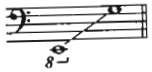
**5.** MIDI _____

*EXERCISE 28-1 (V–W). See Workbook.*

# APPENDIX A *Instrumental Ranges and Transpositions*

In this Appendix we suggest some practical ranges to assist you in composing exercises to be performed in class. These are not extreme ranges, by any means, but the extreme highs and lows of even these ranges should be used cautiously, especially with the brasses.

| *Instrument* | *Abbreviation* | *Sounding range* | *Written range* |
|---|---|---|---|
| Flute | Fl. |  | Same |
| Oboe | Ob. |  | Same |
| B♭ Clarinet | Clar. in B♭ |  | Treble clef, M2 higher  |
| Bassoon | Bsn. |  | Same |
| E♭ Alto Sax | A. Sax in E♭ |  | Treble clef, M6 higher  |
| B♭ Tenor Sax | T. Sax in B♭ |  | Treble clef, M9 higher  |

| *Instrument* | *Abbreviation* | *Sounding range* | *Written range* |
|---|---|---|---|
| French Horn | Hn. in F |  | P5 higher  |
| B♭ Trumpet | Tpt. in B♭ |  | Treble clef, M2 higher  |
| Trombone | Trb. |  | Same |
| Tuba | Tuba |  | Same |
| Violin | Vl. |  | Same |
| Viola | Vla. |  | Same |
| Cello | Vc. |  | Same; tenor clef also used when convenient |
| Bass | D.B. |  | P8 higher  |

# APPENDIX B *Answers to Self-Tests*

The answers given to certain kinds of Self-Test problems must be considered to be suggested solutions, since more then one correct answer might be possible. When you have questions, consult your instructor.

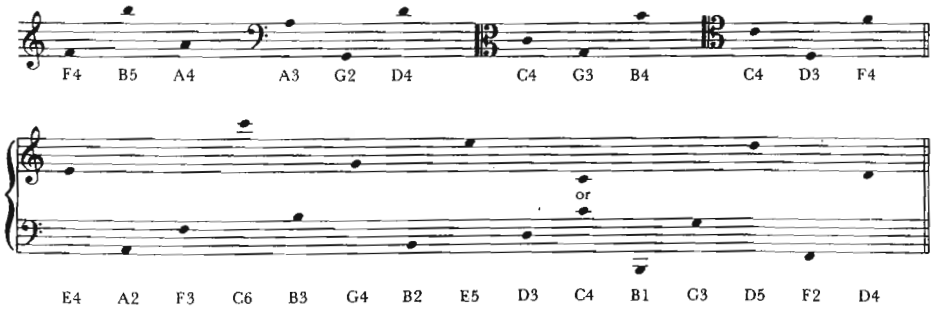
## CHAPTER 1

### *Self-Test 1-1*

Part A, p. 5.

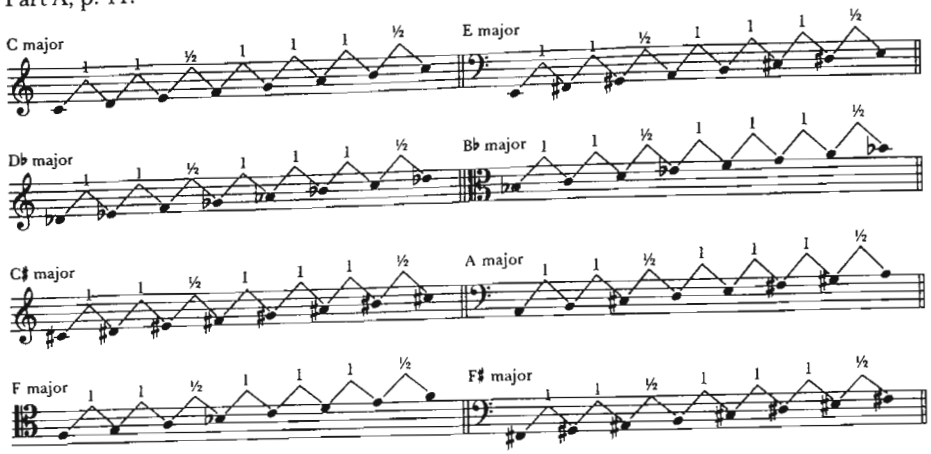
**1.** C1 **2.** E2 **3.** F3 **4.** B4 **5.** A5 **6.** G6 **7.** D7

Part B, p. 6.



### *Self-Test 1-2*

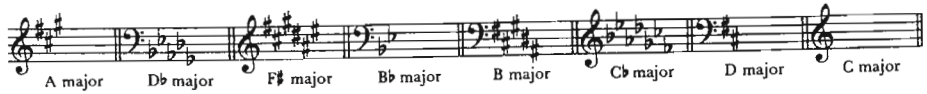
Part A, p. 11.




Part B, p. 12.

**1.** A♭ **2.** E **3.** F **4.** E♭ **5.** G **6.** G♭ **7.** C♯

Part C, p. 12.



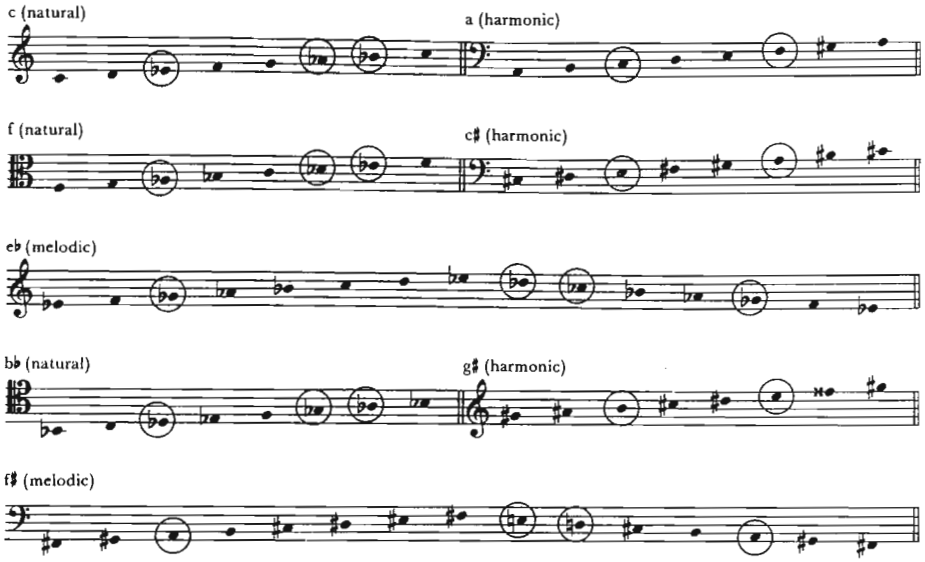

Part D, p. 12.

| | | | | |
|---|---|---|---|---|
| **1.** E♭ | **2.** C♯ | **3.** two sharps | **4.** F | **5.** four flats |
| **6.** five sharps | **7.** G♭ | **8.** two flats | **9.** G | **10.** D♭ |
| **11.** six sharps | **12.** seven flats | **13.** E | **14.** three sharps | |



### *Self-Test 1-3*

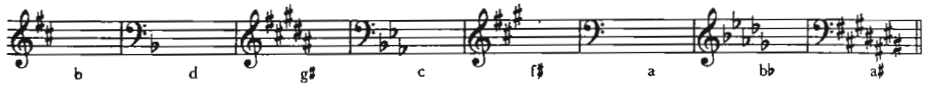
Part A, p. 16.




Part B, p. 17.

**1.** g **2.** e **3.** c♯ **4.** f **5.** a♭ **6.** d♯ **7.** e♭

Part C, p. 17.




Part D, p. 17.

| | | | | |
|---|---|---|---|---|
| **1.** one flat | **2.** e♭ | **3.** c♯ | **4.** three sharps | **5.** d♯ |
| **6.** five flats | **7.** seven sharps | **8.** g | **9.** four flats | **10.** two sharps |
| **11.** c | **12.** seven flats | **13.** e | **14.** g♯ | |

### *Self-Test 1-4*

p. 20.

| | | | | |
|---|---|---|---|---|
| **1.** 2 | **2.** 5 | **3.** 7 | **4.** 1 | **5.** 3 |
| **6.** 4 | **7.** 8 | **8.** 6 | **9.** 4 | **10.** 2 |
| **11.** 6 | **12.** 7 | **13.** 8 | **14.** 3 | **15.** 5 |

### *Self-Test 1-5*

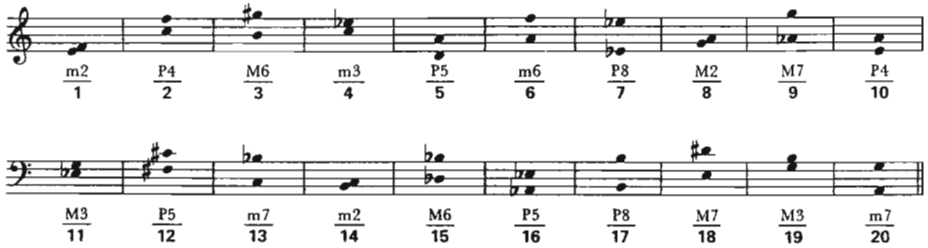
Part A, p. 22.

All are "P" except nos. 4 and 7.

Part B, p. 22.

| | | | | |
|---|---|---|---|---|
| **1.** M | **2.** m | **3.** m | **4.** M | **5.** m |
| **6.** m | **7.** m | **8.** M | **9.** M | **10.** m |

Part C, p. 22.




### *Self-Test 1-6*

Part A, p. 26.

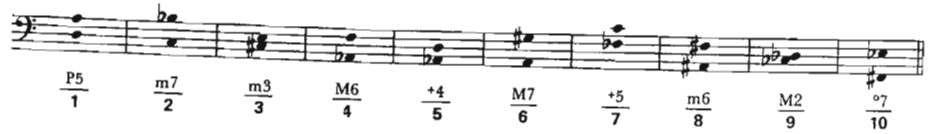
| | | | | |
|---|---|---|---|---|
| **1.** +5 | **2.** °7 | **3.** M3 | **4.** °4 | **5.** +2 |
| **6.** m7 | **7.** °5 | **8.** °3 | **9.** +6 | **10.** +4 |



Part B, p. 26.

| | | | | |
|---|---|---|---|---|
| **1.** P5 | **2.** m2 | **3.** °7 | **4.** m6 | **5.** +4 |
| **6.** M7 | **7.** M3 | **8.** °3 | | |

Part C, p. 26.




Part D, p. 26.

| | | | | |
|---|---|---|---|---|
| **1.** m3 | **2.** P1 | **3.** m6 | **4.** P8 | **5.** M3 |
| **6.** P4 | **7.** m3 | **8.** °5 | **9.** m2 | **10.** +1 |
| **11.** m2 | **12.** M7 | | | |

## CHAPTER 2

### *Self-Test 2-1*

Part A, p. 30.

| | | | | | |
|---|---|---|---|---|---|
| **1.** 2 | **2.** 4 | **3.** 3 | **4.** 8 | **5.** 4 | **6.** 3 |
| **7.** 4 | **8.** 7 | **9.** 5 | **10.** 6 | **11.** 2 | **12.** 4 |
| **13.** 8 | **14.** 4 | **15.** 2 | **16.** 12 | | |

Part B, p. 30.

**1.** triple **2.** duple (or quadruple) **3.** quadruple (or duple)
**4.** duple (or quadruple) **5.** triple

Part C, p. 30.

| | | | | |
|---|---|---|---|---|
| **1.** B♭ | **2.** A♭ | **3.** E | **4.** D♯ | **5.** E |
| **6.** B | **7.** B♭ | **8.** E♭ | **9.** A♭ | **10.** A |
| **11.** G | **12.** G♯ | **13.** F | **14.** C♯ | **15.** C♯ |

### *Self-Test 2-2*

p. 32.

**1.** simple quadruple (or simple duple)

**2.** compound duple (or compound quadruple)

**3.** simple triple

**4.** simple duple (or simple quadruple)

**5.** compound duple (or compound quadruple)

### *Self-Test 2-3*

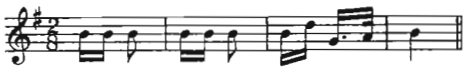
Part A, p. 33.

**1.** ♫; $\frac{2}{4}$ **2.** simple triple; ♪; ♬

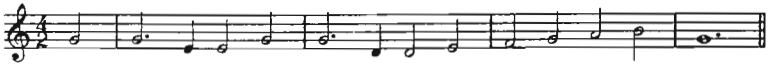
**3.** simple duple; 𝅗𝅥; $\frac{2}{2}$ **4.** ♪; $\frac{4}{8}$ **5.** ♬; $\frac{3}{16}$

Part B, p. 34.

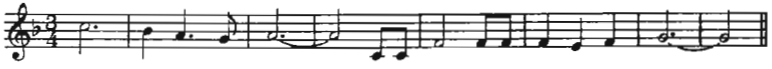
**1.**



**2.**



**3.**



### *Self-Test 2-4*

Part A, p. 37.

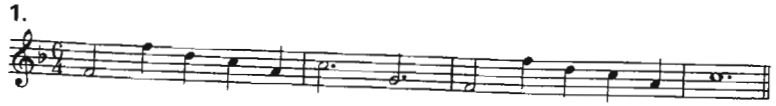
**1.** ♫; $\frac{6}{8}$ **2.** compound triple; 𝅗𝅥.; ♩♩♩

**3.** compound duple; ♩♩♩; $\frac{6}{4}$ **4.** ♪. ; $\frac{12}{16}$ **5.** compound triple; ♩.; $\frac{9}{8}$

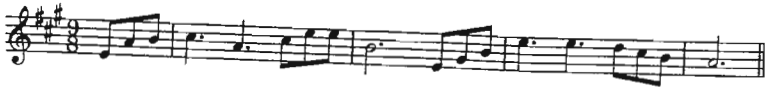


Part B, p. 37.

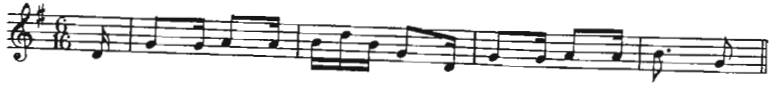
**1.**



**2.**



**3.**



### *Self-Test 2-5*

Part A, p. 42.

**1.** simple quadruple ♩; ♫ **2.** ♫; $\frac{9}{8}$ **3.** simple duple; ♪; ♬

**4.** 𝅗𝅥.; $\frac{6}{4}$ **5.** simple triple; 𝅗𝅥; $\frac{3}{2}$ **6.** compound quadruple; ♪.; $\frac{12}{16}$

Part B, p. 42.

**1.** 𝄽 **2.** 𝄾. (or 𝄾 𝄽) **3.** 𝄾 𝄿. (or 𝄾 𝄿 𝄾) **4.** 𝄽 **5.** 𝄽 **6.** 𝄿 𝄿 (or 𝄻)

Notice that 𝄻 would not be a good answer for no. 3, since this rest would obscure the beats in the measure (see p. 39).

Part C, p. 42.

**1.** $\frac{9}{4}$ **2.** $\frac{4}{4}$ or $\frac{2}{2}$ or **c** or ¢ **3.** $\frac{3}{8}$ **4.** $\frac{6}{16}$ **5.** $\frac{12}{8}$ **6.** same as no. 2

Part D, p. 43.

**1.** ¢ ♩ ♩♩ ♩ | ♫♫ ♩ ♩ | **3.** $\frac{4}{8}$ ♩ ♬♪ | ♬♬♪♪ |

**2.** $\frac{6}{4}$ 𝅗𝅥 ♫♫𝅗𝅥 | ♩ ♩♩♩ ♩ ♩ | **4.** $\frac{3}{16}$ ♬♪♬. | ♪ ♬♬ |

Part E, p. 43.

**1.**

**2.**

Part F, p. 43.

**1.** simple duple (or quadruple); 2 (or 4) over some note value (1, 2, 4, 8, etc.)

**2.** compound quadruple (or duple); 12 (or 6) over some note value

**3.** sounds like compound duple or compound single, but notated as simple triple (see p. 36); 3 over some note value

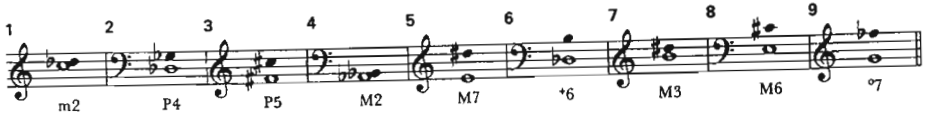
**4.** simple quadruple (or duple); 4 (or 2) over some note value

**5.** compound duple (or quadruple); 6 (or 12) over some note value

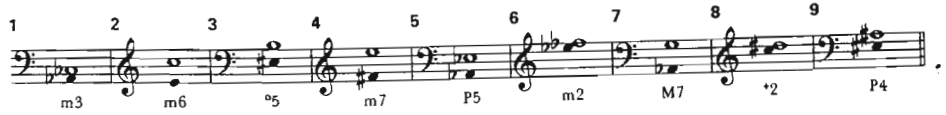
Part G, p. 44.

| | | | | |
|---|---|---|---|---|
| **1.** f | **2.** G | **3.** c♯ | **4.** A | **5.** B♭ |
| **6.** c | **7.** D | **8.** E♭ | **9.** b | **10.** F |
| **11.** g | **12.** f♯ | **13.** E | **14.** A♭ | |

Part H, p. 44.




Part I, p. 44.





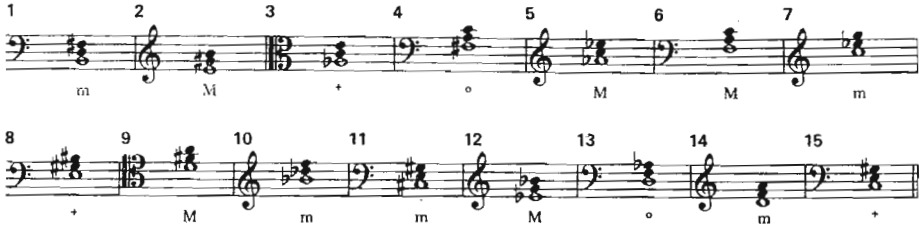

## CHAPTER 3

### *Self-Test 3-1*

Part A, p. 46.

| | | | |
|---|---|---|---|
| **1.** b♭: B♭ D♭ F | **2.** E: E G♯ B | **3.** g°: G B♭ D♭ | **4.** f°: F A♭ C♭ |
| **5.** c: C E♭ G | **6.** D+: D F♯ A♯ | **7.** A: A C♯ E | **8.** d: D F A |
| **9.** G♭: G♭ B♭ D♭ | **10.** B: B D♯ F♯ | **11.** a♭: A♭ C♭ E♭ | **12.** c♯: C♯ E G♯ |

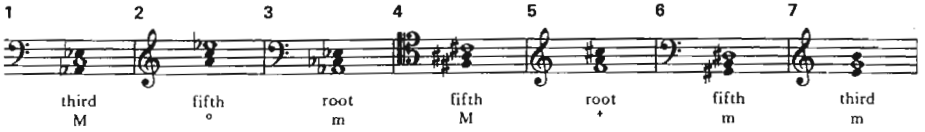
Part B, p. 47.

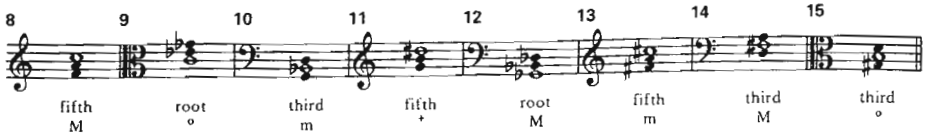



Part C, p. 47.

| | **1.** | **2.** | **3.** | **4.** | **5.** | **6.** | **7.** | **8.** | **9.** | **10.** |
|---|---|---|---|---|---|---|---|---|---|---|
| Fifth | C♯ | B♭ | F♯ | D♯ | G♭ | A | E | C♭ | G♯ | B |
| Third | A | G♭ | D | B | E♭ | F♯ | C♯ | A♭ | E | G♯ |
| Root | F | E♭ | B | G | C♭ | D♯ | A | F | C♯ | E |
| Type | + | m | m | + | M | ° | M | ° | m | M |

Part D, p. 47.



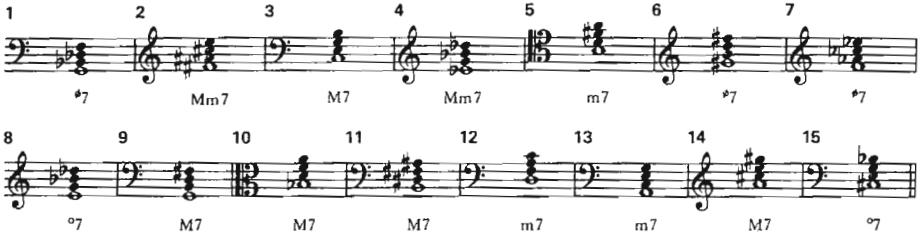



### *Self-Test 3-2*

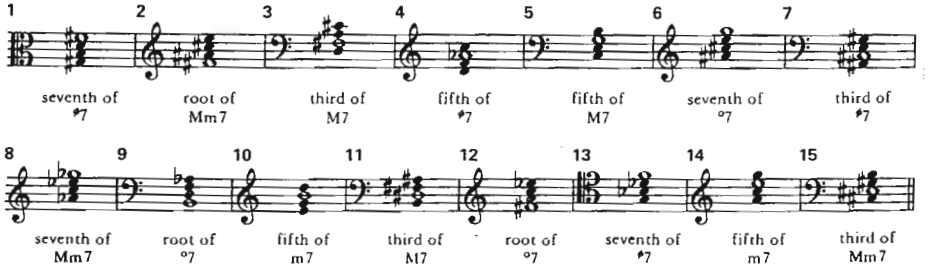
Part A, p. 49.

| | | | | |
|---|---|---|---|---|
| **1.** m7 | **2.** M7 | **3.** ø7 | **4.** ø7 | **5.** M7 |
| **6.** ø7 | **7.** m7 | **8.** Mm7 | **9.** M7 | **10.** Mm7 |
| **11.** °7 | **12.** °7 | **13.** Mm7 | **14.** °7 | **15.** m7 |

Part B, p. 49.




Part C, p. 49.






### *Self-Test 3-3*

Part A, p. 53.

| | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Root | E | A | G♯ | E | C♯ | D | E | G | B | E♭ | F♯ | G | E | D |
| Type | m7 | M | °7 | Mm7 | m | ø7 | M7 | m | ø7 | M | °7 | m7 | ° | Mm7 |
| Inversion symbol | $\frac{6}{5}$ | 6 | $\frac{4}{3}$ | $\frac{4}{3}$ | $\frac{6}{4}$ | $\frac{4}{2}$ | 7 | 6 | $\frac{4}{3}$ | $\frac{6}{4}$ | $\frac{6}{5}$ | 7 | 6 | $\frac{4}{2}$ |

Part B, p. 54.

| | | | | |
|---|---|---|---|---|
| | **2.** GM | **3.** C♯° | **4.** DM | **5.** D♯° |
| **6.** D♯°7 | **7.** BMm7 | **8.** Em | **9.** F♯Mm7 | **10.** Bm |
| **11.** EM | **12.** AM | **13.** EM | **14.** AM | |

### *Self-Test 3-4*

Part A, p. 58.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Root | F | A♯ | E | F | B | G | C | F♯ | D♭ | C | F♯ |
| Type | m7 | °7 | M | m | Mm7 | ø7 | M | M | Mm7 | °7 | M7 |
| Inversion symbol | 7 | $\frac{6}{5}$ | | $\frac{6}{4}$ | $\frac{4}{2}$ | $\frac{6}{5}$ | 6 | $\frac{6}{4}$ | 7 | $\frac{4}{2}$ | 7 |

Part B, p. 59.

**1.** Schubert.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Root | D♭ | G♭ | E♭ | A♭ | D♭ | G♭ | D♭ | D♭ | A♭ | B♭ | A♭ | D♭ |
| Type | M | M | Mm7 | M | M | M | M | M | M | m | Mm7 | M |
| Inversion symbol | 6 | | $\frac{6}{5}$ | | 6 | | 6 | | 6 | | 7 | |

**2.** Byrd.

| | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
|---|---|---|---|---|---|---|---|
| Root | F | C | F | E♭ | A | B♭ | F |
| Type | m | M | M | M | ° | M | M |
| Inversion symbol | | | | | 6 | | |

**3.** Fischer.

| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Root | E | G♯ | A | F | B | F | G | C | D | B | D | G | C |
| Type | M | °7 | m | M7 | ø7 | M | Mm7 | M | m7 | ° | m | Mm7 | M |
| Inversion symbol | | $\frac{4}{3}$ | 6 | 7 | $\frac{4}{3}$ | | $\frac{4}{2}$ | 6 | 7 | 6 | | 7 | $\frac{6}{4}$ |

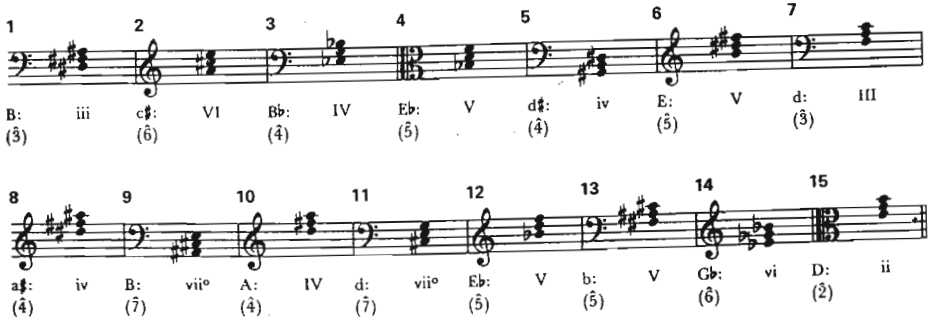
## CHAPTER 4

### *Self-Test 4-1*

Part A, p. 66.

| | | | | |
|---|---|---|---|---|
| **1.** V | **2.** $iv^6$ | **3.** ii | **4.** $III^6$ | **5.** ii |
| **6.** $vii^o$ | **7.** I | **8.** $ii^o$ | **9.** iii | **10.** $vii^o$ |
| **11.** $V^6_4$ | **12.** IV | **13.** i | **14.** vi | **15.** $III^6_4$ |

Part B, p. 66.






Part C, p. 67.

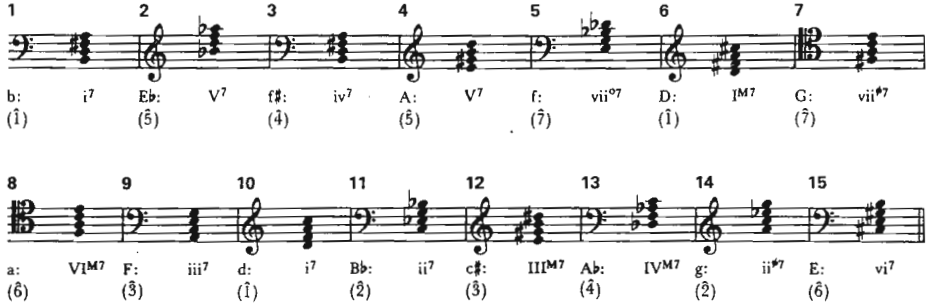
| | | | | |
|---|---|---|---|---|
| **1.** IV | **2.** V | **3.** $IV^6$ | **4.** V | **5.** $I^6$ |
| **6.** IV | **7.** V | **8.** V | **9.** I | **10.** iii |
| **11.** IV | **12.** $iii^6$ | **13.** iii | **14.** IV | **15.** I |
| **16.** I | **17.** V | **18.** I | **19.** IV | **20.** $IV^6$ |
| **21.** I | **22.** ii | **23.** vi | **24.** vi | **25.** V |
| **26.** V | **27.** IV | **28.** $vii^{o6}$ | **29.** I | **30.** $V^6$ |
| **31.** I | **32.** I | **33.** V | **34.** IV | **35.** $iii^6$ |
| **36.** vi | **37.** $iii^6$ | **38.** IV | **39.** I | **40.** I |
| **41.** V | **42.** ii | **43.** iii | **44.** vi | **45.** $iii^6$ |
| **46.** IV | **47.** I | **48.** I | | |

### *Self-Test 4-2*

Part A, p. 72.

| | | | | |
|---|---|---|---|---|
| **1.** $iv^7$ | **2.** $I^{M6}_5$ | **3.** $iii^7$ | **4.** $ii^{ø4}_3$ | **5.** $VI^{M7}$ |
| **6.** $IV^{M7}$ | **7.** $vii^{ø7}$ | **8.** $i^7$ | **9.** $vii^{o7}$ | **10.** $vi^6_5$ |
| **11.** $V^4_2$ | **12.** $V^7$ | **13.** $ii^{ø7}$ | **14.** $iii^4_3$ | **15.** $I^{M7}$ |

Part B, p. 72.



Part C, p. 73.

**1.** Bach.

| | | | | |
|---|---|---|---|---|
| **1.** I | **2.** vi | **3.** iii | **4.** IV | **5.** $IV^{M7}$ |
| **6.** $V_2^4$ | **7.** $I^6$ | **8.** $ii_5^6$ | **9.** V | **10.** I |

**2.** Schumann.

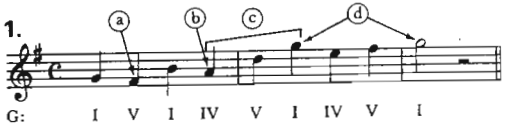
| | | | | |
|---|---|---|---|---|
| **1.** I | **2.** $vii^{o6}$ | **3.** $I^6$ | **4.** $vii^{o6}$ | **5.** I |
| **6.** $ii_5^6$ | **7.** V | **8.** I | **9.** I | **10.** $I^6$ |
| **11.** IV | **12.** $I^6$ | **13.** $V_3^4$ | **14.** I | **15.** V |

## CHAPTER 5

### *Self-Test 5-1*

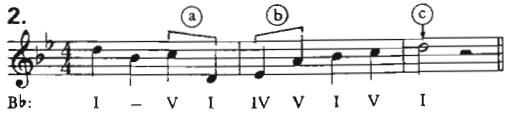
Part A, p. 79.

**1.**




**a.** Resolve $\hat{7}$ to $\hat{1}$.
**b.** Not in a IV chord.
**c.** Two leaps should outline a triad.
**d.** Two focal points.

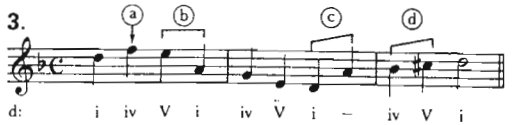
**2.**




**a.** Leap of a 7th.
**b.** Leap of a $^+4$.
**c.** Two focal points.



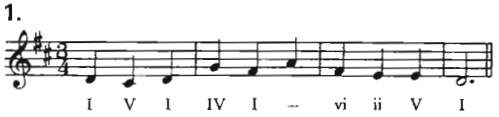
**3.**



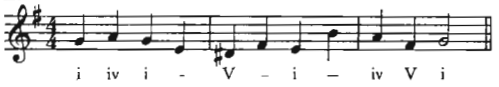

**a.** Not in a iv chord.
**b.** Large leap should be preceded and followed by ascending motion.
**c.** Follow leap with descending motion.
**d.** Interval of $^+2$.

Part B, p. 80 (sample solutions).

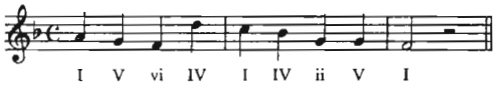
**1.**




**2.**




**3.**

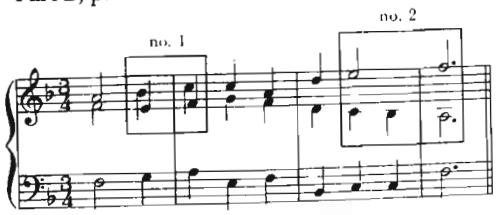



### *Self-Test 5-2*

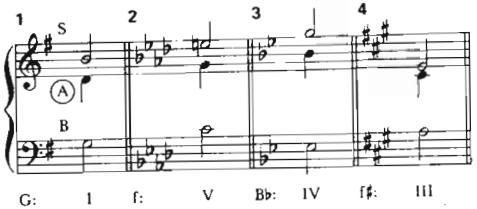
Part A, p. 82.

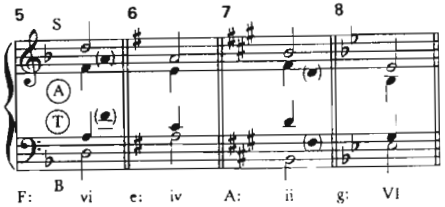
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| i / C | i / C | $V^6$ / O | i / O | $iv^6$ / C | V / O | $V_2^4$ / O | $i^6$ / O | $vii^{o6}$ / O | i / C | $ii^{o6}$ / C | V / C |

Part B, p. 83.




Part C, p. 83 (alternative solutions in parentheses).




### *Self-Test 5-3*

Part A, p. 89.

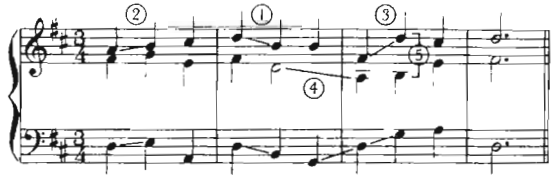
The progression is G: I / IV I / V / vi V / I /

Parallel 6ths: S/A, m. 1; S/T, mm. 3-4

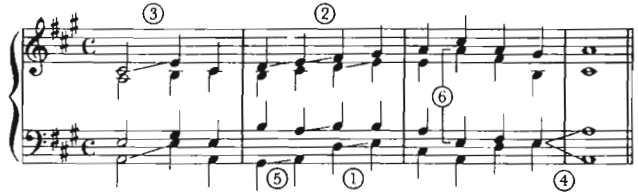
Parallel 3rds: S/T, mm. 1-3; S/B, m.3



Part B, p. 90.




Part C, p. 90.

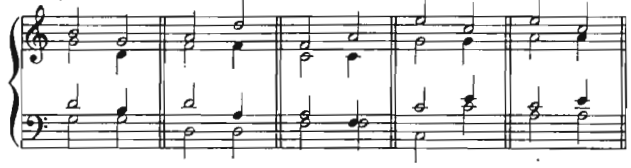



## CHAPTER 6

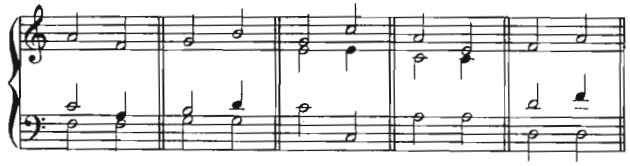
### *Self-Test 6-1*

p. 93 (sample solutions).*

four parts



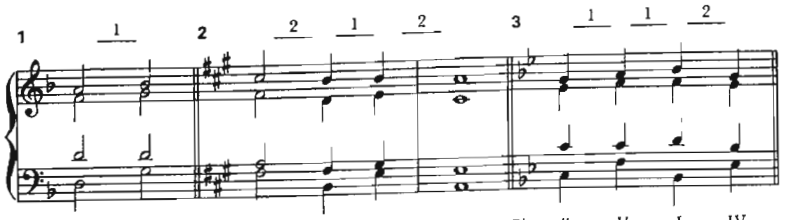
three parts

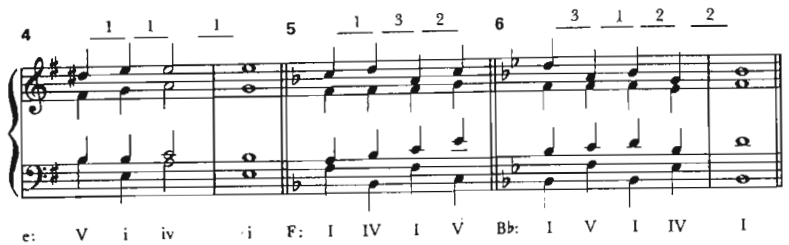


*Solutions to this and similar exercises throughout the book are sample solutions only. Many other correct solutions are possible.

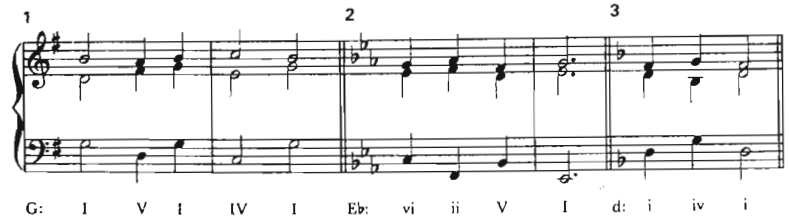
### *Self-Test 6-2*

Part A, p. 95.



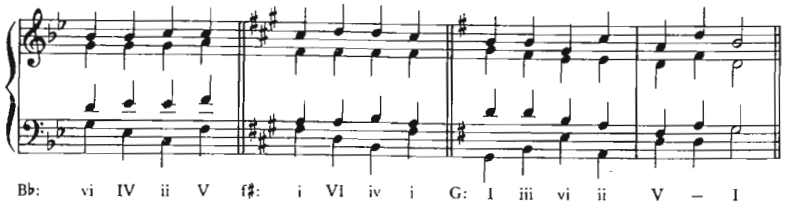

Part B, p. 96.



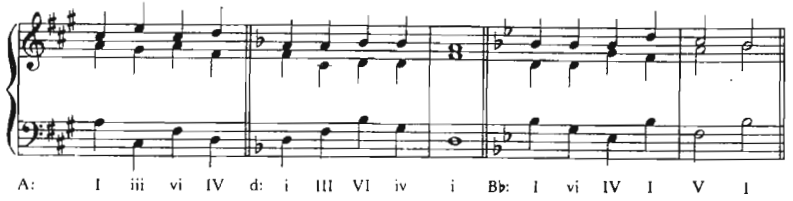



### *Self-Test 6-3*

Part A, p. 97.

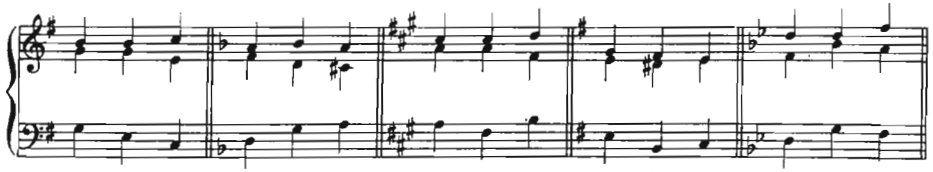


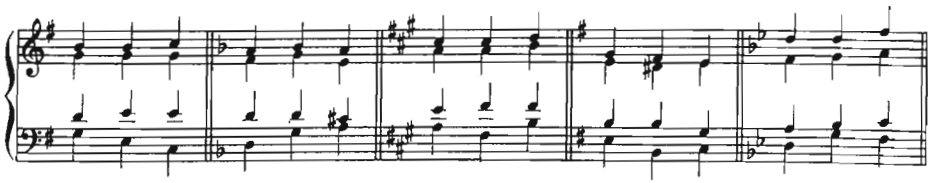

Part B, p. 98.




### *Self-Test 6-4*

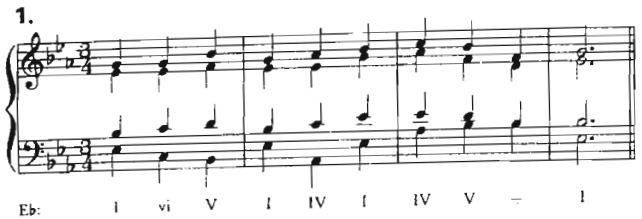
Part A, p. 100.



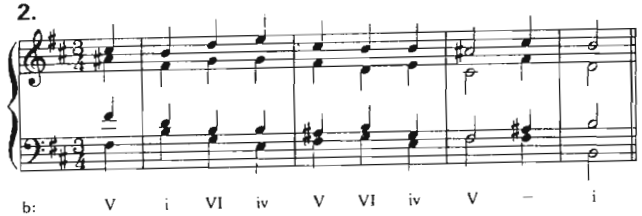


Part B, p. 101.

**1.**

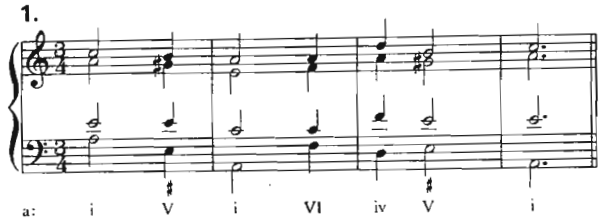



**2.**

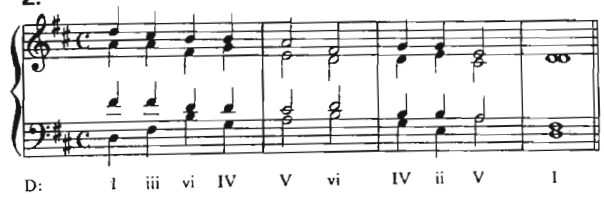



Part C, p. 101.

**1.**



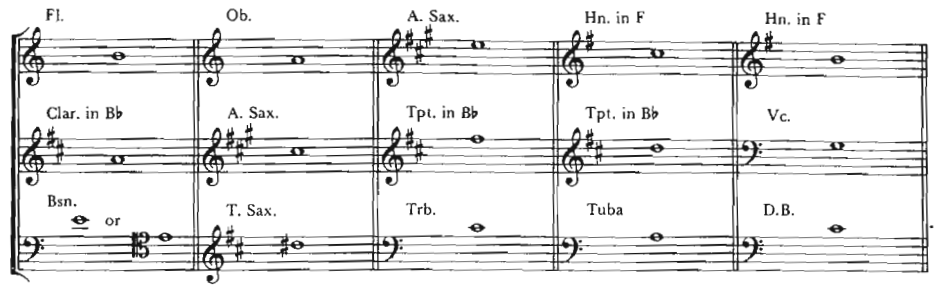

**2.**





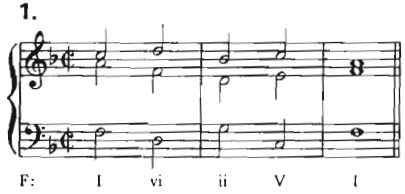

## *Self-Test 6-5*

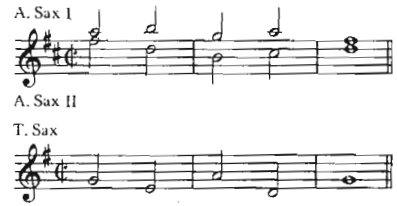
Part A, p. 104.



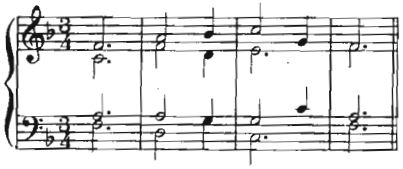

Part B, p. 105.

**1.**



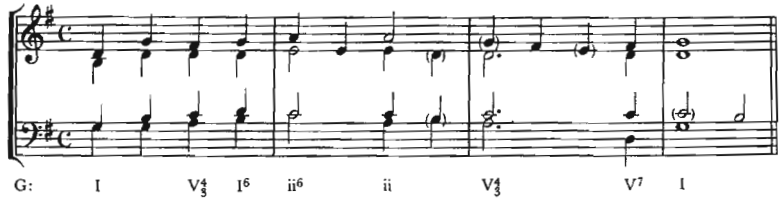




**2.**



Part C, p. 105.

"Aura Lee"



## CHAPTER 7

### *Self-Test 7-1*

Part A, p. 120.

**1.** iii or V **2.** I or ii **3.** I or vi
**4.** iii or vi **5.** ii or IV **6.** I

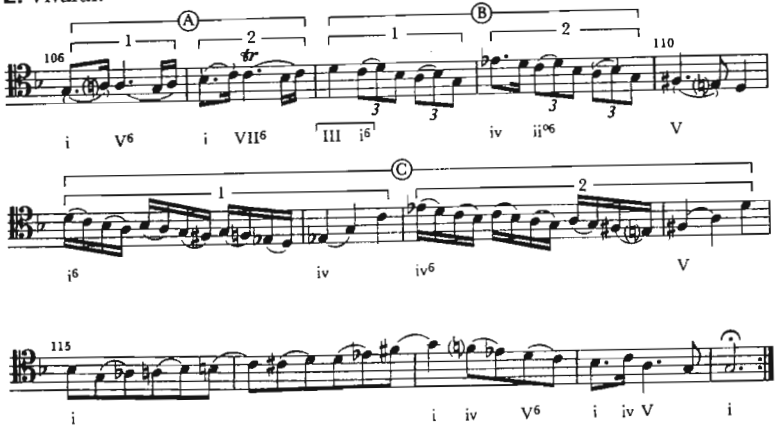
Part B, p. 120.

**1.** V ii **2.** VII I **3.** IV iii **4.** none

Part C, p. 120.

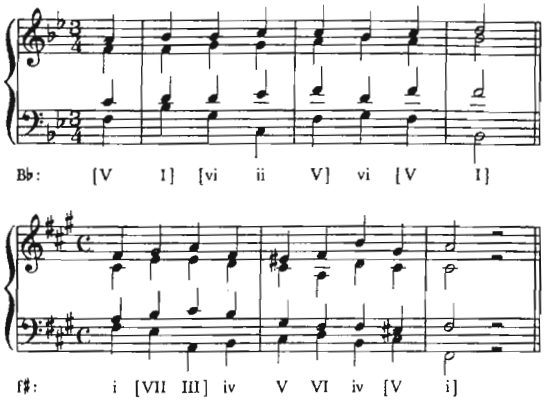
**1.** Bach. I / vi iii IV $V^7$ / vi V I /

**2.** Vivaldi.

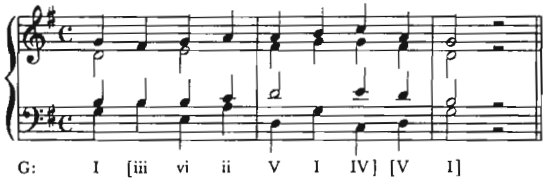





Part D, p. 122.

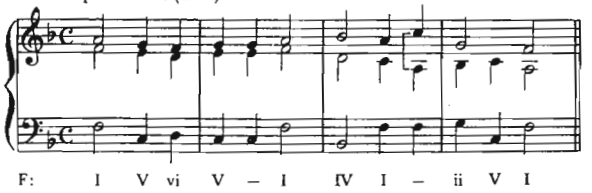



Part E, p. 122.

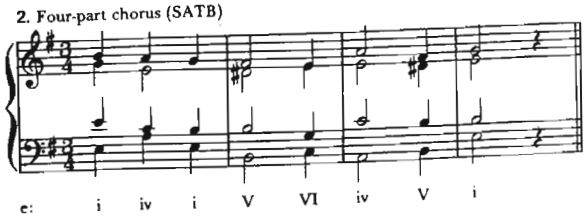



Part F, p. 123.

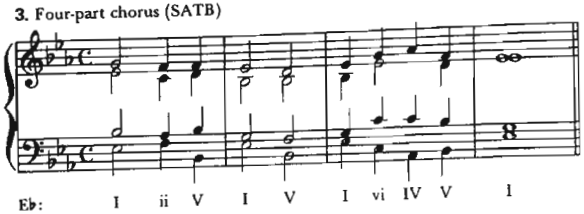
**1.** Three-part chorus (SAB)



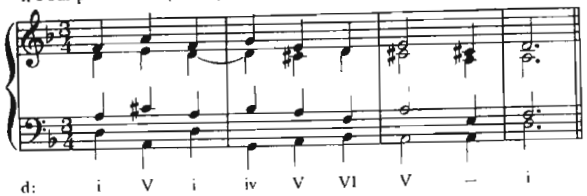
**2.** Four-part chorus (SATB)



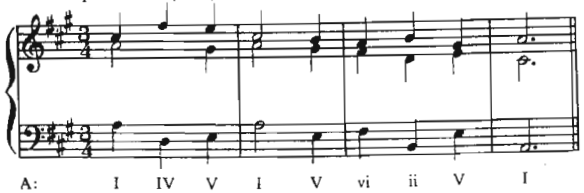

**3.** Four-part chorus (SATB)




**4.** Four-part chorus (SATB)

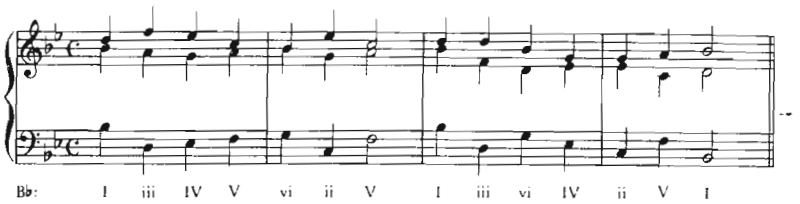



**5.** Three-part chorus (SAB)






Part G, p. 123.




Part H, p. 124.

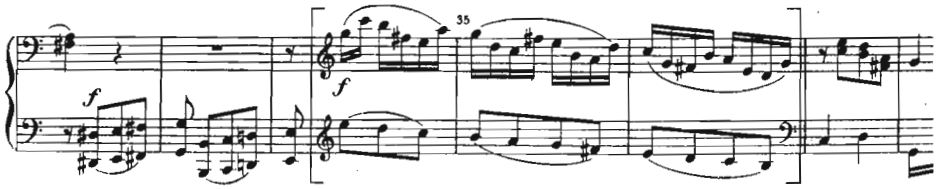
| | | | | |
|---|---|---|---|---|
| **1.** $V^6_5$ | **2.** $IV^6$ | **3.** $iv^7$ | **4.** $I^{M7}$ | **5.** $ii^{\circ 6}_5$ |
| **6.** $vi^7$ | **7.** $V^4_2$ | **8.** $vii^{\circ 6}_5$ | **9.** $ii^6$ | **10.** $V^4_3$ |
| **11.** $iv^4_2$ | **12.** $I^6_4$ | **13.** VI | **14.** $I^{M4}_3$ | **15.** $V^6$ |

## CHAPTER 8

### *Self-Test 8-1*

Part A, p. 134.

**1.** The voice-leading features parallel 4ths(arpeggiated in the right hand), as in Example 8-9.

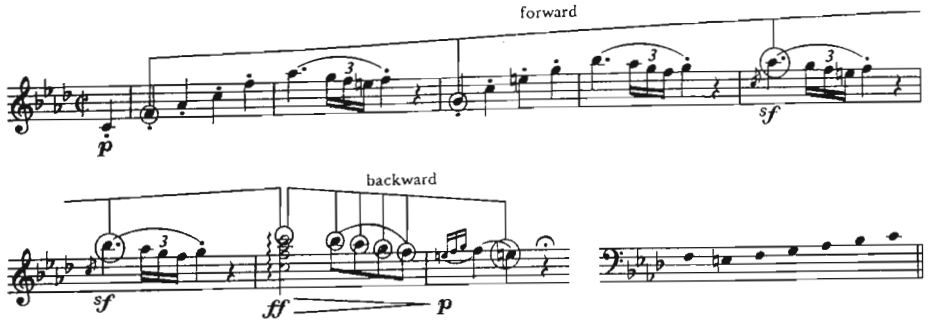


**2.** i / iv$^{7}$ iv$^{6}$ V V$^{4}_{2}$ / i$^{6}$ vii$^{o6}$ i i / vii$^{o7}$ i V

The i$^{6}$ and iv$^{6}$ use the doubling in Example 8-10a; the vii$^{o6}$ uses Example 8-10c.

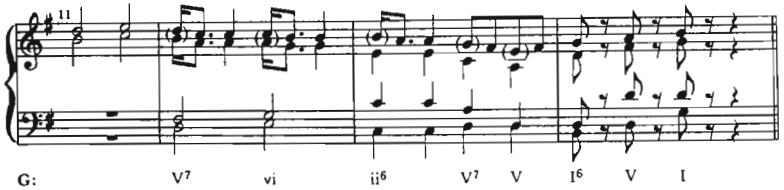
**3.** / i / / V$^{6}_{5}$ / / i / vii$^{o6}$ or V$^{4}_{3}$ / i$^{6}$ ii$^{o6}$ / V

With a little imagination, we can find most of the bass line, both forward and backward, in the melody.



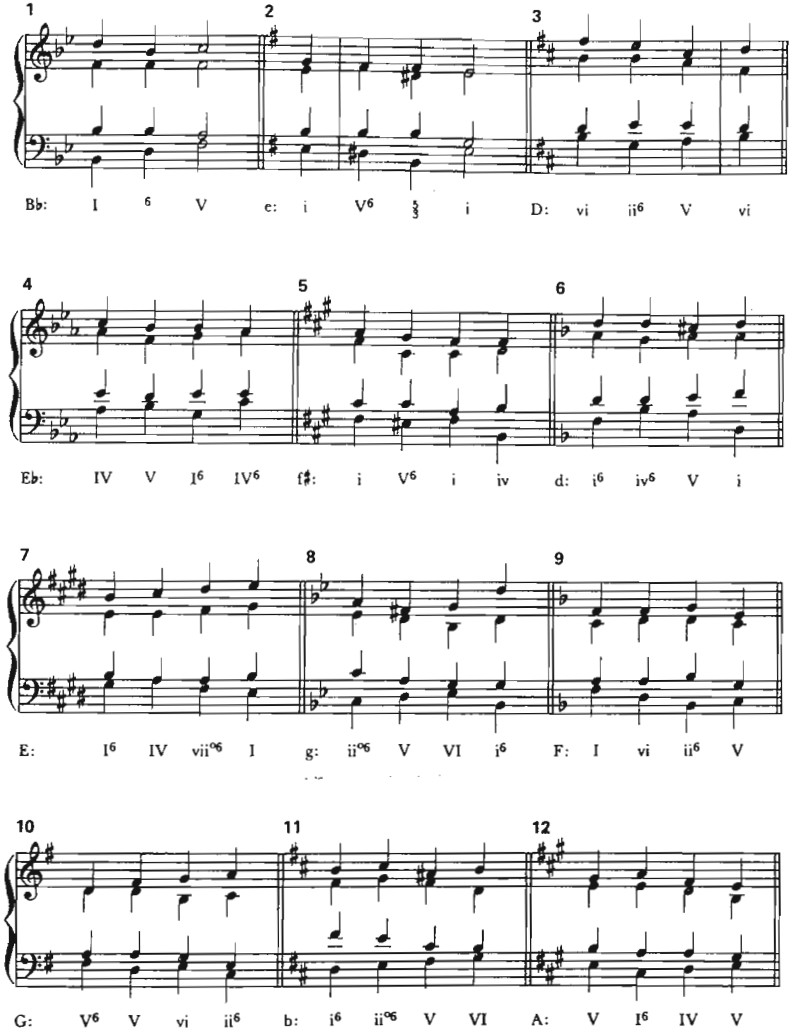

Part B, p. 136.

Mozart, *Eine kleine Nachtmusik*, K. 525, I

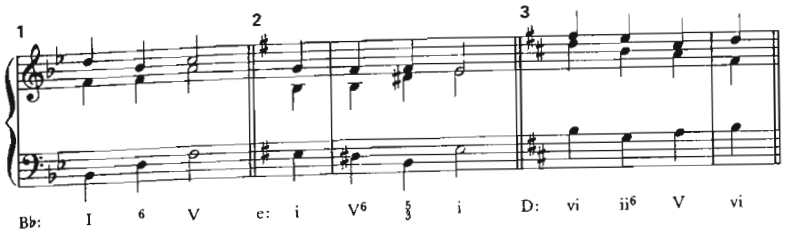




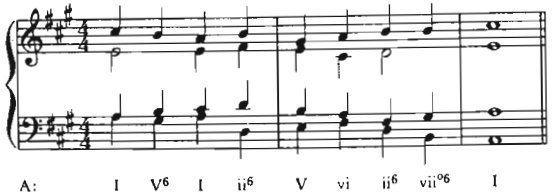

Part C, p. 136.



Part D, p. 137.



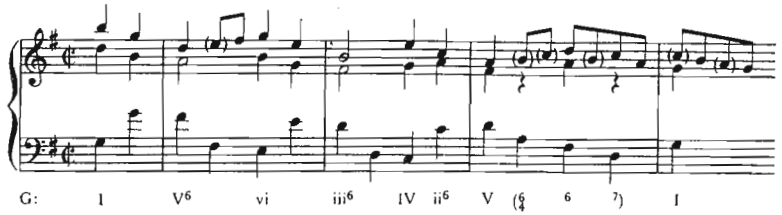

Part E, p. 137.



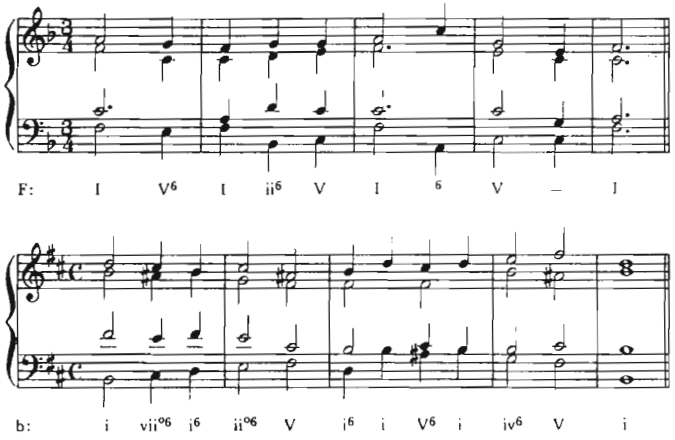



Part F, p. 138.

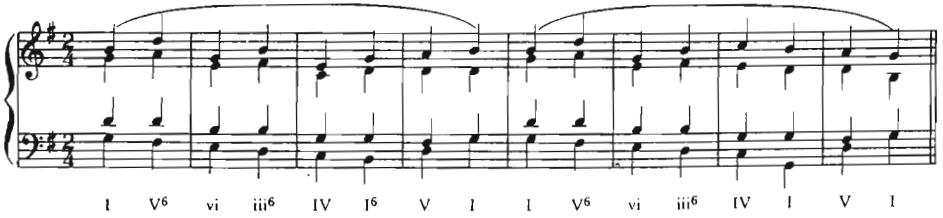
Bach, French Suite No. 5




Part G, p. 138.




Part H and I, p. 139. (Compare to Ex. 7-5 and Ex. 8-7b.)



## CHAPTER 9

### *Self-Test 9-1*

Part A, p. 149.

**1.** g: i / $(iv^6_4)$ / - / i / $vii^{o6}_5$ $i^6$ / $vii^{o6}_5$ $i^6$ /

The $iv^6_4$ is a pedal six-four chord.

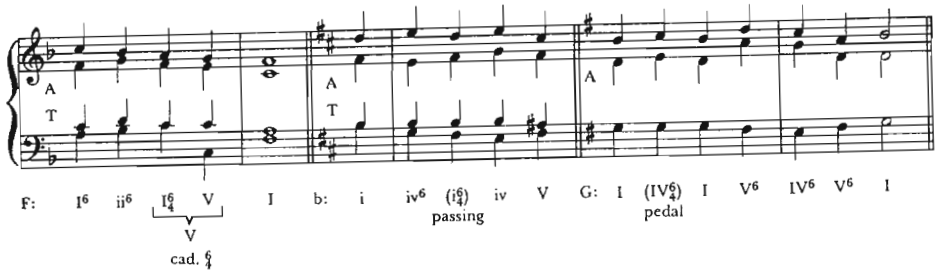
**2.** I $V^6$ / - $IV^6$ $I^6_4$ $V^7$ / I IV I /

The $I^6_4$ is a cadential six-four.

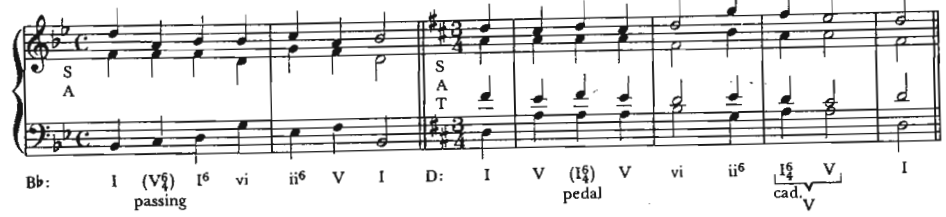
**3.** I $IV^6$ $(I^6_4)$ $V^4_2$ $I^6$ I $I^6$ IV

The $I^6_4$ is a passing six-four.

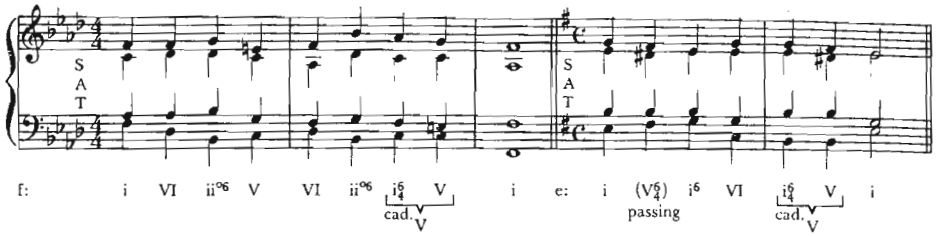
Part B, p. 151.




Part C, p. 151.





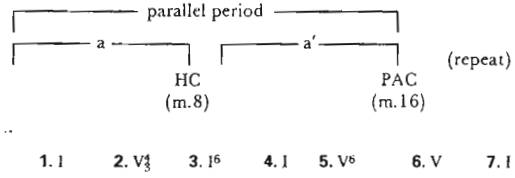




## CHAPTER 10

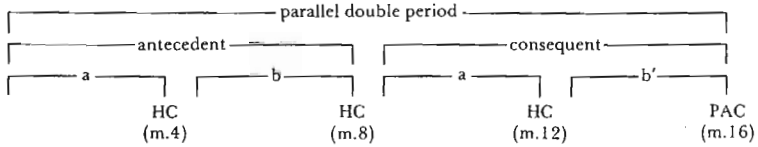
### *Self-Test 10-1*

Part A, p. 170.

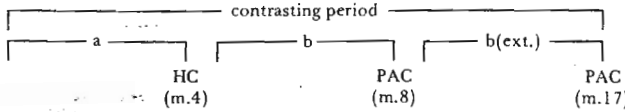
**1.** This excerpt is a repeated parallel period.



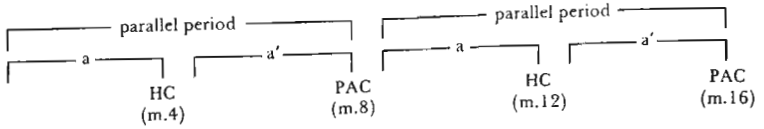

**2.** There are modified sequences in the melody in mm. 1-4, 5-6, 9-12, and 13-14.




**3.** Since mm. 1-8 constitute a contrasting period, the whole theme can be heard as a contrasting period with a repeated and extended consequent phrase.

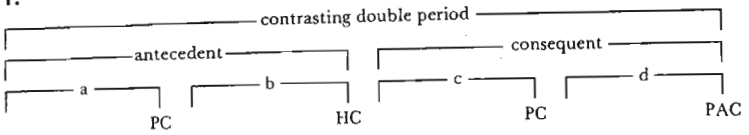


**4.** This excerpt is a repeated parallel period (not a double period). Octaves by contrary motion occur between melody and bass in mm. 7-8 and mm. 15-16.

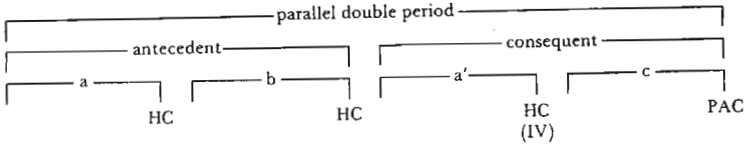



Part B, p. 173.

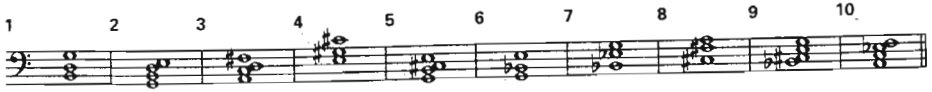
**1.**




**2.**




Part C, p. 173.






## CHAPTER 11

### *Self-Test 11-1*

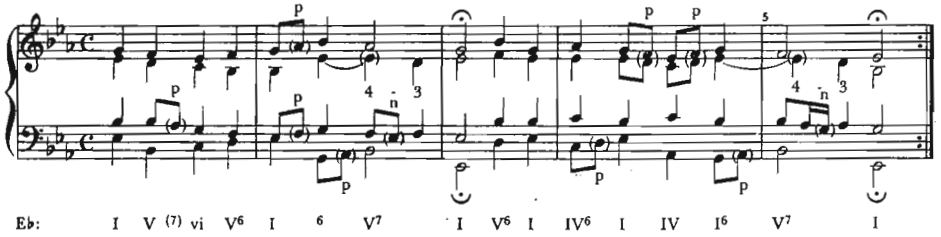
Part A, p. 188.

**1.**

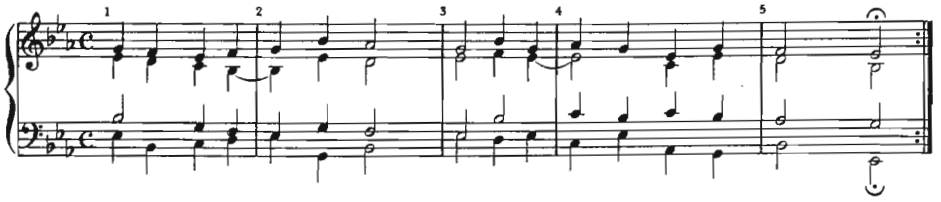
| *Measure* | *Treble* | *Bass* |
|---|---|---|
| 1 | p | |
| 2 | n | p |
| 3 | 7-6 | |
| 5 | p | |
| 6 | p | p |
| 7 | 4-3 | |

**2.** soprano: p; alto: p, p; tenor: 7-6, p, p

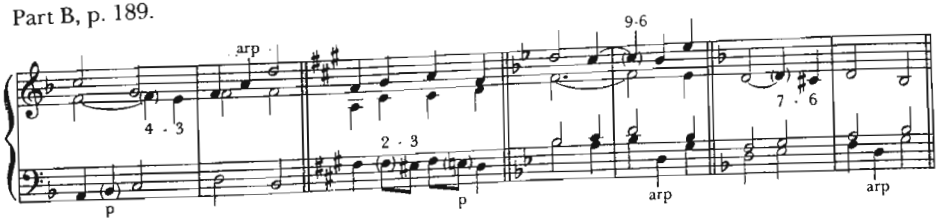
**3.** The only voice-leading problem seen in the reduction is found in m. 4, where direct 5ths (review p. 87) occur between the I and IV chords. Bach disguised these through the use of passing tones. The parallel 5ths in m. 2 are not objectionable, because the second 5th is a °5 and because the bass is not involved in the 5ths (review p. 86). Slightly unusual is the proportion of chords with a doubled 3rd: four out of sixteen.




Textural reduction

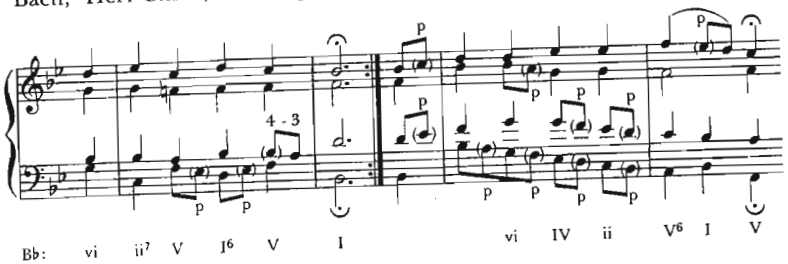


Part B, p. 189.




Part C, p. 189.

Bach, "Herr Christ, der ein'ge Gott's-Sohn"




## CHAPTER 12

### *Self-Test 12-1*

Part A, p. 200.

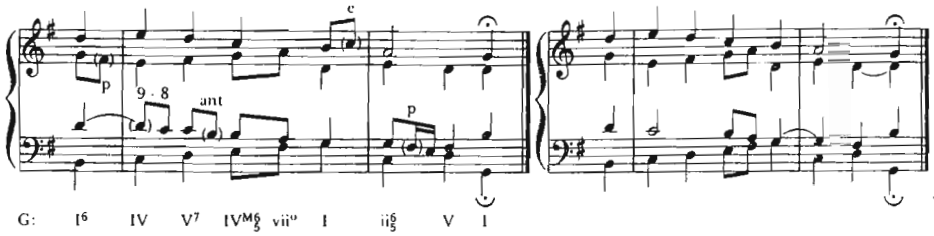
**1.** m. 1: p; m. 3: p, p, app; m. 4: app, p

**2.** m. 24: app, app; m. 25: app, app; m. 26: app, p, p

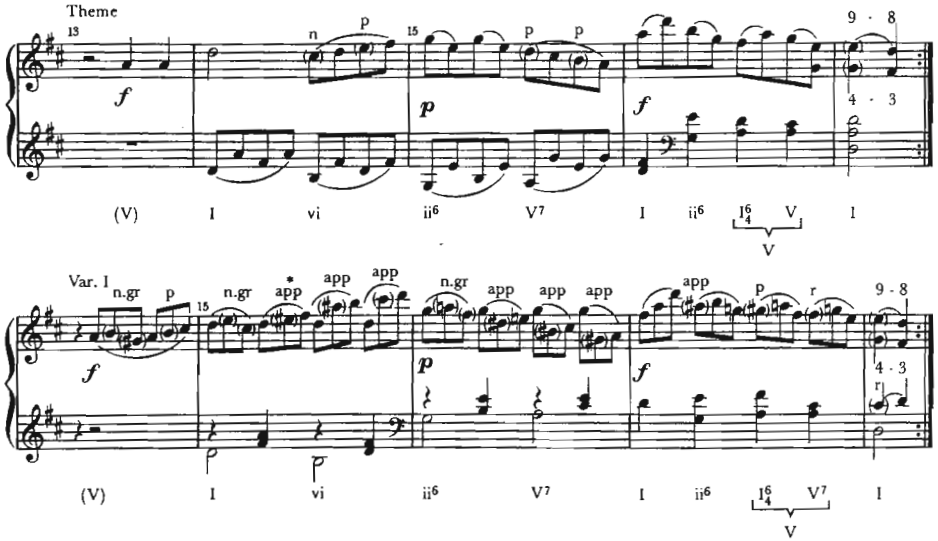
**3.** m. 72: n, n; m. 74: 7-6; m. 75: 7-6, app, p; m. 76: p, p; m. 77: (melody) ant, (alto) ant



**4.** Notice (1) the scalar motion in all voices, inspired, of course, by the melody; (2) the incomplete IV, which contributes to the scalar motion; (3) the root position vii°, appearing here in one of its few typical usages; (4) the $\hat{7}$-$\hat{3}$ movement at the cadence—not unusual for Bach in an inner voice.

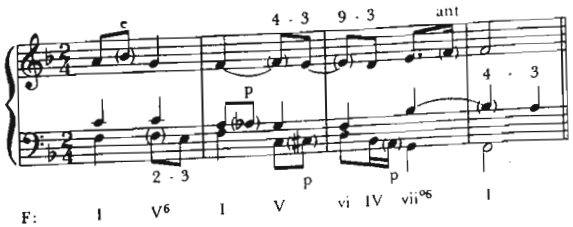



**5.**



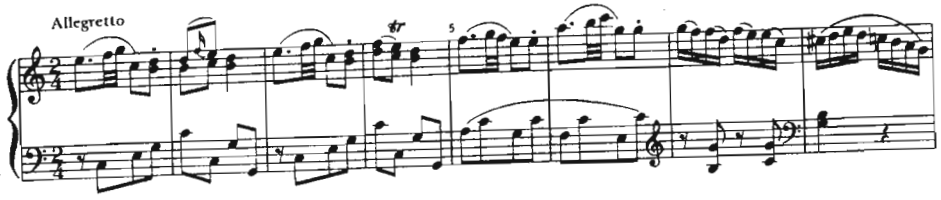

*We label this as an appoggiatura rather than as a passing tone because of the effect of the *2.

Part B, p. 202.




Part C, p. 202.

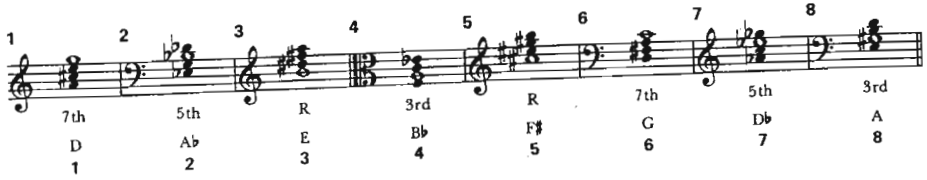
Mozart, Sonata K. 330, III




## CHAPTER 13

### *Self-Test 13-1*

Part A, p. 214.





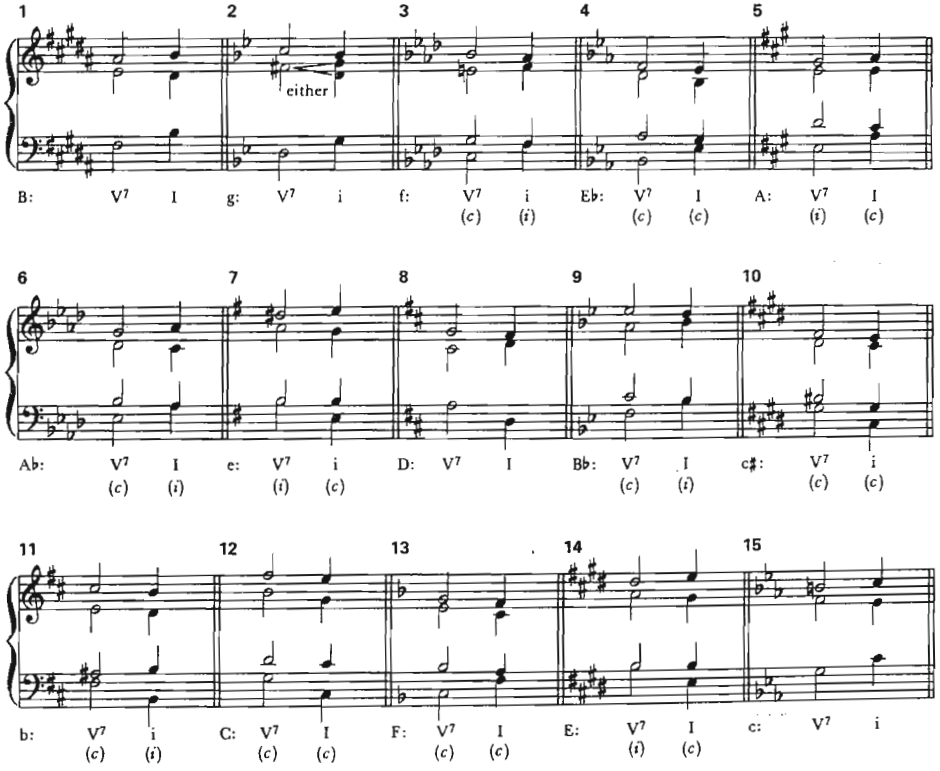

Part B, p. 214.

m. 1 $V^7$-vi deceptive progression. With $\hat{7}$ in an inner voice and in the major mode, it may move down to $\hat{6}$ instead of up to $\hat{1}$. The 7th resolves normally. All voices move by step.

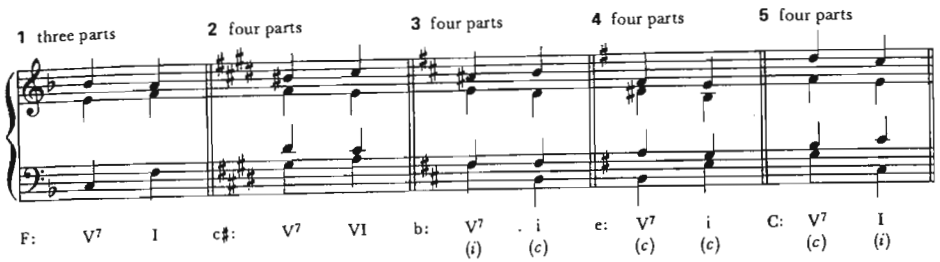
m. 2 $V^7$ ornamented by a neighbor and a 4-3 suspension. The $V^7$ is complete, but the I is incomplete, due to the resolution of the leading tone in the alto. The 7th resolves down by step.

m. 5 Another ornamented $V^7$, but in this case the leading tone is frustrated, leading to a complete I chord. The 7th resolves down by step.

Part C, p. 214.

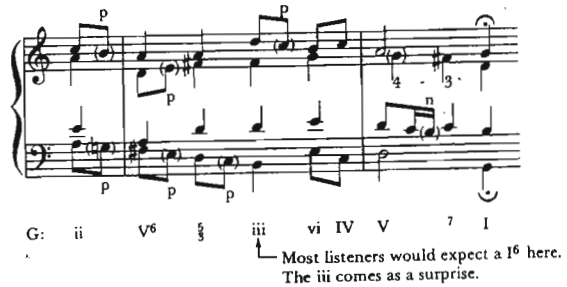


Part D, p. 215.

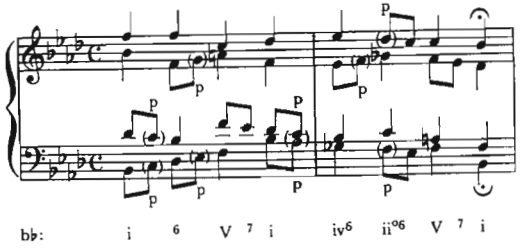



Part E, p. 215.

**1.** Bach, "Kommt her zu mir, spricht Gottes Sohn"

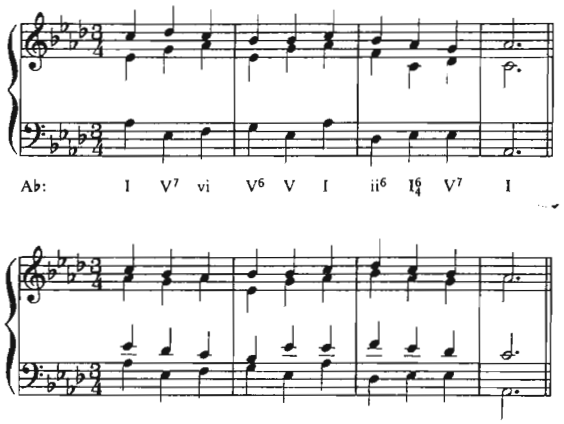



**2.** Bach, "Jesu, der du meine Seele"



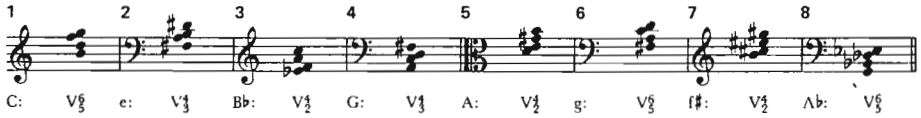



Part F, p. 216.




## *Self-Test 13-2*

Part A, p. 223.



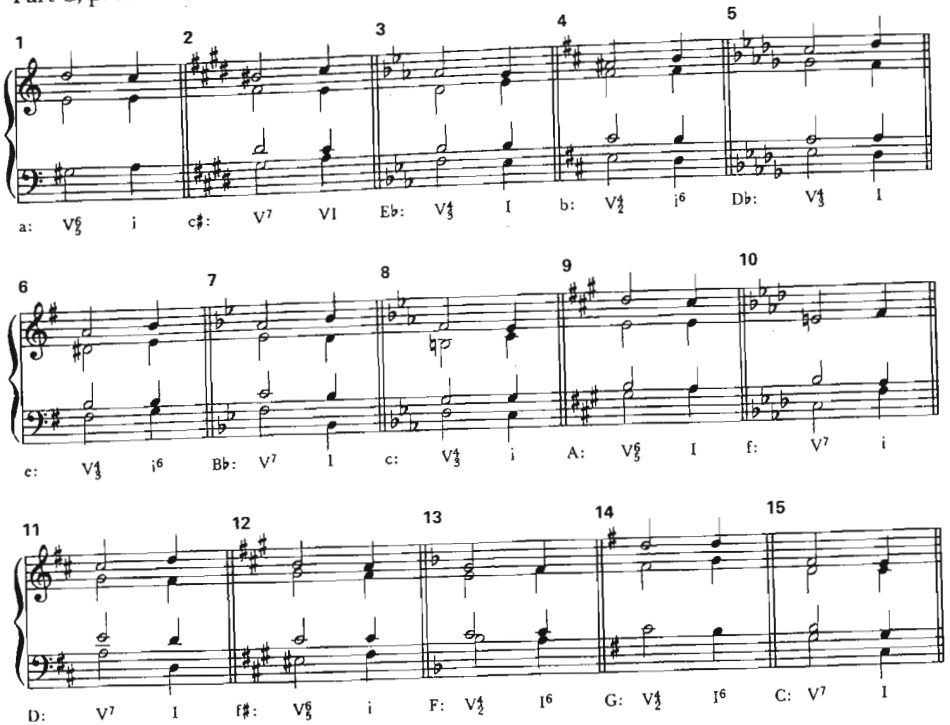

Part B, p. 223.

**1.** The leading tone (G♯3) resolves up to tonic. The 7th (D3) is approached by a suspension figure and resolves down by step to $\hat{3}$.

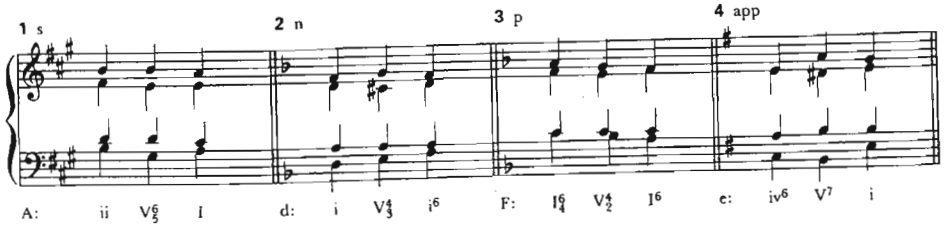
**2.** The leading tone (F♯4) resolves up to $\hat{1}$. The 7th (C5) is approached by a passing tone figure and resolves down by step to $\hat{3}$.

**3.** There is no leading tone in this chord. The 7th (F4) is approached by an appoggiatura figure and resolves down by step to $\hat{3}$.

Part C, p. 223.




Part D, p. 224.





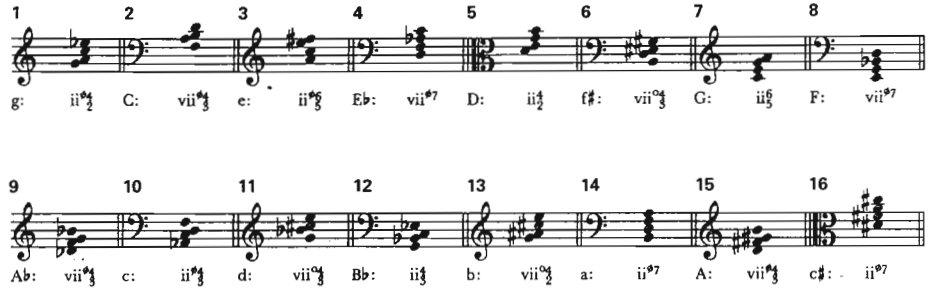

Part E, p. 224.

| | | | | |
|---|---|---|---|---|
| **1.** F | **2.** A | **3.** E♭ | **4.** G, g | **5.** E |
| **6.** d | **7.** B♭ | **8.** D | **9.** E, e | **10.** A♭ |
| **11.** D | **12.** c♯ | **13.** B♭ | **14.** g | **15.** b |

## CHAPTER 14

### *Self-Test 14-1*

Part A, p. 235.

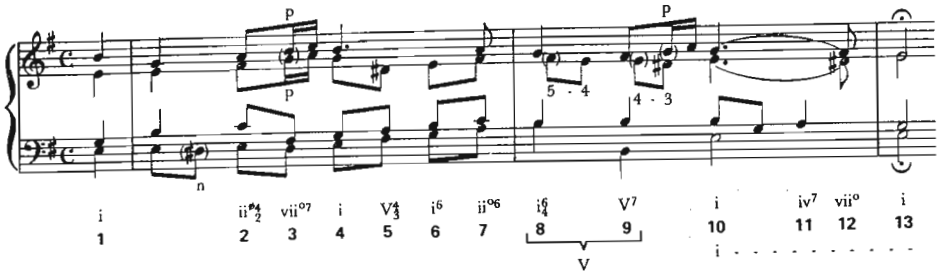



Part B, p. 235.

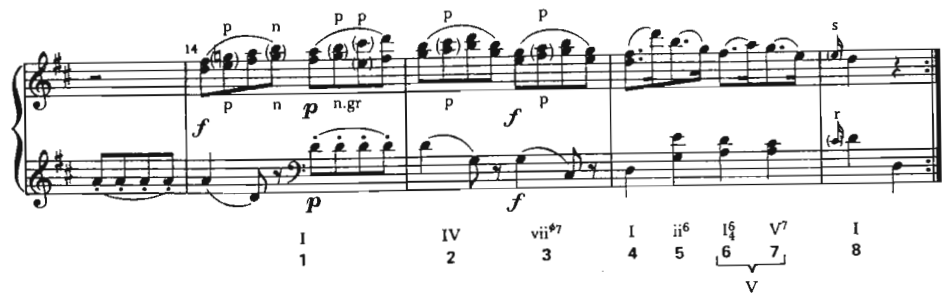
| | | | | |
|---|---|---|---|---|
| **1.** $ii^6_5$ | **2.** $ii^4_2$ | **3.** $vii^{\circ 7}$ | **4.** $ii^{\circ 6}_5$ | **5.** $vii^{\circ 7}$ |
| **6.** $vii^{\circ 4}_3$ | **7.** $ii^{\circ 7}$ | **8.** $vii^{\circ 4}_3$ | | |

Part C, p. 235.

**1.** The ii$^{\circ 4}_{2}$ has its 7th approached as a suspension (from the previous chord tone). The large leap in the tenor (C4-F♯3) is necessary because of the motion in the upper voices. The 7th of the vii$^{\circ 7}$ is approached as an appoggiatura. The resolution of both tritones leads to a tonic triad with doubled 3rd. In the last complete measure notice the 5-4 suspension, which "works" because of the dissonance with the G4, and the tonic pedal under the final i-iv$^{7}$-vii$^{\circ}$-i progression.

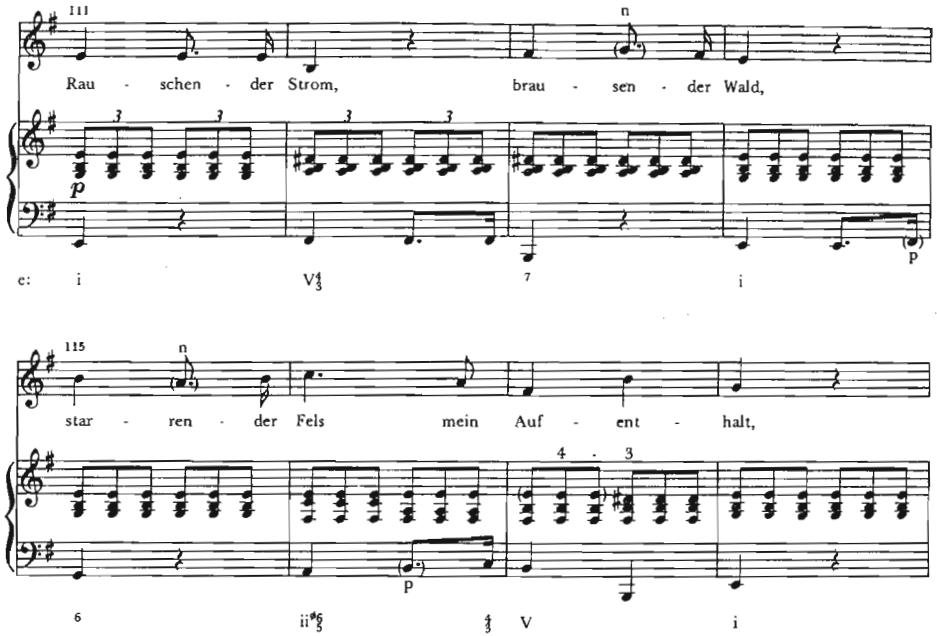



**2.** The 7th of the vii$^{\circ 7}$ is approached as an appoggiatura. It is left by arpeggiation, although one could hear it as leading to the B5-A5 in the next measure.

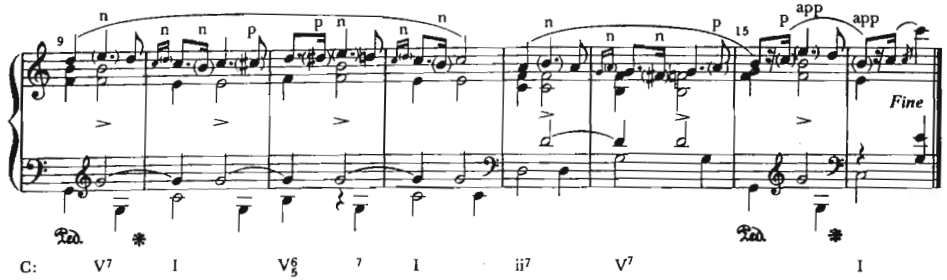





**3.** The 7th of the ii$^{\circ 6}_{5}$ is approached as a suspension. Resolution from the ii$^{\circ 4}_{3}$ is normal, the 7th becoming part of a 4-3 suspension. The main rhythmic motive (♩ ♪. ♪♩) appears three times in the vocal part and three times in the accompaniment, alternating between the two.

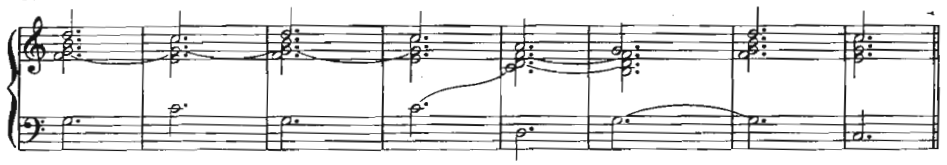


**4.** The 7th of the ii$^7$ is prepared as a suspension in another voice (the bass in the previous measure). The texture thickens to five parts before the ii$^7$ resolves normally to the V$^7$. The asterisks indicate when the damper pedal is to be released. The reduction helps us to appreciate Chopin's imaginative elaboration of a simple progression. Notice that the C5 in m. 15 is analyzed as a passing tone that connects B4 to D5.

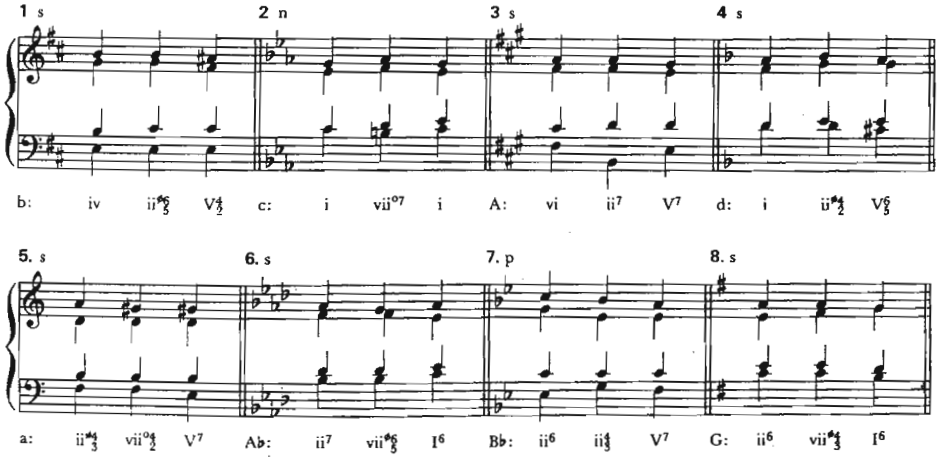



C: V$^7$ I V$^6_5$ $^7$ I ii$^7$ V$^7$ I

Textural reduction



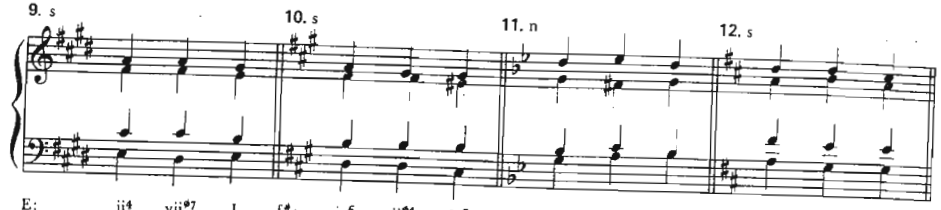
Part D, p. 237.




b: iv ii$^{\circ 6}_5$ V$^4_2$ c: i vii$^{\circ 7}$ i A: vi ii$^7$ V$^7$ d: i ii$^{\circ 4}_2$ V$^6_5$

a: ii$^{\circ 4}_3$ vii$^{\circ 4}_2$ V$^7$ A♭: ii$^7$ vii$^{\circ 6}_5$ I$^6$ B♭: ii$^6$ ii$^4_3$ V$^7$ G: ii$^6$ vii$^{\circ 4}_3$ I$^6$

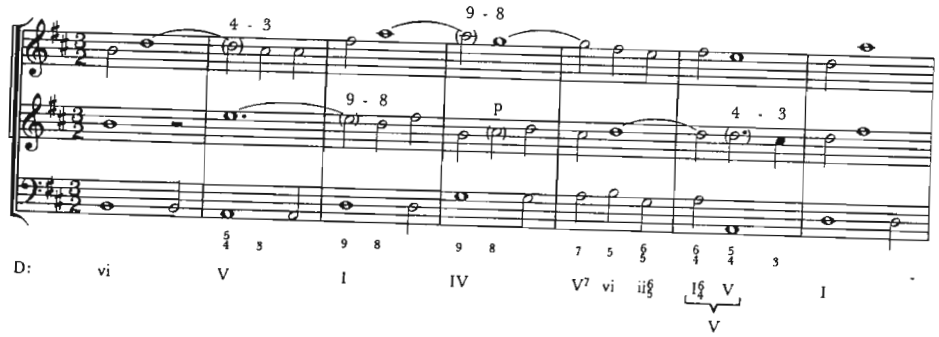





E: ii$^4_2$ vii$^{\circ 7}$ I f♯: iv$^6_5$ ii$^{\circ 4}_3$ V$^7$ g: i vii$^{\circ 6}_5$ i$^6$ D: I$^6_4$ ii$^6_5$ V$^4_2$

Part E, p. 238.

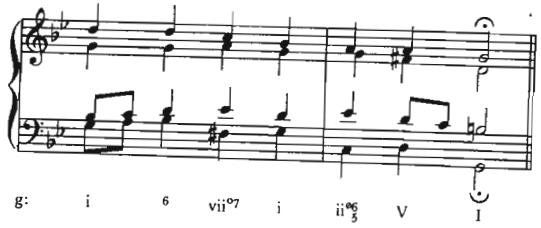
Corelli, Trio Sonata Op. 3, No. 2, II




D: vi V I IV V$^7$ vi ii$^6_5$ I$^6_4$ V I

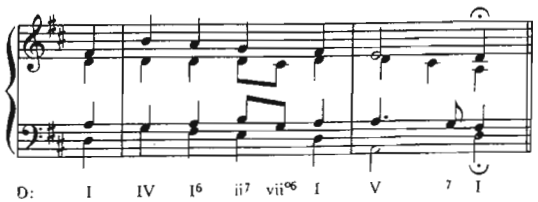
Part F, p. 238.

**1.** Bach, "Jesu, der du meine Seele"



g: i $^6$ vii$^{\circ 7}$ i ii$^{\circ 6}_5$ V I

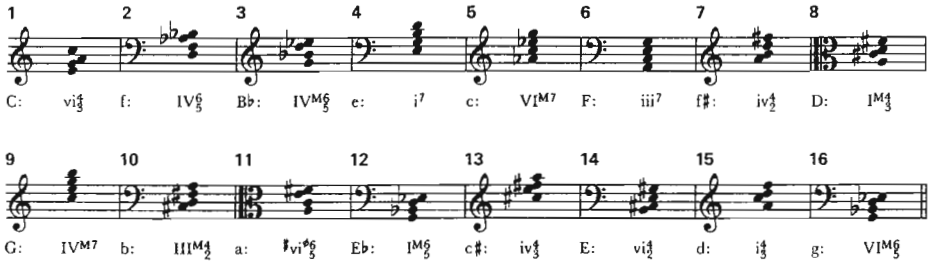
**2.** Bach, "Wie schön leuchtet der Morgenstern"




## CHAPTER 15

### *Self-Test 15-1*

Part A, p. 249.




Part B, p. 249.

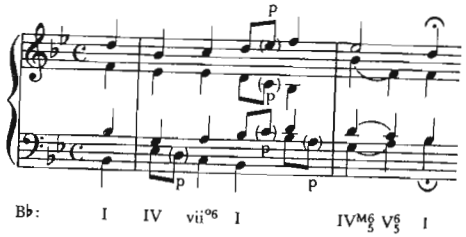
**1.** $III^{M6}_{5}$ **2.** $vi^{4}_{3}$ **3.** $iv^{7}$ **4.** $\sharp vi^{\varnothing 4}_{2}$ **5.** $I^{M4}_{2}$

**6.** $VI^{M4}_{3}$ **7.** $IV^{M6}_{5}$ **8.** $i^{4}_{2}$

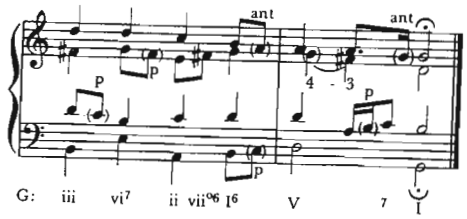


Part C, p. 249.

**1.** The alto and tenor parts cross, and the soprano is more than an octave from its nearest neighbor (all of this in the second half of the first measure). This certainly could have been avoided (you might try it yourself), but at the expense of the sweeping lines in the inner voices. The 7th of the $IV^{M6}_{5}$ is approached as a suspension.



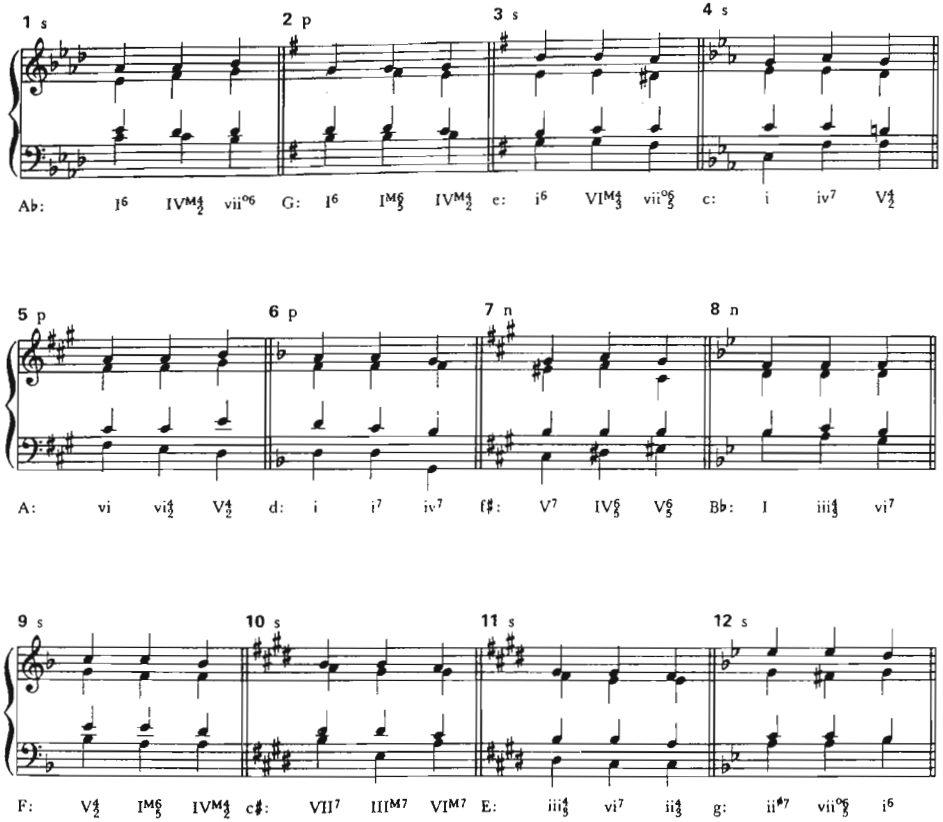

**2.** The 7th of the $vi^{7}$ is approached as a suspension. The resolution is slightly unusual in that the ii has a doubled 3rd. But if the tenor had gone to A3, the line would not have been as satisfactory, and parallel 5ths would have been formed with the alto.




**3.** Circle of fifths; 5th; it would proceed downward by step, one note per measure: F4-E♭4-D♭4-C4.

i $iv^{7}$ / $VII^{7}$ $III^{M7}$ / $VI^{M7}$ $ii^{\varnothing 7}$ / $V^{7}$ i

Part D, p. 250.

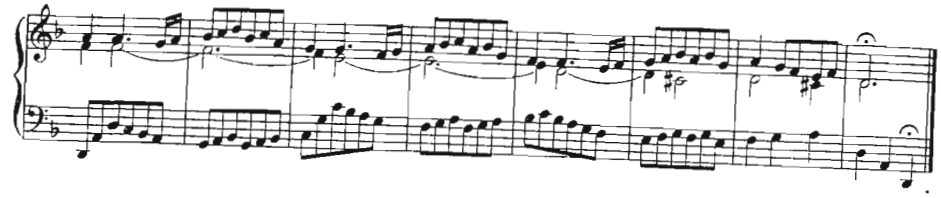





Part E, p. 251.

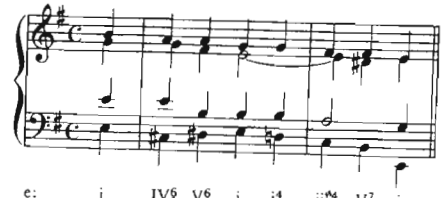
Notice the similarities between this excerpt and the one in Part C, no. 3.

Bach, French Suite No. 1, Minuet

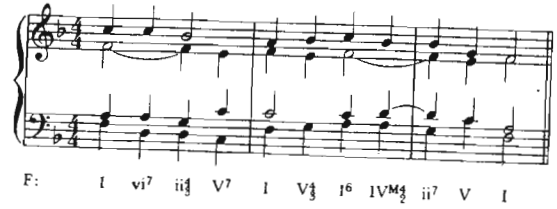


Part F, p. 251.

1.



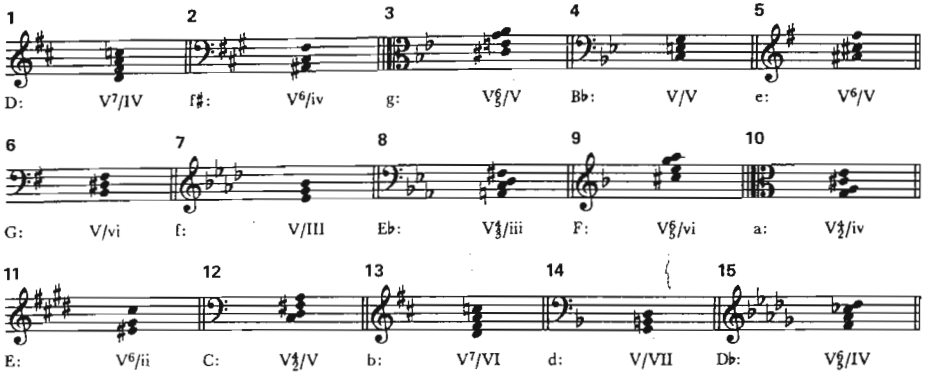

2.



## CHAPTER 16

### *Self-Test 16-1*

Part A, p. 259.



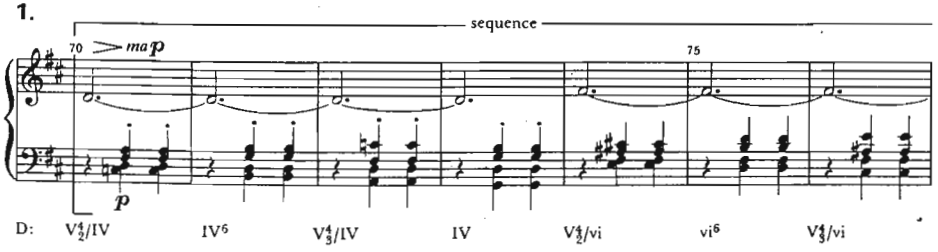

Part B, p. 260.

| | | | | |
|---|---|---|---|---|
| **1.** V6/ii | **2.** X | **3.** V4/2/V | **4.** X | **5.** V4/3/iv |
| **6.** V6/5/vi | **7.** V7/III | **8.** V/V | **9.** X | **10.** V4/2/IV |
| **11.** X | **12.** V4/3/VI | **13.** V6/iii | **14.** V7/iv | **15.** V4/3/V |

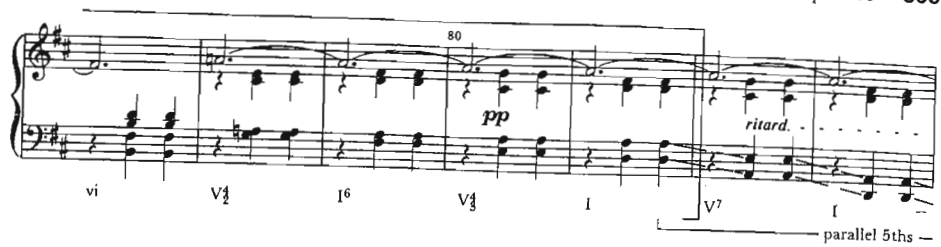
### *Self-Test 16-2*

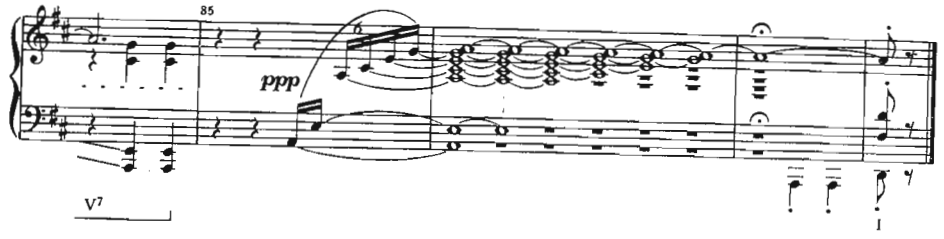
Part A, p. 265.

**1.**

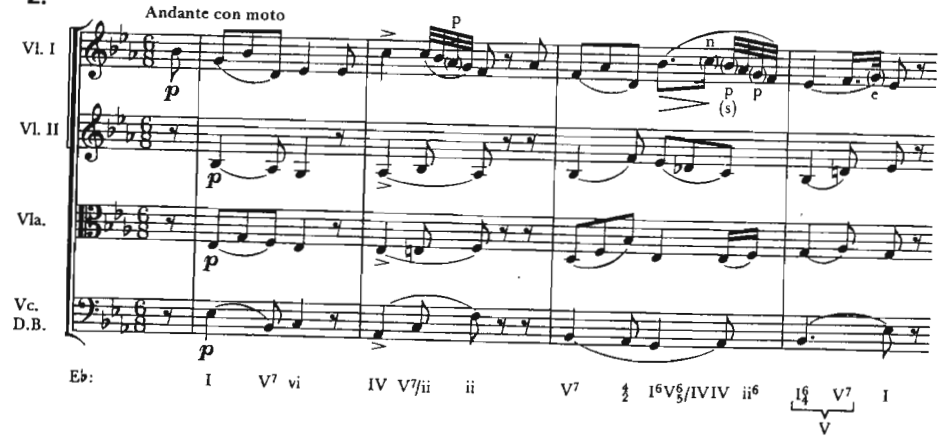




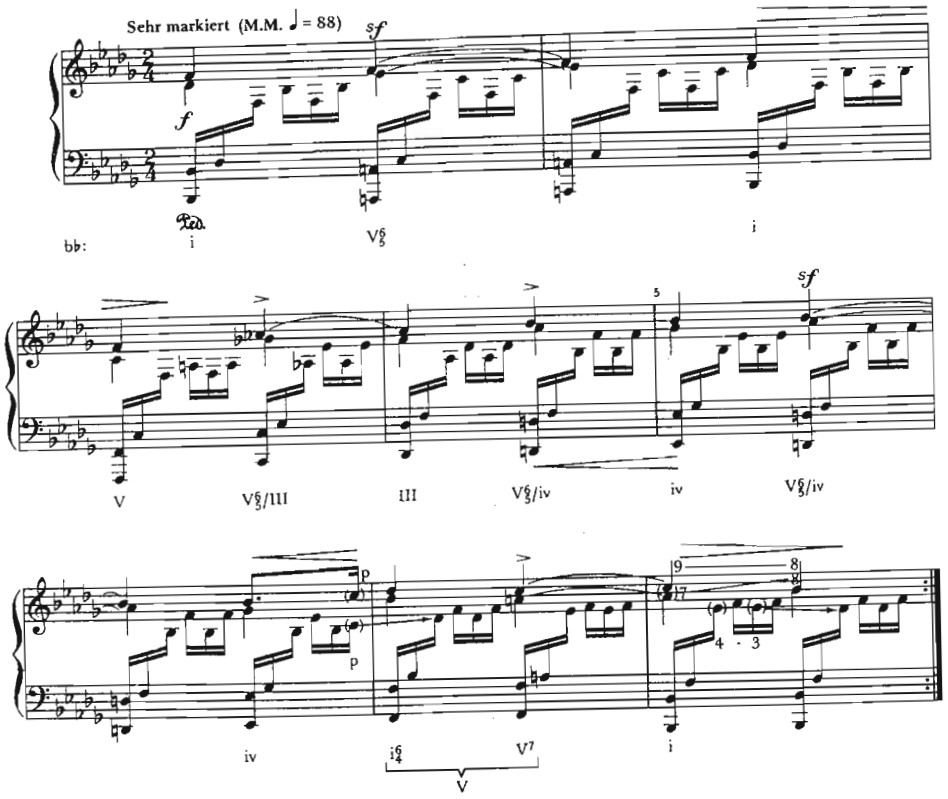




**2.**

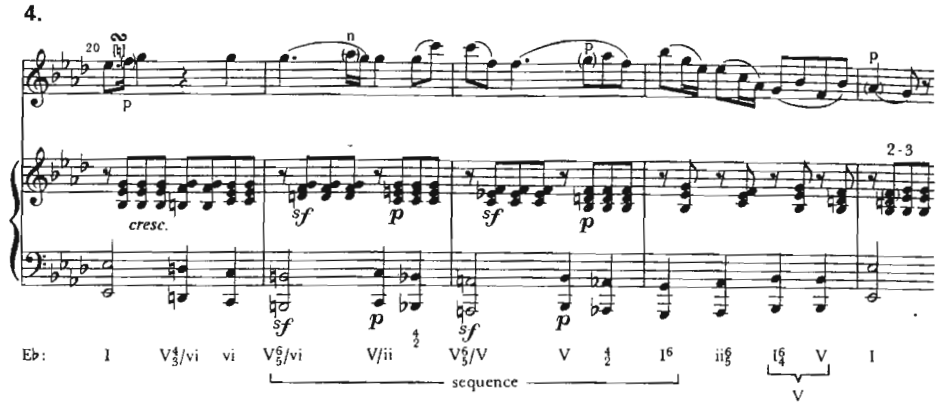


**3.** Mm. 1-2 return at a different pitch level in mm. 5-6. This is not really a sequence, since mm. 3-4 intervene. Counting from the bottom, parts 1 and 2 double at the octave. Part 4 doubles 7 (the melody) until the second half of m. 7. Other parallel octaves occur occasionally, as between parts 3 and 6 over the bar line from m. 2 to m. 3.

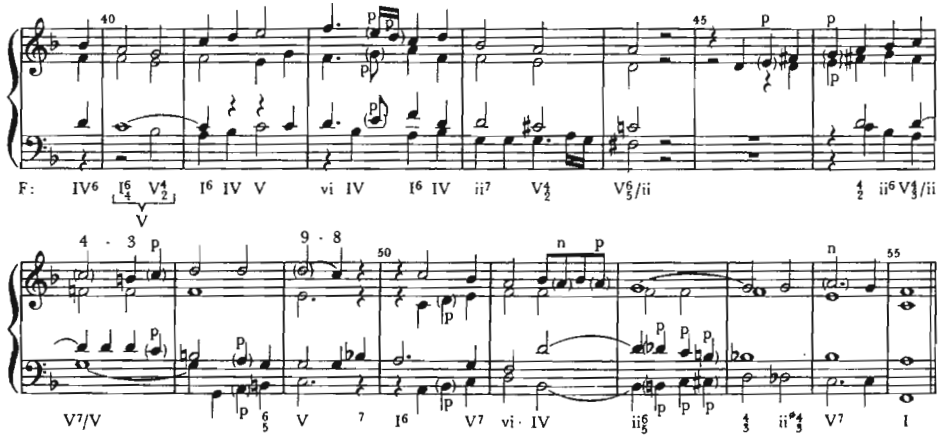




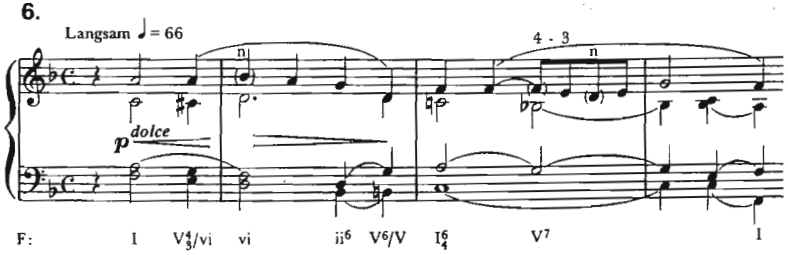

**4.**



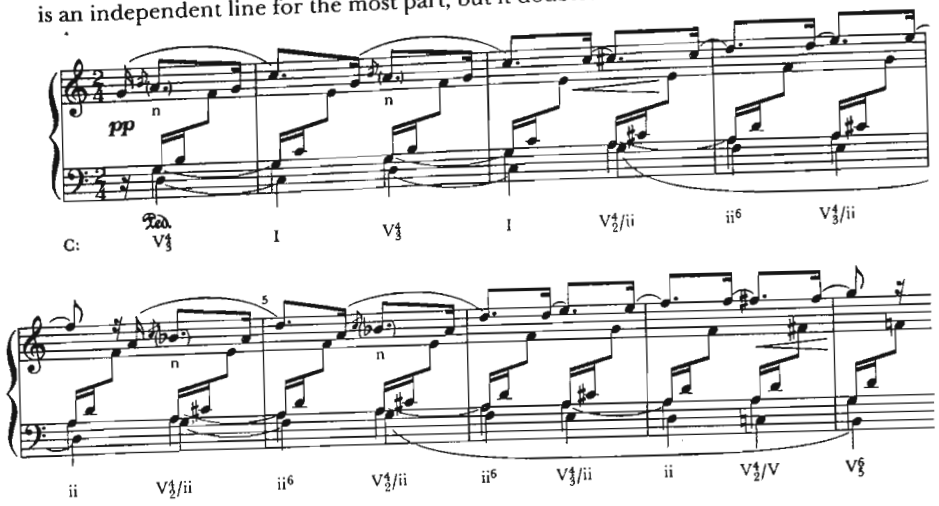

**5.**



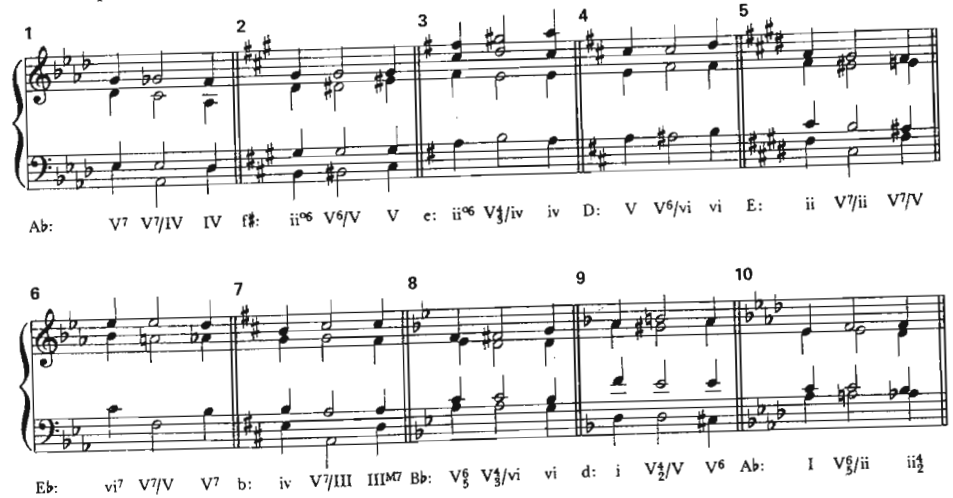

**6.**



**7.** Yes, the four accompanying parts follow conventional voice-leading principles. The melody is an independent line for the most part, but it doubles an inner voice in mm. 2-3.




Part B, p. 270.

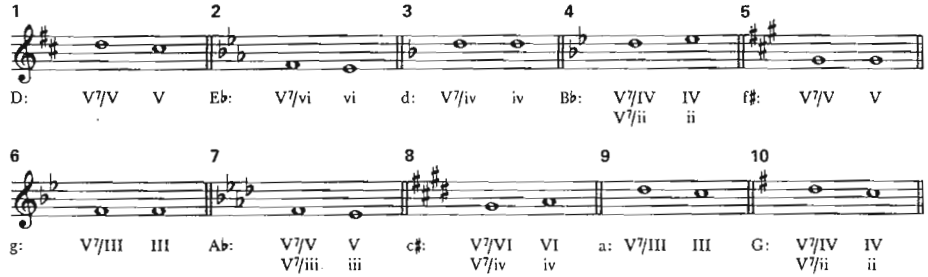





Part C, p. 270.

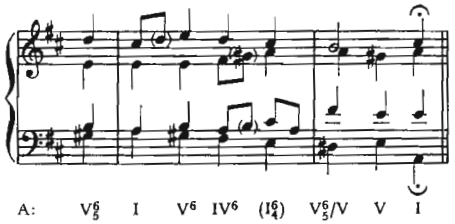
**1.** V(7)/V, V(7)/VII
**2.** V(7)/ii, V(7)/V, V7/iii
**3.** V(7)/V, V7/vi
**4.** V7/ii, V7/IV
**5.** V(7)/ii, V(7)/vi, V7/IV
**6.** V(7)/iii, V(7)/vi
**7.** V7/IV, V7/V
**8.** V(7)/III, V(7)/V
**9.** V(7)/III, V(7)/VII
**10.** V(7)/iv, V(7)/VII, V7/V

Part D, p. 271.

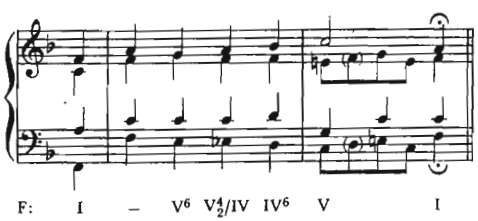



Part E, p. 271.

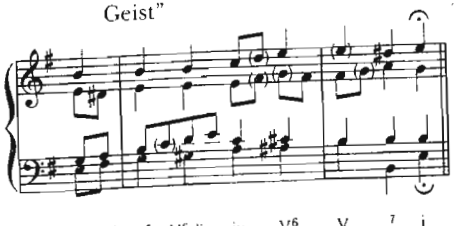
**1.** Bach, "Herzlich thut mich verlangen"



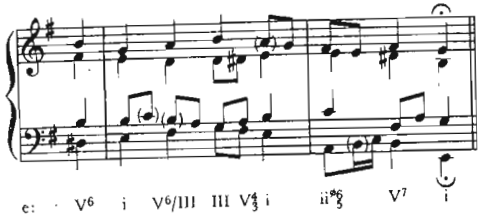

**2.** Bach, "Christus, der ist mein Leben"



**3.** Bach, "Ermuntre dich, mein schwacher Geist"

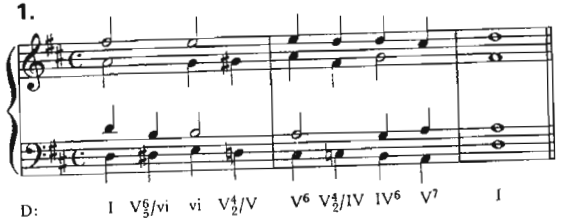



**4.** Bach, "Christ lag in Todesbanden"

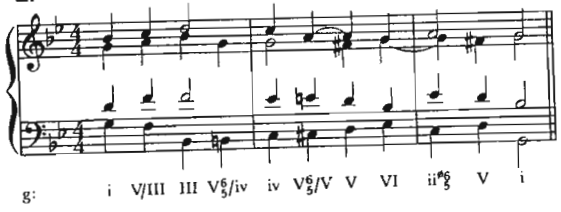



Part F, p. 272.

**1.**




**2.**

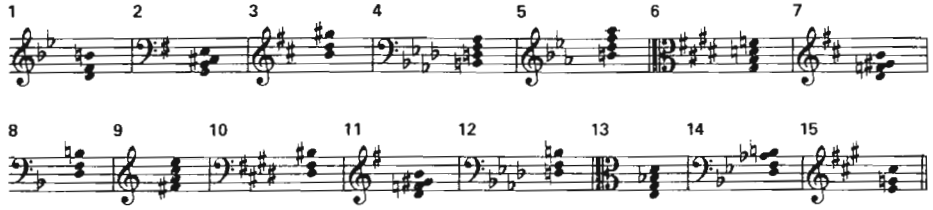





## CHAPTER 17

### *Self-Test 17-1*

Part A, p. 276.



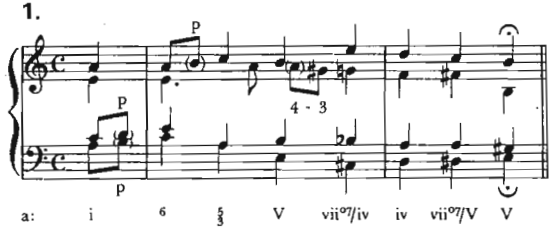

Part B, p. 276.

| | | | | |
|---|---|---|---|---|
| **1.** vii°7/vi | **2.** X | **3.** vii°6/VI | **4.** vii°6/5/IV | **5.** vii°7/VII |
| **6.** X | **7.** vii°7/III | **8.** X | **9.** vii°7/ii | **10.** vii°6/5/V |
| **11.** vii°4/3/V | **12.** X | **13.** vii°6/iv | **14.** vii°6/V | **15.** X |

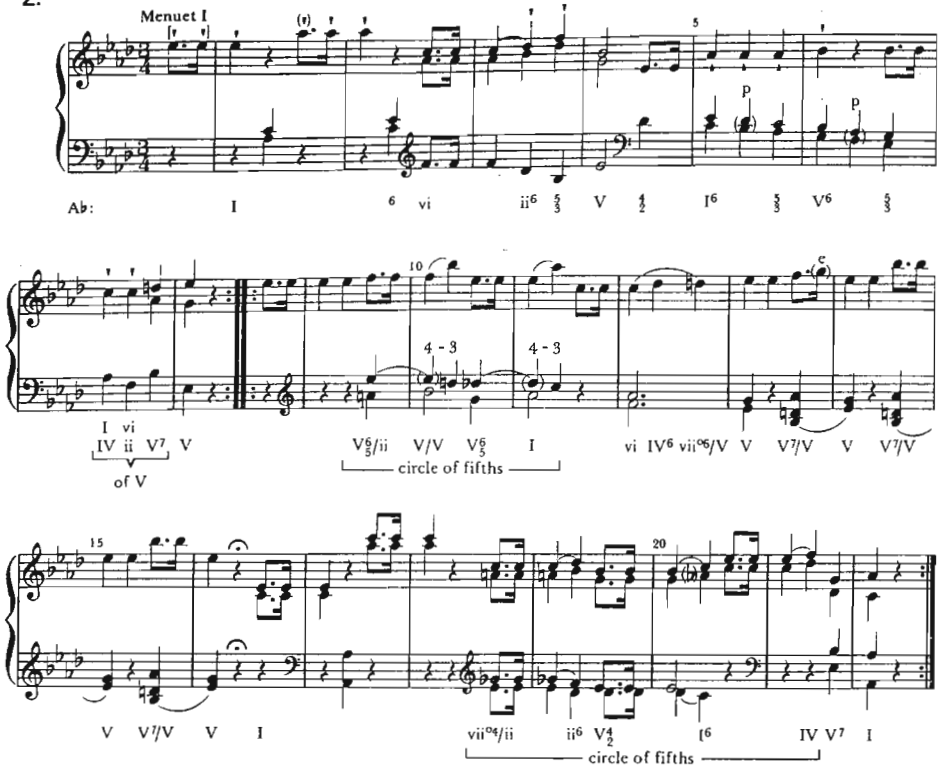
### *Self-Test 17-2*

Part A, p. 292.

**1.**



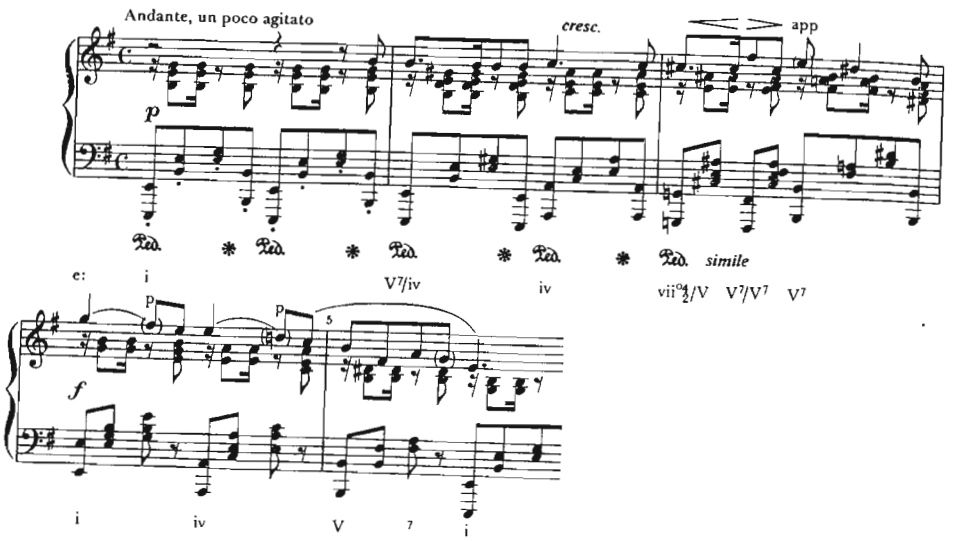
**2.**



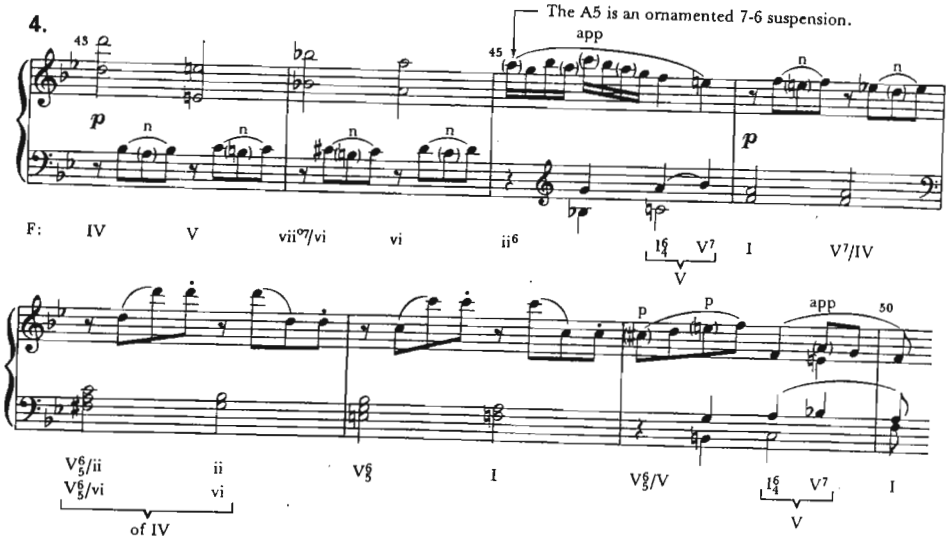

**3.** The G4 might be heard as part of an incomplete passing tone figure (A-G-F♯-E, with the F♯ omitted) or as an escape tone from the F♯4 that occurred a beat earlier (as F♯-G-E).



**3.**

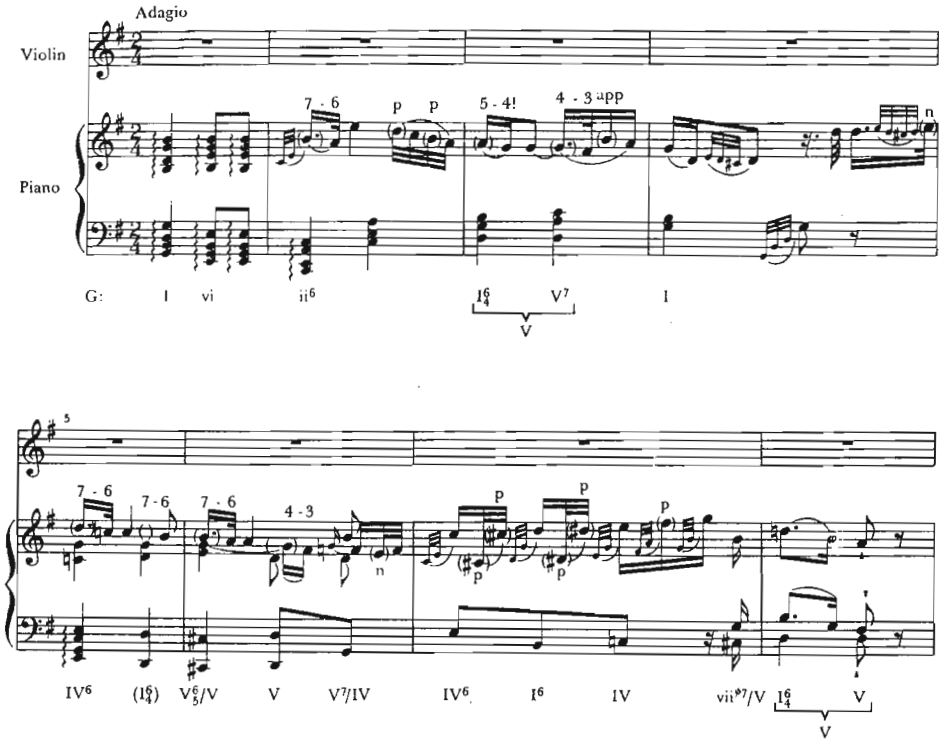



**4.**



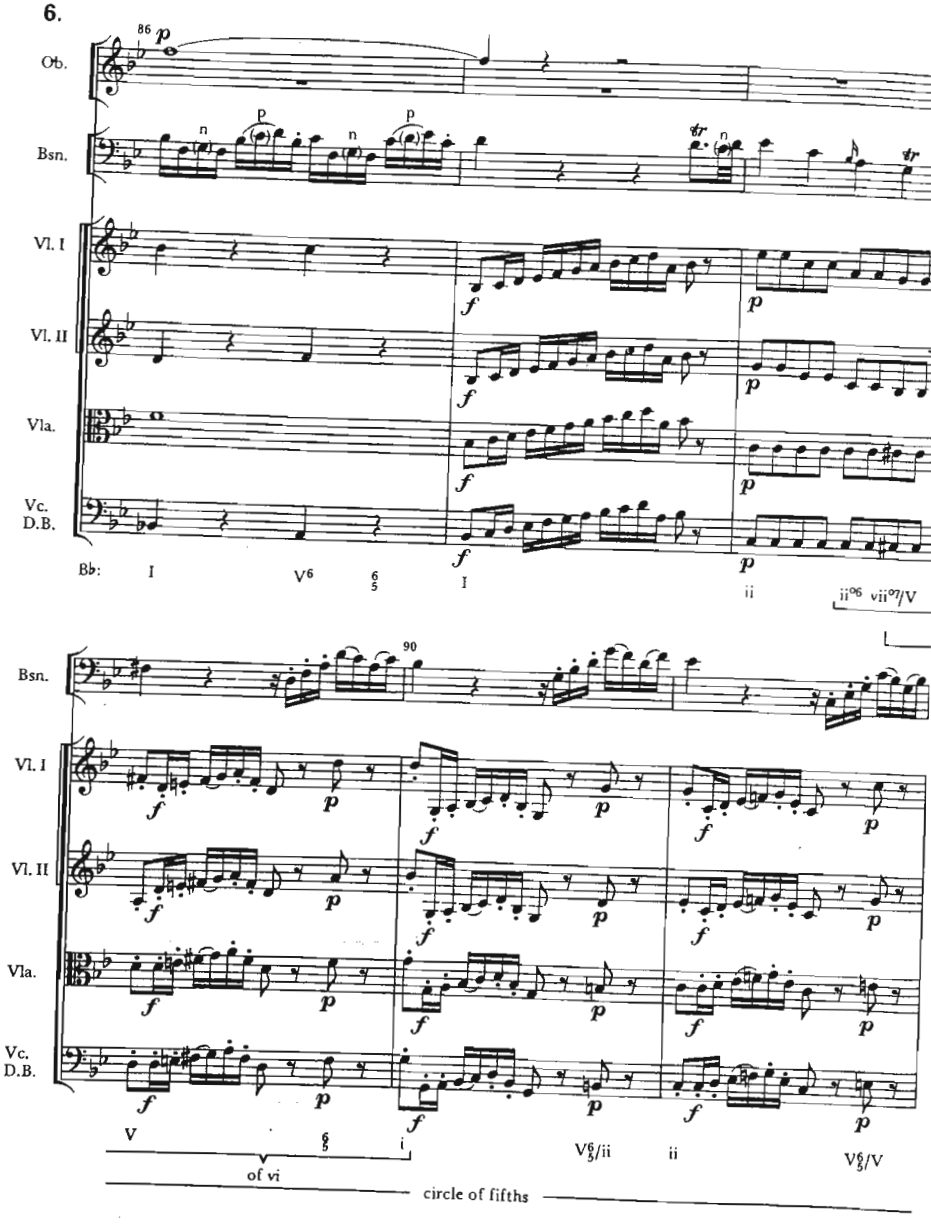
**5.** The excerpt is not a period, because the second cadence is not more conclusive than the first. The first cadence (m. 4) is a PAC, while the second (m. 8) is a HC.

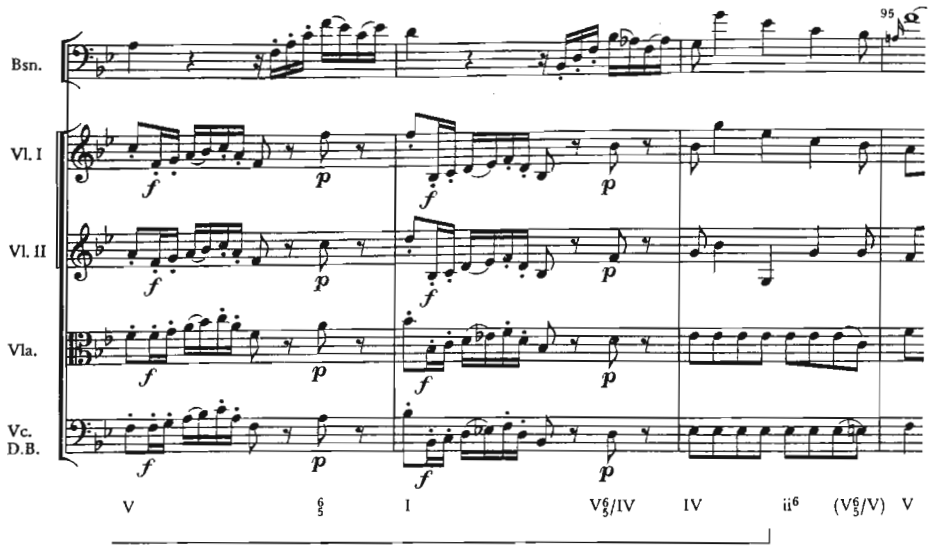
The 5-4 suspension is marked with an exclamation point because it involves a note that is consonant with the bass resolving to one that is dissonant with the bass, exactly the reverse of the commonly accepted definition of a suspension.



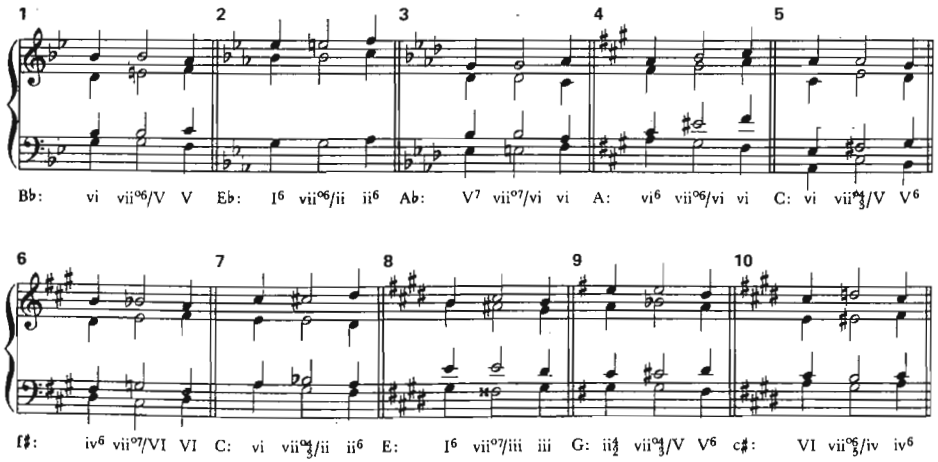



**6.**





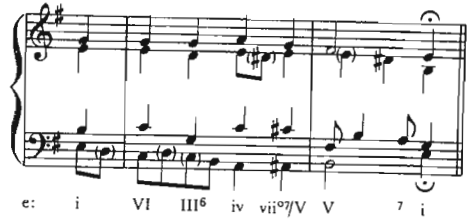

Part B, p. 297.



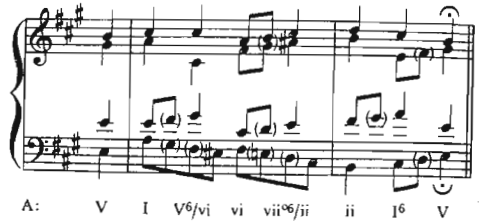



Part C, p. 298.

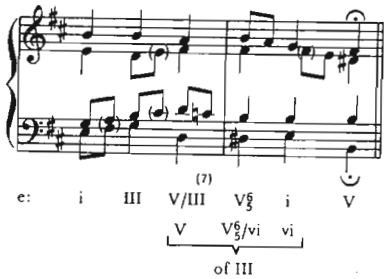
**1.** Bach, "Du grosser Schmerzensmann"



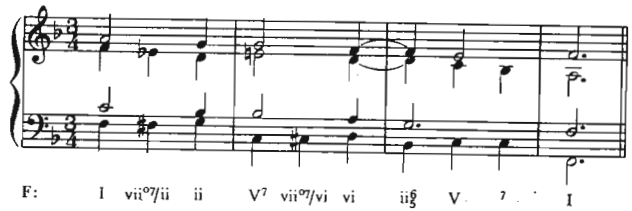

**2.** Bach, "Ach, Gott, wie manches Herzeleid"

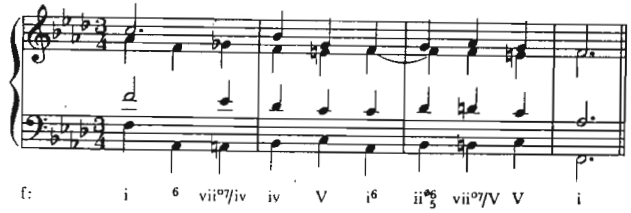



**3.** Bach, "Ein' feste Burg ist unser Gott"




Part D, p. 298.



## CHAPTER 18

### *Self-Test 18-1*

Part A, p. 304.

**1.** b **2.** D♭ **3.** A **4.** a♭ **5.** d
**6.** F♯ **7.** c♯ **8.** A♭ **9.** c **10.** B

Part B, p. 304.

**1.** c, d, E♭, F, g
**2.** e♭, f, G♭, A♭, b♭
**3.** E♭, f, g, A♭, B♭
**4.** C♯, d♯, e♯, F♯, G♯
**5.** E, f♯, g♯, A, B
**6.** b, c♯, D, E, f♯

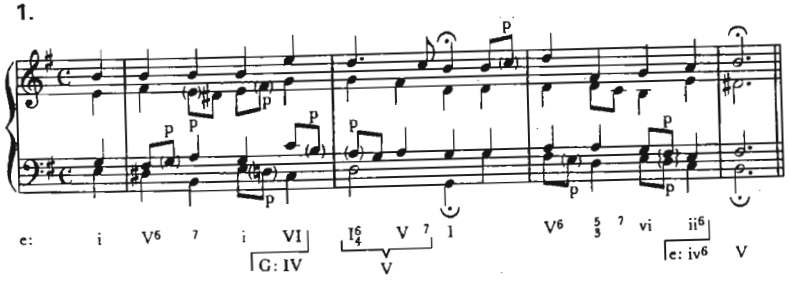
Part C, p. 304.

**1.** foreign
**2.** closely related
**3.** enharmonic
**4.** closely related
**5.** relative and closely related
**6.** closely related
**7.** parallel
**8.** foreign
**9.** relative and closely related
**10.** foreign

### *Self-Test 18-2*

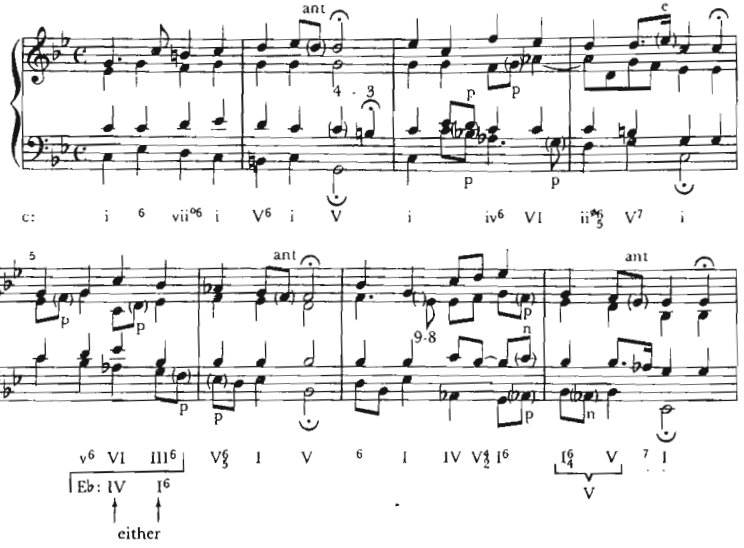
Part A, p. 311.

**1.**

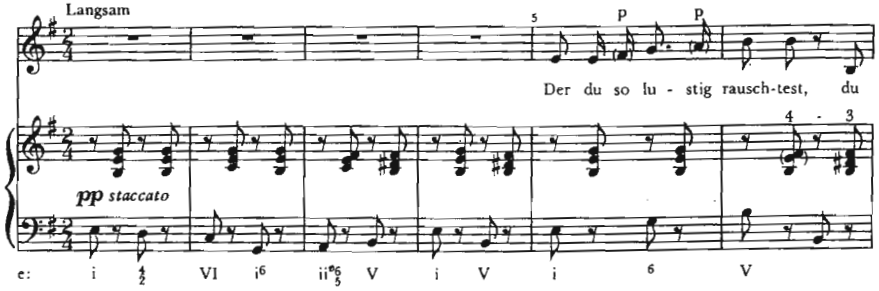


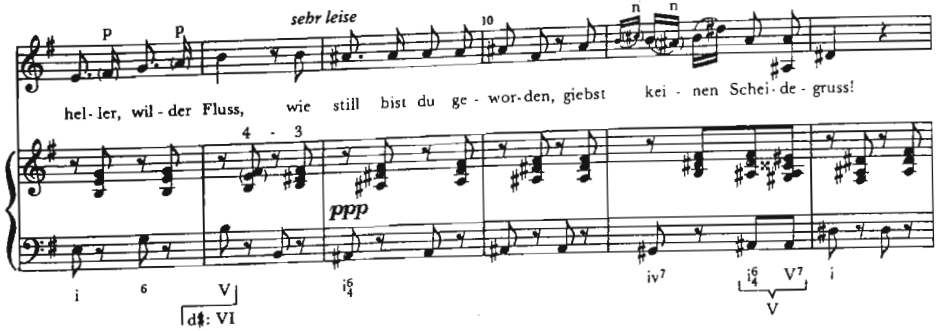



**2.** If the last chord in m. 7 were a $ii^6_5$, the 7th (E5) would resolve by step.

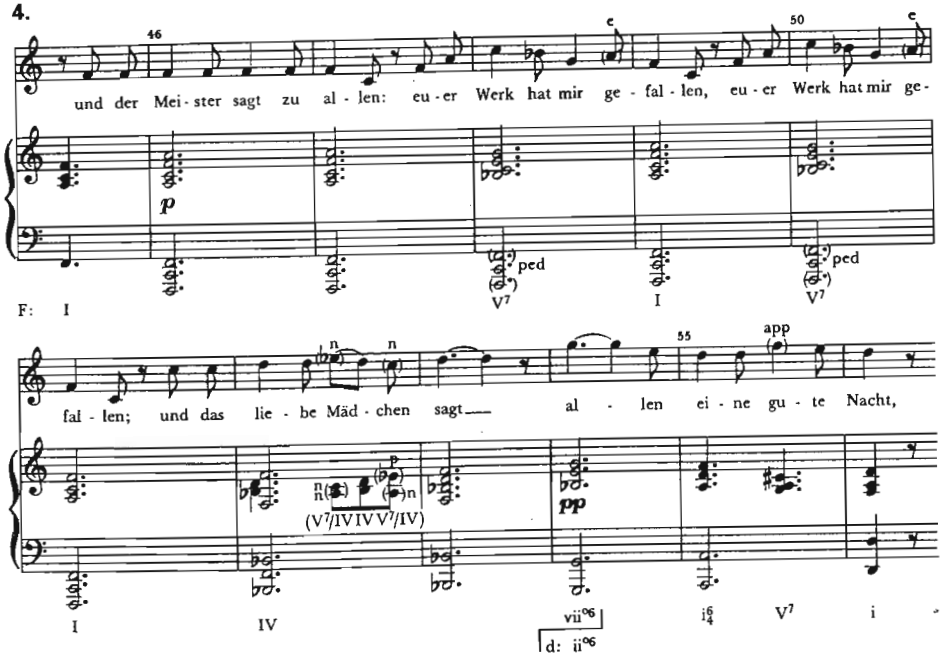



**3.**



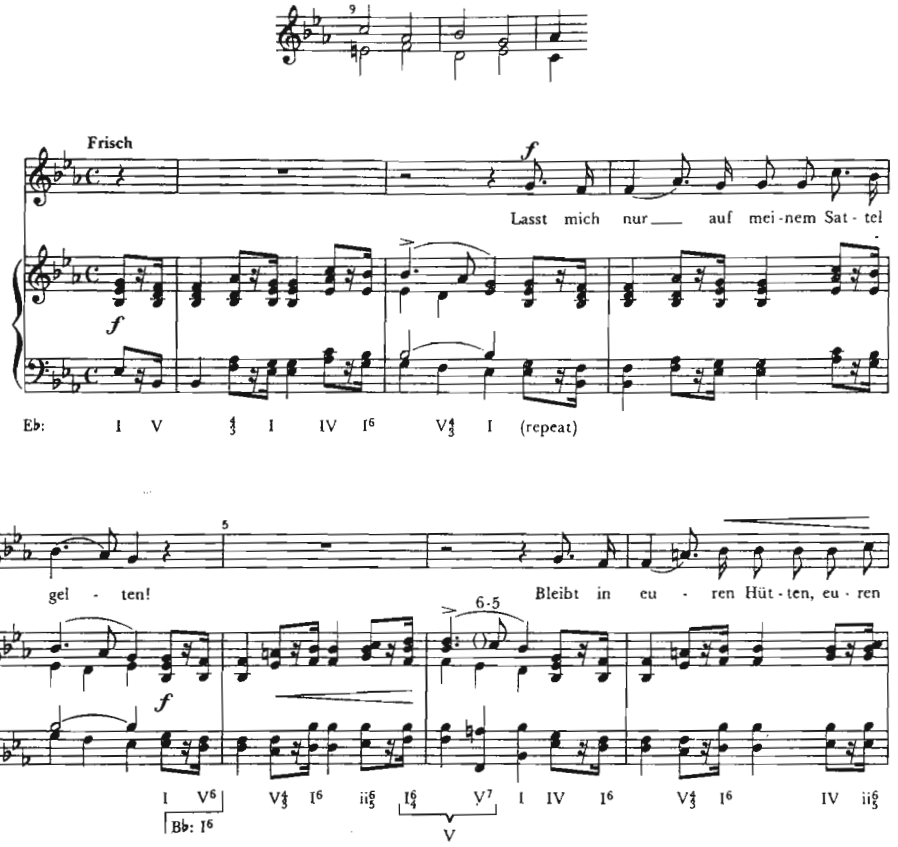


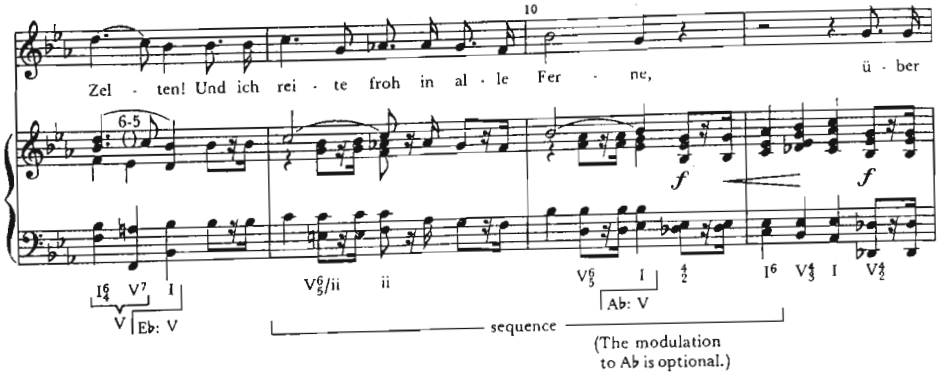

**4.**

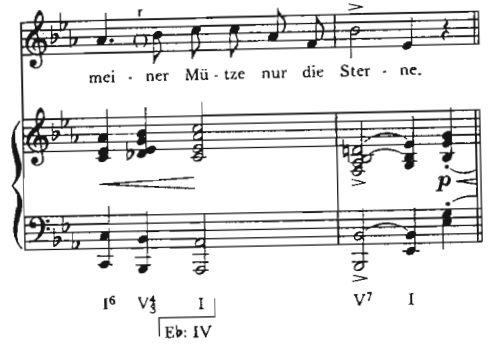





**5.** The outer voices in the sequence in mm. 9-11 could be heard as an elaboration of this pattern.







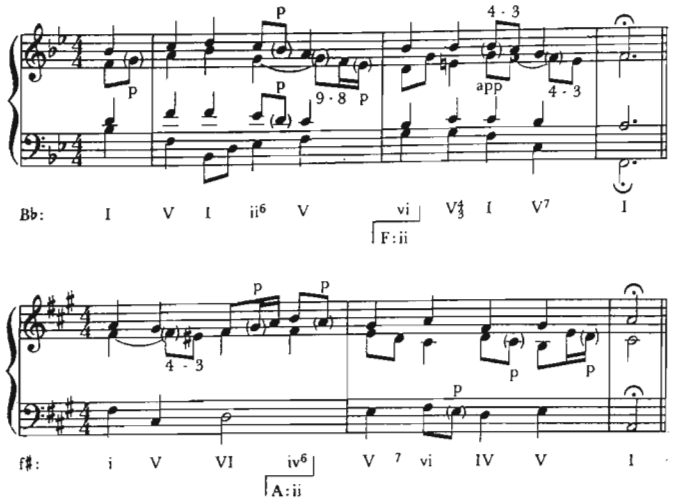

Part B, p. 315.

**1.** F **2.** A **3.** a **4.** f♯ **5.** A♭

Part C, p. 315.

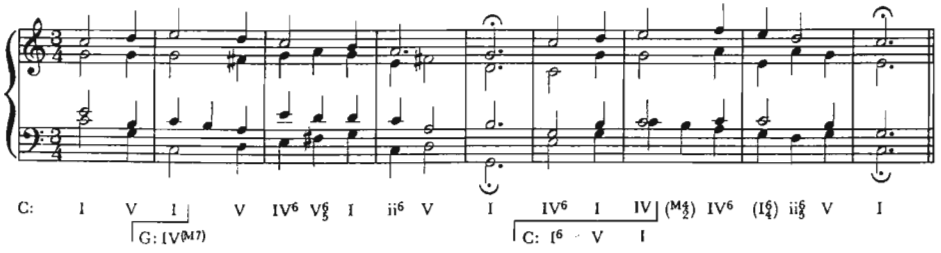
| | | | | | |
|---|---|---|---|---|---|
| **1.** First key, A♭: | I | ii | IV | vi | |
| Triads: | A♭ | b♭ | D♭ | f | |
| Second key, D♭: | V | vi | I | iii | |
| **2.** First key, c: | iv | VI | | | |
| Triads: | f | A♭ | | | |
| Second key, f: | i | III | | | |
| **3.** First key, a: | i | III | iv | VI | |
| Triads: | a | C | d | F | |
| Second key, F: | iii | V | vi | I | |
| **4.** First key, G: | I | iii | V | vi | |
| Triads: | G | b | D | e | |
| Second key, D: | IV | vi | I | ii | |
| **5.** First key, c♯: | i | ii° | III | iv | VI |
| Triads: | c♯ | d♯° | E | f♯ | A |
| Second key, E: | vi | vii° | I | ii | IV |
| **6.** First key, D: | I | iii | V | vi | |
| Triads: | D | f♯ | A | b | |
| Second key, f♯: | VI | i | III | iv | |

Part D, p. 316.



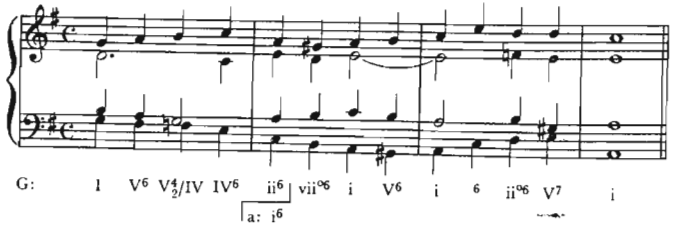

Part E, p. 316.

Bach, "Freu' dich sehr, o meine Seele"






Part F, p. 316.

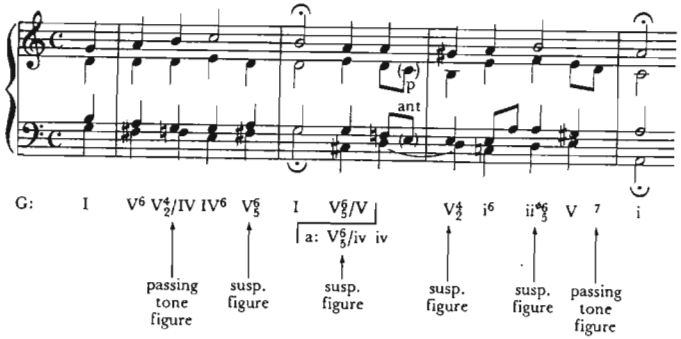



## CHAPTER 19

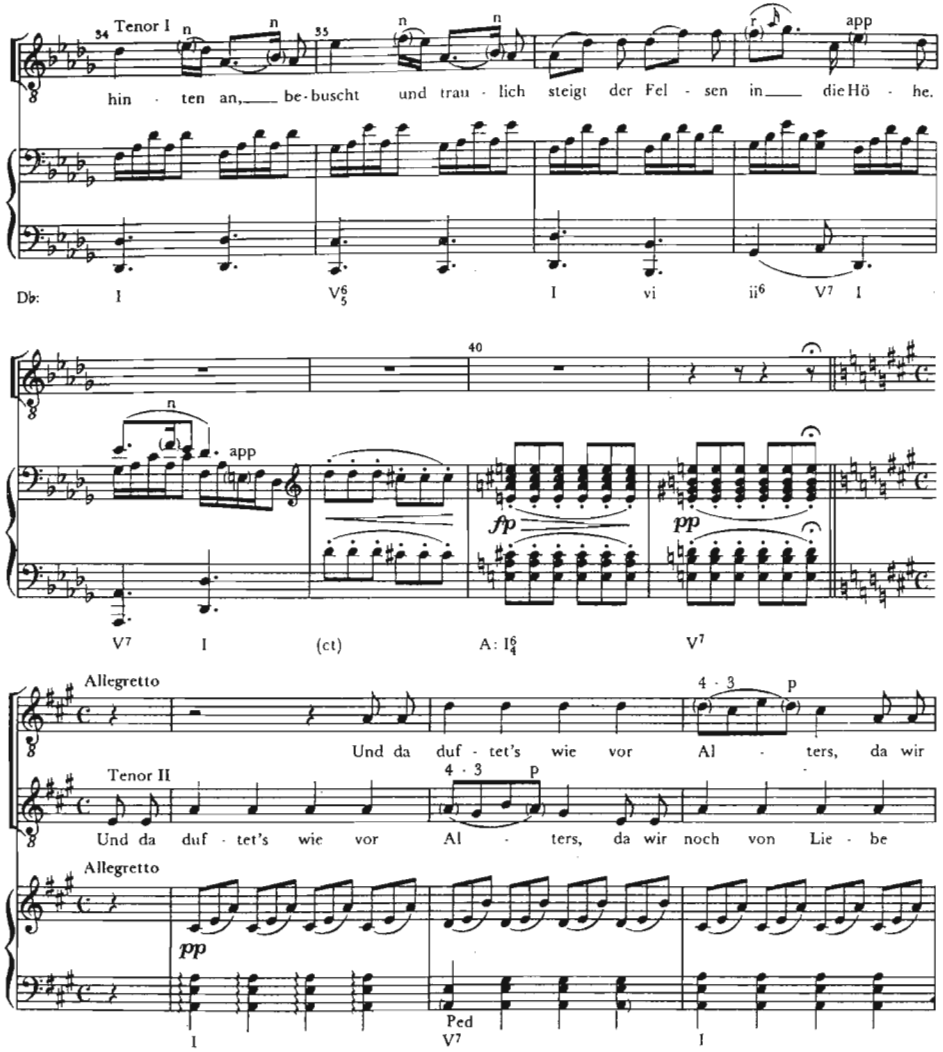
### *Self-Test 19-1*

Part A, p. 329.

**1.** This modulation might also be analyzed as a phrase modulation.

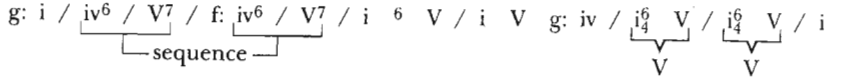


**2.** Yes, D♭ major and A major are in a chromatic mediant relationship, but it is enharmonically spelled (compare C♯-A). The modulation is effected through a common tone, also enharmonically spelled.



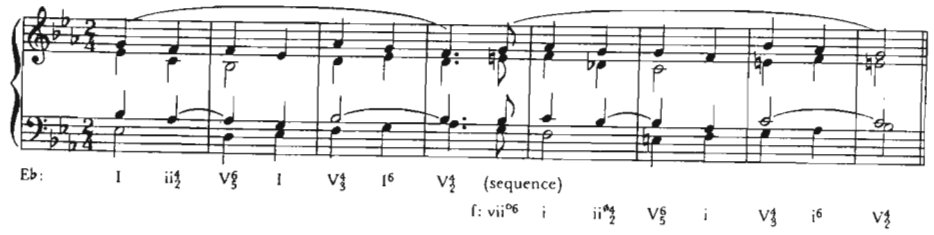



**3.** The modulation from g minor to f minor is sequential. The modulation back to g minor is a direct modulation.



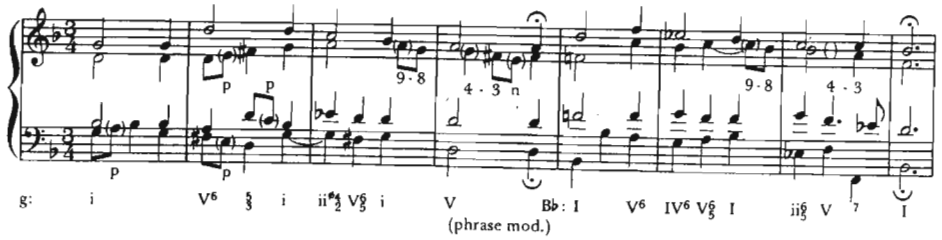

**4.** The two keys are G major and E♭ major. A monophonic modulation is accomplished in mm. 121-123. The relationship between G and E♭ could be described in at least two ways. For one, there is a chromatic mediant relationship between the two keys. Also, E♭ is VI in g minor, the parallel minor of G major.

Part B, p. 333.




Part C, p. 334.

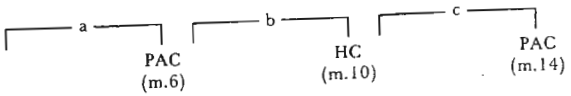
Bach, "Hilf, Herr Jesu, lass gelingen"



## CHAPTER 20

### *Self-Test 20-1*

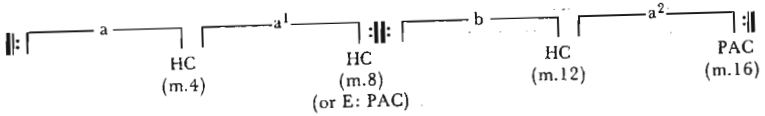
Part A, p. 348.




Or b and c could be considered one phrase. Either way, the form is sectional binary, unless you wish to use the term *phrase group* (review p. 168).

Part B, p. 348.

Two-reprise continuous rounded binary.




**1.** The first G4 is the 7th of a V7/IV. The other is part of a 4-3 suspension.

**2.** End of m. 6: A: I = E: IV

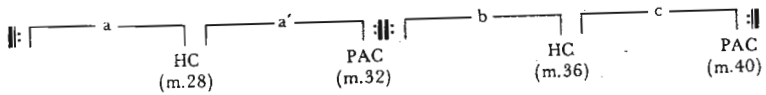
**3.** The melodic figures resemble the opening motive (leap up, stepwise down), while the bass line is related to the first two bass notes.

**4.** m. 7, beat 3.

**5.** m. 7, beat 4 to m. 8, soprano and bass.

Part C, p. 349.

Two-reprise sectional binary.




**1.** The first violins (or the melody) at the octave.

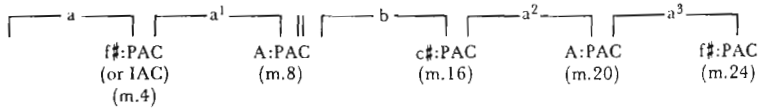
**2.** Part of a vii°6/V.

**3.** In mm. 4-5, perhaps explainable as occurring between phrases.



Part D, p. 351.

Continuous ternary.




**1.** Schumann moves from i to the relative major (III) to the minor dominant (v), and then back the same way (III, then i). The tonicized pitch classes arpeggiate the tonic triad: F♯-A-C♯-A-F♯.

**2.** A: vii°7/ii / ii / $V_3^4$/V V7 / I / f♯: i V / VIM7 iv7 / $i_4^6$ V7 / i / /

V

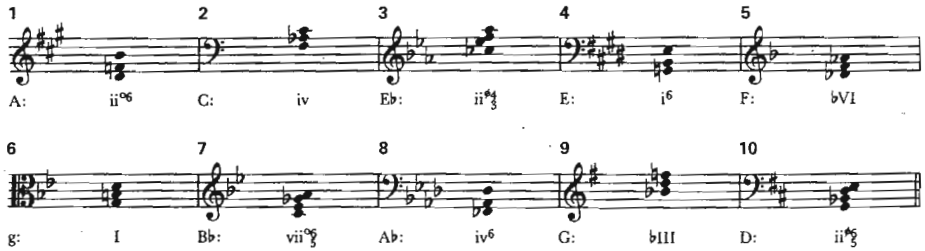
**3.** In mm. 21-22, V-VIM7, there are parallel 5ths between the bass and tenor. They are hidden by the anticipation (A3) in the tenor.

**4.** The double bar after m. 8.

## CHAPTER 21

### *Self-Test 21-1*

Part A, p. 364.

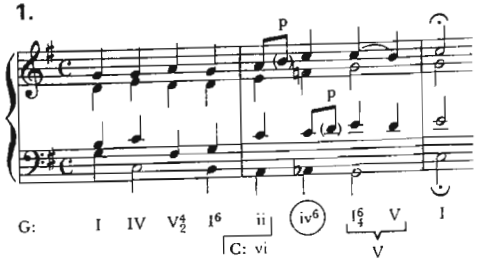



Part B, p. 365.

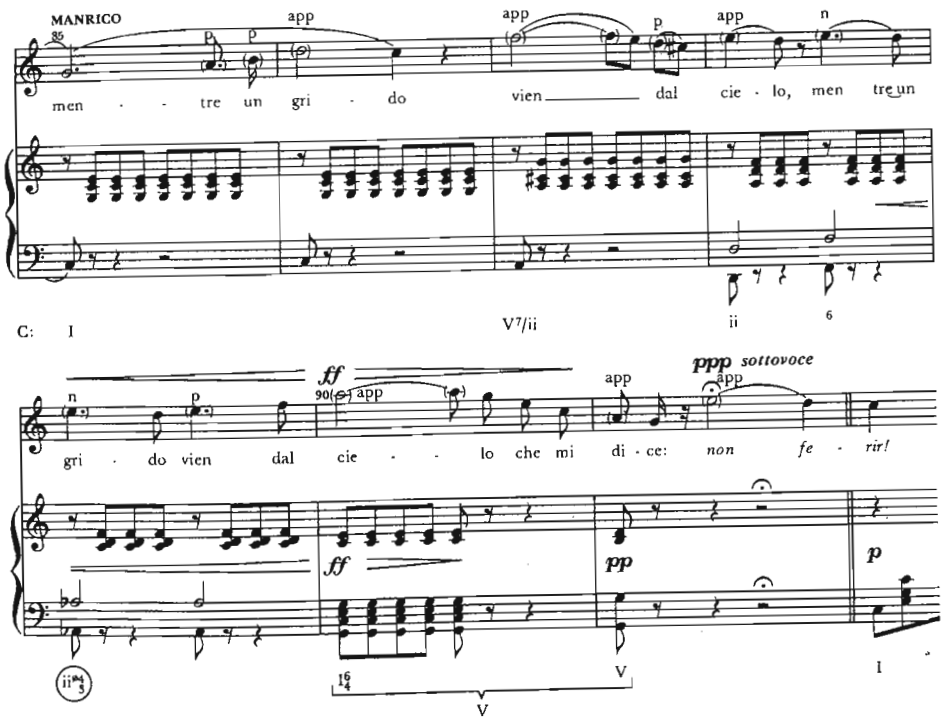
| | | | | |
|---|---|---|---|---|
| **1.** ii°6 | **2.** iv6 | **3.** $vii^{o4}_3$ | **4.** i | **5.** ♭VI |
| **6.** I | **7.** $vii^{o6}_5$ | **8.** ♭III | **9.** $ii^{\varnothing 4}_2$ | **10.** iv |

Part C, p. 365.

**1.**




**2.**






**3.** The flutes double the violas in mm. 47-51.

A: V $V^4_2$/ii / $ii^6$ / $V^4_2$ $I^6$ / $IV^{M4}_2$ ii ♭VI$^6$ / $V^6_5$ I $ii^6$ $V^7$ / vi $V^6_5$/V / $V^7$ / I /
*or*
$vii^{o6}$

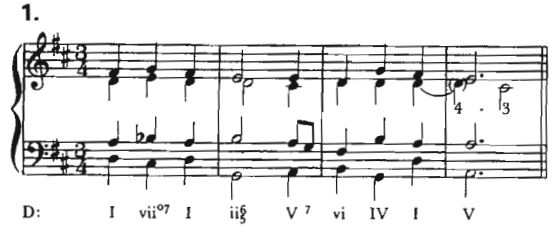
**4.** Mm. 5 and 6 contain diminished seventh chords. Both contain a °5 and a +4, and in both cases the tendency of the °5 to resolve inward and of the +4 to resolve outward is followed. The chords of resolution then have doubled 3rds.

B♭: $I^6$ / $V^4_2$ / $I^6$ V / I / $vii^{o7}$/ii ii / vii$^{o7}$ I / IV $V^6$/V / V

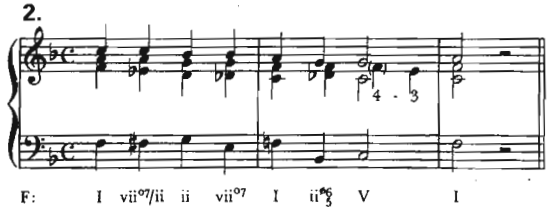
**5.** The first modulation is from a♭ minor to its relative major, C♭, by means of the common chord in m. 5 (a♭: i = C♭: vi). A change of mode to c♭ minor follows in m. 9, notated as · b minor. This change of mode simplifies the second modulation, from c♭/b to its relative major, E♭♭/D, through the common chord in m. 14 (b: iv = D: ii).

Part D, p. 370.

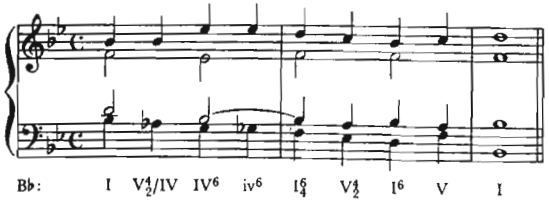
**1.**




**2.**




Part E, p. 371.



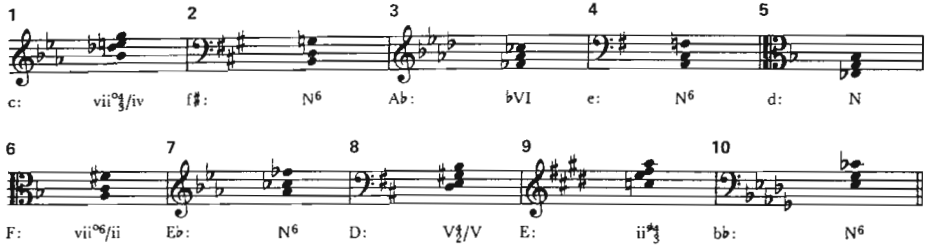
## CHAPTER 22

### *Self-Test 22-1*

Part A, p. 378.

**1.** ii$^{o6}$ **2.** vii$^{\varnothing 7}$/IV **3.** vii$^{o7}$/ii **4.** N$^6$ **5.** N$^6$
**6.** N$^6$ **7.** N **8.** iv$^6$ **9.** V$^6_5$/V **10.** N

Part B, p. 379.




Part C, p. 379.

**1.** d: vii$^{o6}_5$ / i$^6$ V$^6_5$/iv / N$^6$ vii$^{o7}$/V / i$^6_4$ V i$^6_4$ V$^7$ i$^6_4$ / V / /

*or*
VI$^6$/iv

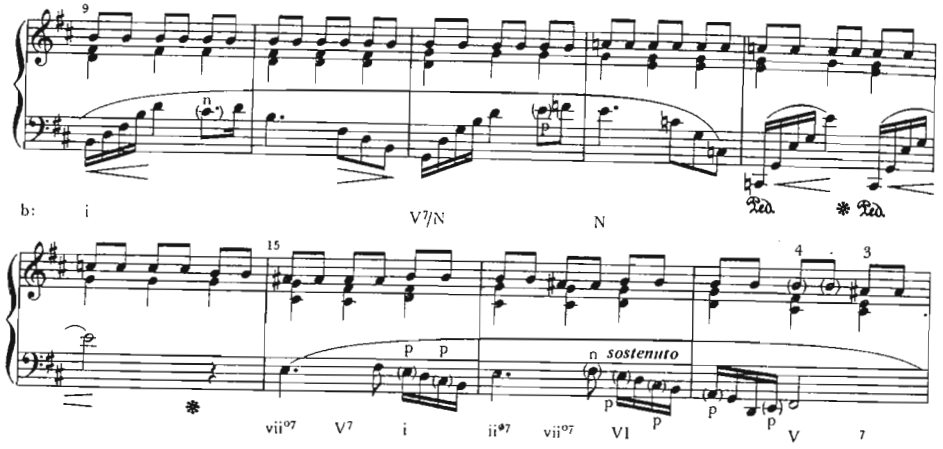
**2. a.** c♯: / i iv$^6_4$ / i / V$^7$ i$^6_4$ /
V$^7$ i$^6_4$ V$^4_2$ / i$^6$ / N$^6$ / i$^6_4$ V$^7$ / i /

**b.** The first three $\frac{6}{4}$ chords are pedal $\frac{6}{4}$ chords. The fourth one is a cadential $\frac{6}{4}$.

**c.** The form is a period. Most listeners would probably call it a parallel period, even though only first four notes of the two phrases are similar.



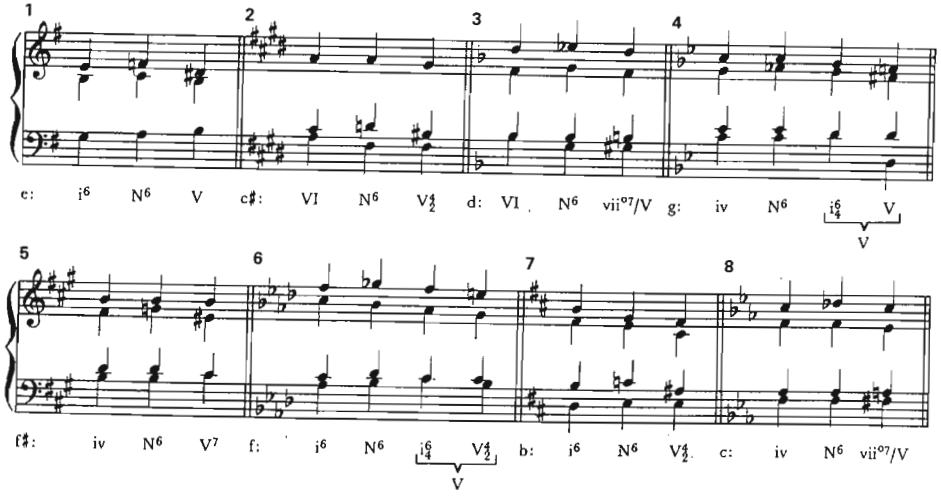
**3.**



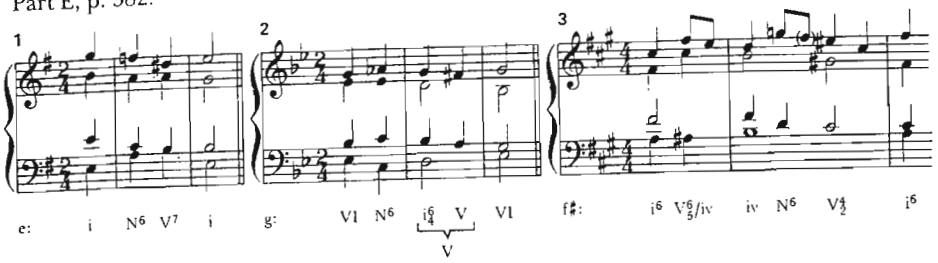

**4.** Notice that the excerpt begins with a long circle-of-fifths sequence.

a: i$^6$ iv / VII$^6$ III / VI$^6$ ii$^o$ / $^{40}$V$^6$ i / N$^6$
F: IV$^6$ V$^7$ / I / V$^4_3$ I / IV$^6_4$ I / $^{45}$V$^6_5$ I /

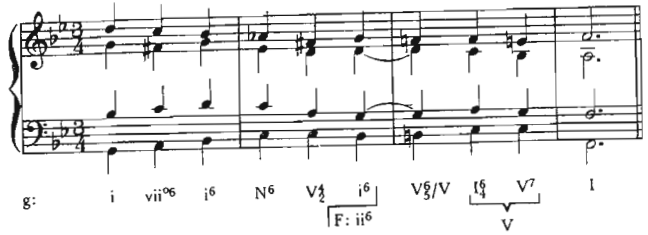
Part D, p. 382.



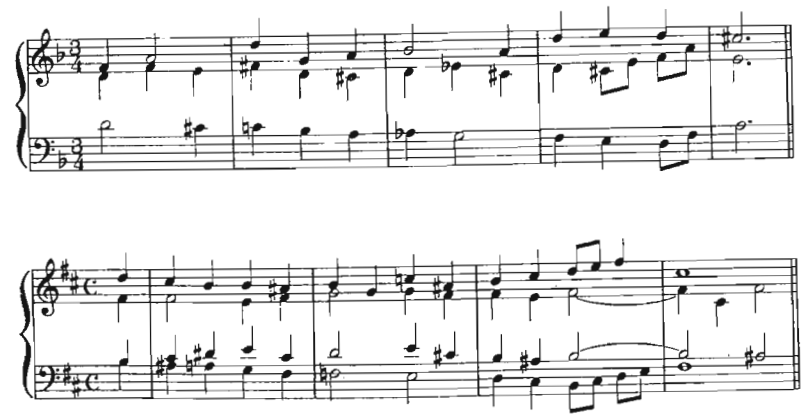
Part E, p. 382.




Part F, p. 383.




Part G, p. 383.





## CHAPTER 23

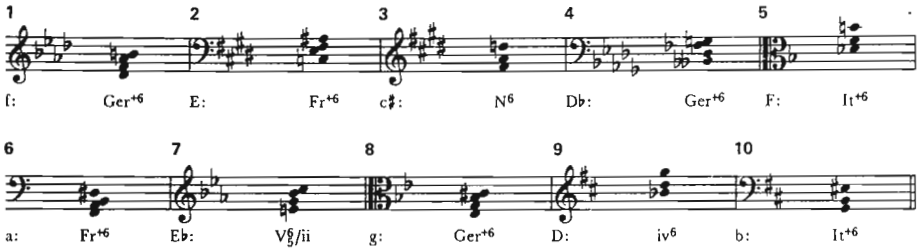
### *Self-Test 23-1*

Part A, p. 394.

**1.** Ger$^{+6}$ **2.** Fr$^{+6}$ **3.** vii$^{o6}$/V **4.** Ger$^{+6}$ **5.** vii$^{o4}_{2}$

**6.** It$^{+6}$ **7.** Fr$^{+6}$ **8.** ii$^{ø4}_{3}$ **9.** iv$^{6}_{5}$ **10.** It$^{+6}$

Part B, p. 394.




Part C, p. 395.

**1.** The resolution of the Fr$^{+6}$ is ornamented with a 4-3 suspension in the second violin. The ♭$\hat{6}$ and ♯$\hat{4}$ expand to an 8ve on $\hat{5}$.

B: I / ii$^{6}$ / V $^{7}$ / I / V$^{6}$
F♯: I$^{6}$ V$^{6}_{5}$ / I IV$^{6}$ Fr$^{+6}$ / V / I /

**2.** The ♭$\hat{6}$ and ♯$\hat{4}$ expand to an 8ve on $\hat{5}$. Parallel 5ths are avoided by resolving to a i$^{6}_{4}$ chord.

b: i / i$^{4}_{2}$ / Ger$^{+6}$ i$^{6}_{4}$ / V$^{4}_{2}$/N N$^{6}$ /
V$^{4}_{2}$ i$^{6}$ / ii$^{ø7}$ V$^{7}$ / i

**3.** The chromatic passing tone occurs at the beginning of m. 6 in the first violin. In both Ger$^{+6}$ chords the viola has the 5th above the bass. The parallels are avoided in the first instance by leaping up to $\tilde{5}$. In the second Ger$^{+6}$ the parallels are disguised by means of a 6-5 suspension. In the first Ger$^{+6}$ the resolution of $\sharp\hat{4}$ in the second violin is taken by the viola, allowing the violin to leap up to $\hat{2}$ (the 5th of the V chord).

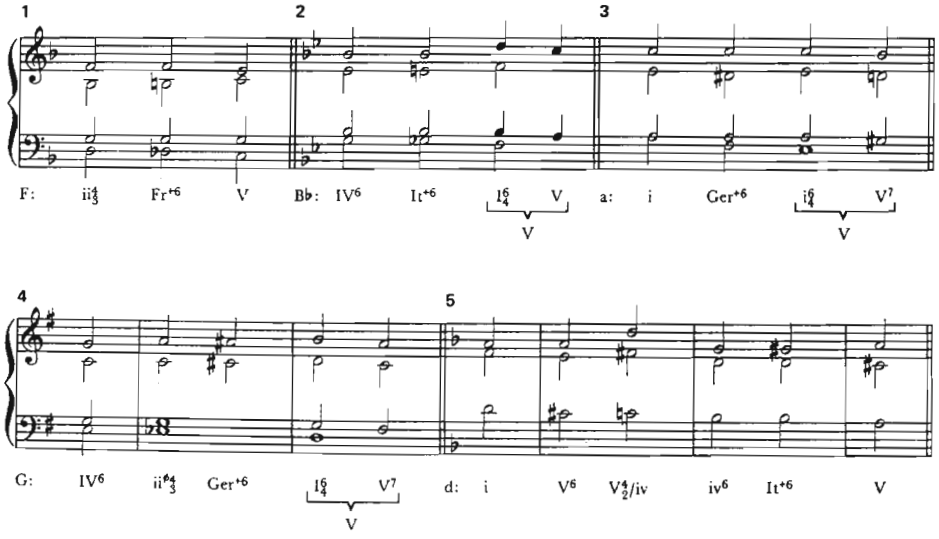
f: i / vii$^{o7}$ $V^6_5$ / i / iv$^6$ / Ger$^{+6}$ / V vii$^{o7}$/V / V Ger$^{+6}$ / V / /

**4.** In m. 9, $\sharp\hat{4}$ moves down by half step to provide the 7th of the V$^7$ chord. In m. 26 $\flat\hat{6}$ and $\sharp\hat{4}$ move to an 8ve on $\tilde{5}$.

C: I / / / / / I $V^6_5$ I / $\underset{V}{I^6_4\ V}$ / / / It$^{+6}$ V$^7$ / I

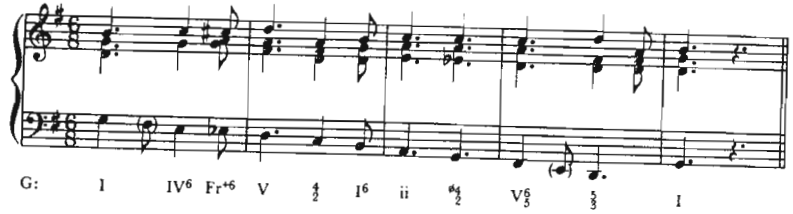
$V^4_3$ / i / It$^{+6}$ / V / $^7$

Part D, p. 398.

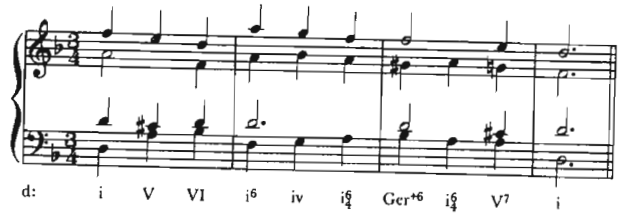





Part E, p. 399.




Part F, p. 399.




## CHAPTER 24

### *Self-Test 24-1*

Part A, p. 406.

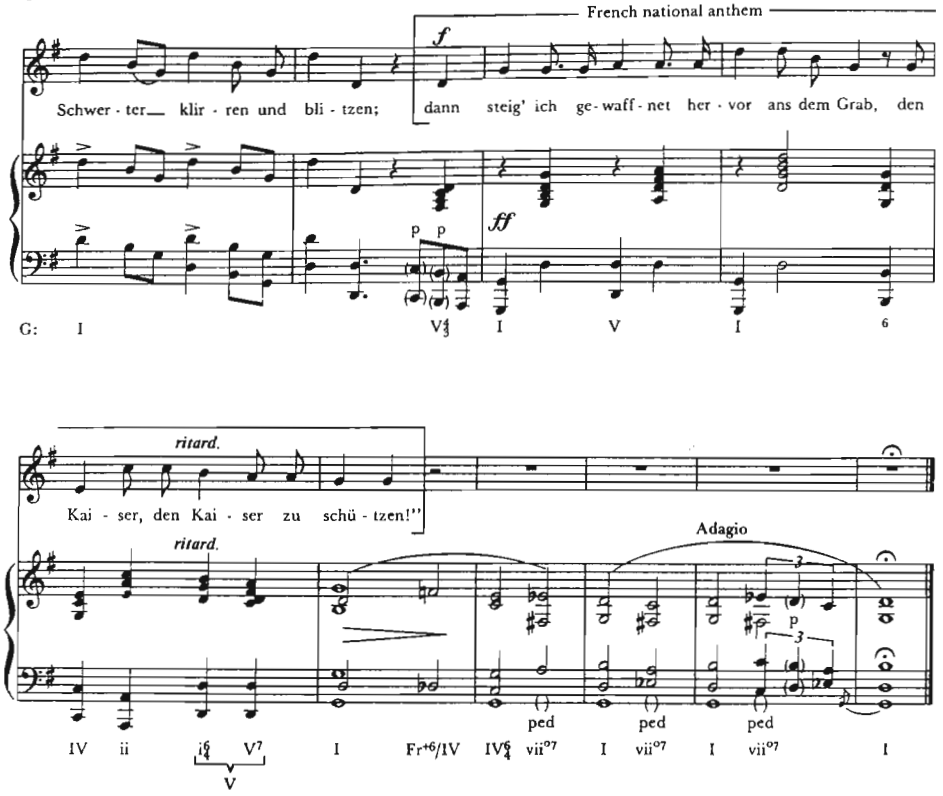
**1.** Ger$^{+6}$ V **2.** It$^{+6}$/iv iv **3.** $V^6_5$/iv iv **4.** Ger$^{+6}$ $\underset{V}{I^6_4\ V^4_2}$ **5.** iv$^4_2$ $V^4_3$

**6.** [Ger$^{+6}$] i **7.** $^{+6}$ V **8.** It$^{+6}$ V$^6$ **9.** Fr$^{+6}$/I I **10.** N$^6$ vii$^{o7}$/V V

Part B, p. 407.

**1.** e: N$^6$ Ger$^{+6}$ / $\underset{V}{i^6_4\ V^7}$ / I **2.** e: / [Ger$^{+6}$] / i$^6$ / [Ger$^{+6}$] / i$^6$

**3.**



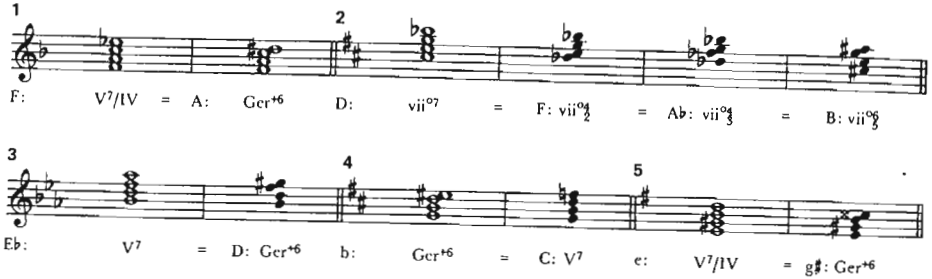

**4.** a: / i / $V^7$ / i / [$Ger^{+6}$] / i / / $V^7$ / i /



## CHAPTER 25

### *Self-Test 25-1*

Part A, p. 420.




Other correct answers in addition to those given above are possible. For example, the third chord in no. 2 could have been spelled and analyzed as a $vii^{o4}_3$ in g♯ (or G♯), or as a $vii^{o4}_3/V$ in c♯, and so on.

Part B, p. 420.

**1.** E: I / $vii^{o7}$ / I / $V^4_3$ / $I^6$ $^5_3$ / $vii^{o7}$ | G: $vii^{o4}_2$ / $V^7$ / I / $V^7$ / I /

**2.** c: i $V^4_2$ / $i^6$ $ii^{ø6}_5$ / $vii^{o7}/V$ | e: $vii^{o6}_5$ $V^4_3$ / $i^6$ / $ii^{ø6}_5$ $V^7$ / i /

**3.** D: I iii IV / $I^6$ $V^4_3$ I $V^7/IV$ | f♯: $Ger^{+6}$ / $i^6_4$ V $^7$ / i /

Part C, p. 421.

**1.** The F-G♭-F figure in m. 65 may be related to the voice line in mm. 58-62 (B♭-C♭-B♭) and to the bass in mm. 59-63 (F-G♭-F).

G♭: I / $V^6_5$ / I / $V^6_5$ / I $V^7/IV$ | b♭: $Ger^{+6}$ / V $^6$ i $^6$ / V $^6_5$ i $^6$ / V

**2.** No, this is not an enharmonic modulation. The real key relationships here are D♭ (I) to B𝄫 (♭VI). Anyone would rather read music written in A instead of B𝄫, so the flats are written enharmonically as sharps beginning in m. 39. But the listener is completely unaware of the enharmonicism—the true test of an enharmonic modulation.

**3.** Notice that a single °7 chord is heard in mm. 45-46, and, while the listener is unaware of the shift to sharps at the end of m. 46, the unexpected resolution to a C♯7 is clearly audible. We have analyzed the °7 chord in B♭ as a $\text{vii}^{\circ 4}_{3}$/ii because Schubert spelled it that way. However, it has other enharmonic possibilities in B♭—$\text{vii}^{\circ 6}_{5}$/IV, for example—and these are equally valid analyses.

B♭: $V^7$ $(I^6_4)$ V / $(I^6_4)$ V $(I^6_4)$ $V^7$ / / $\text{vii}^{\circ 4}_{3}$/ii /

f♯: $\text{vii}^{\circ 7}$ / / $V^7$ / i /

**4.** c: $V^7$ $\text{Ger}^{+6}$ / $V^6_5$/V $\underset{V}{i^6_4\ V^7}$ / i / / $\text{Ger}^{+6}$

D♭: $V^7$ / / / / / I $V^4_2$ $I^6$ /

$V^7$ / I $ii^6$ $V^6_5$/V / V / I $V^4_2$ $I^6$ / $V^7$ / $\text{vii}^{\circ 7}$/vi

c: $\text{vii}^{\circ 6}_{5}$/V / $\underset{V}{i^6_4\ V}$ / i

| | | | |
|---|---|---|---|
| m. 98 | c: $\text{Ger}^{+6}$ | m. 99 | c: $V^6_5$/V |
| mm. 102-106 | c: $\text{Ger}^{+6}$ = D♭: $V^7$ | m. 107 | D♭: $V^4_2$ |
| m. 108 | D♭: $V^7$ | m. 109 | D♭: $ii^6$ |
| m. 111 | D♭: $V^4_2$ | m. 112 | D♭: $V^7$ |
| m. 113 | D♭: $\text{vii}^{\circ 7}$/vi = c: $\text{vii}^{\circ 6}_{5}$/V | | |

Also note the importance of F♯/G♭ as a melodic pitch in this passage.

**5.** B♭/A♯ is an important pitch class in this passage. It appears melodically as the 7th of the $\text{vii}^{\circ 7}$/ii four times in mm. 34-41 (the first time accented), and it is used as the enharmonic hinge between the keys of C and E in m. 43.

C: I $\text{vii}^{\circ 6}_{5}$/ii / $ii^6$ / / $V^6_5$ / I $\text{vii}^{\circ 7}$/ii ii $\text{vii}^{\circ 6}_{5}$ / $I^6$ $\text{vii}^{\circ 6}_{5}$/ii $ii^6$ / $\text{ii}^{\circ 6}_{5}$ $V^4_2$ /

$I^6$ $i^6$ $(V^6_4)$ $\text{vii}^{\circ 7}$/ii / ii $V^6_5$ / I $V^4_2$/IV

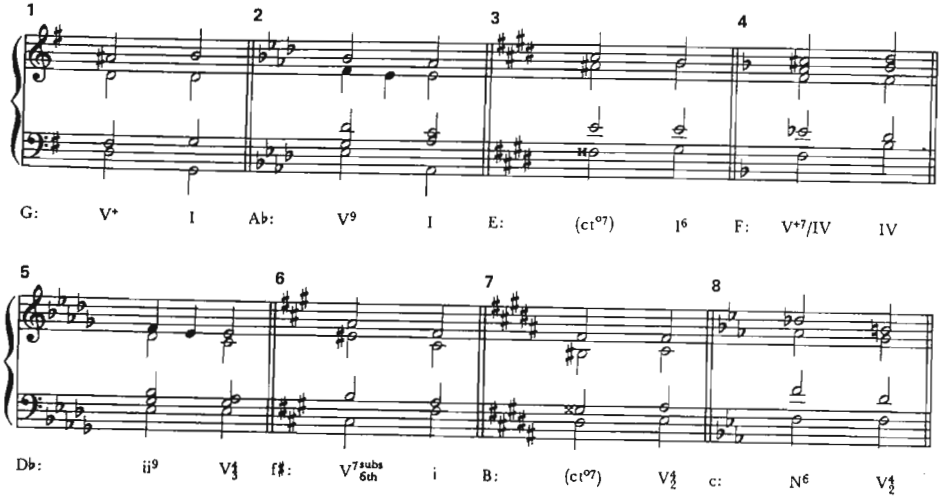
E: $\text{Ger}^{+6}$ $\underset{V}{i^6_4\ V^7}$ / I $V^6_5$ I / V $\frac{4}{2}$ $I^6$ $V^6_5$ / I



## CHAPTER 26

### *Self-Test 26-1*

Part A, p. 442.



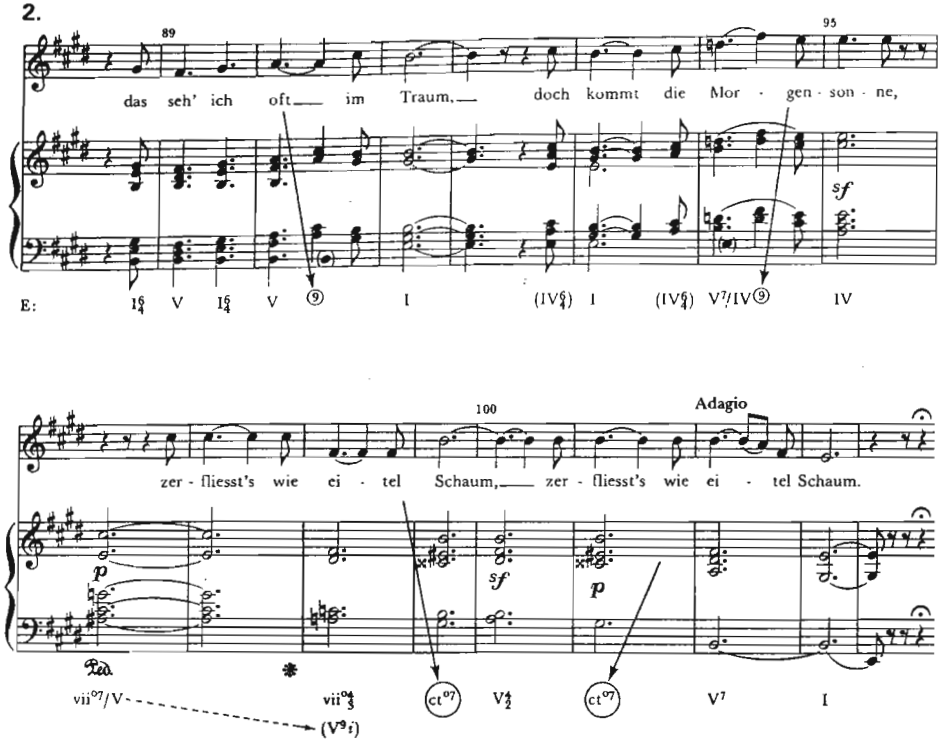

Part B, p. 422.

**1.**

E: I / V / $V^4_2$/IV / $IV^6$ / $(I^6_4)$ / $\text{vii}^{\circ 7}$/V /

$V^4_2$ / $I^6$ $V^{+6}$/IV / IV / $\text{vii}^{\circ 7}$/ii $ii^6$ / $V^7$ / vi / ii / $V^7$ / I /

**2.**



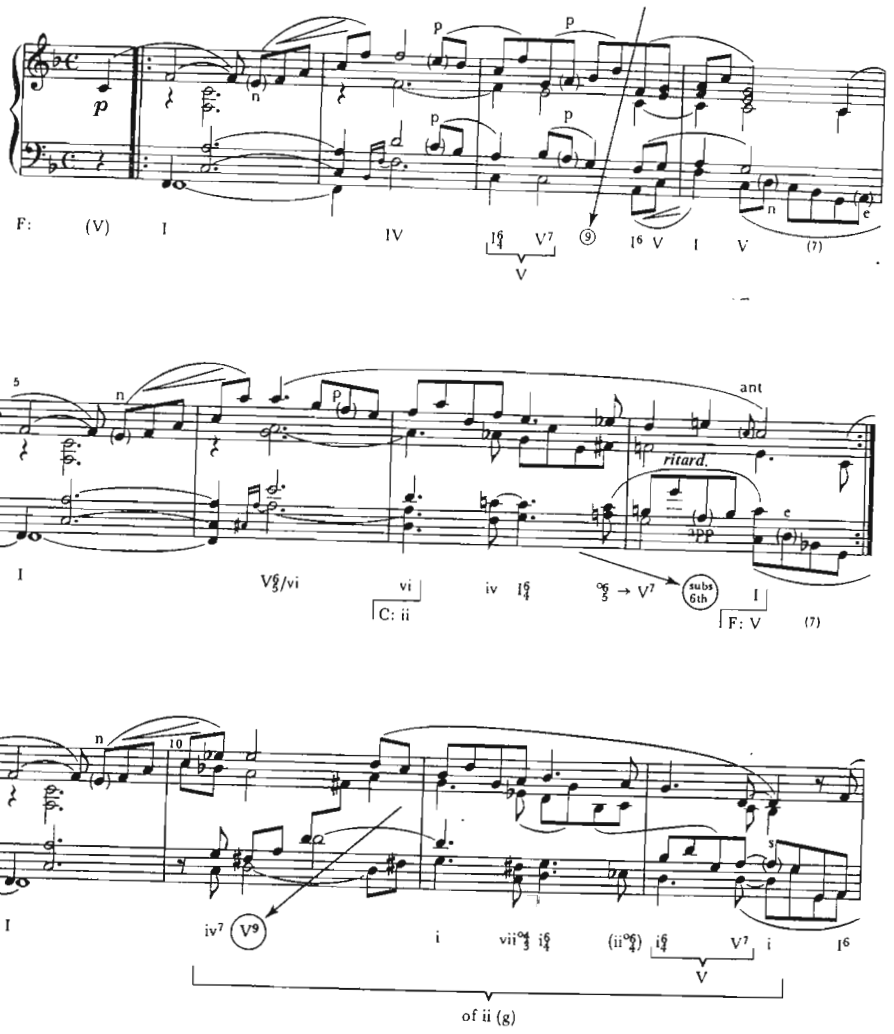

**3.** E: I / V7 / I / (ct°7) / V4/2/IV / (ct°7) / V4/2/IV / (ct°7)

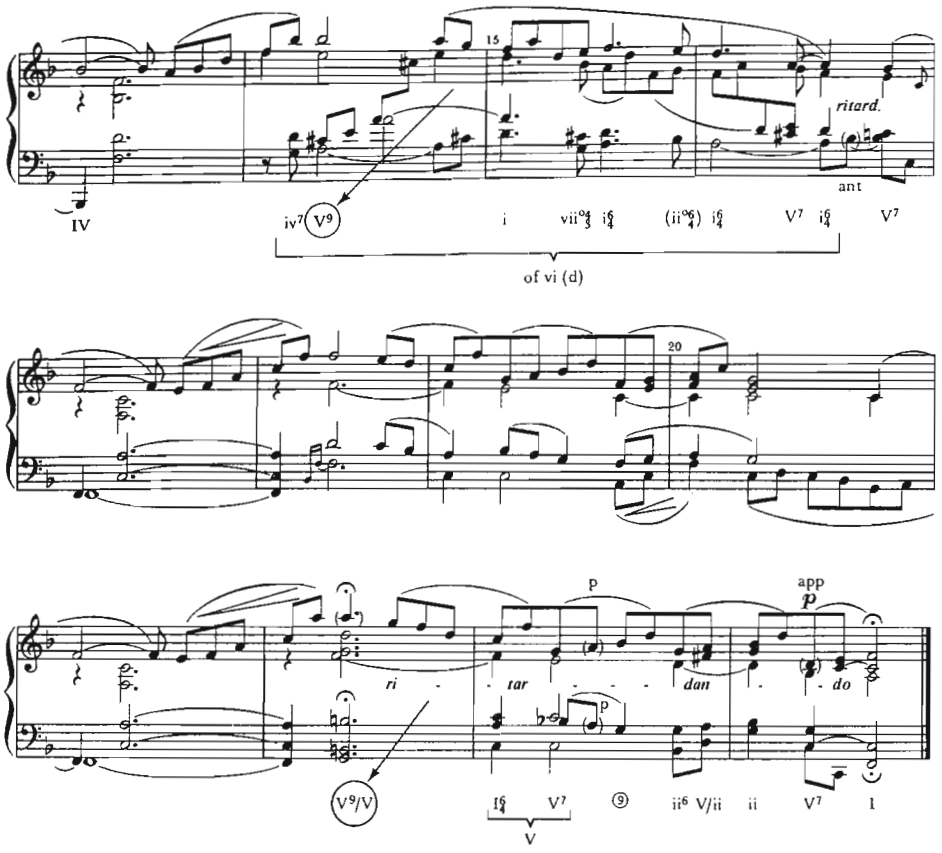
A: vii°6/5/ii / ii6 / I6/4 V7 / I

V



**4.** The form of this piece is continuous ternary.






**5.** I / IV$^6$ $\frac{5}{3}$ / ii$^{ø7}$ V$^7$ / I C / vi C / F A / D F / B ii$^4_3$ / V$^7$ V$^7$/V / V IV$^6$ / (ct$^{o7}$) V$^6_5$ / I

The chords in mm. 5-8 appear to be simultaneities because they do not create a logical progression and because the chord 7ths do not resolve. Parallel 10ths above the bass can be traced throughout these measures.



## CHAPTER 27

### *Self-Test 27-1*

Part A, p. 469.

**1.** e♭ minor

**2.** The melody is very angular, and contains no leading tone. It does not clearly imply a harmonic background. The phrase concludes on scale degree $\hat{3}$, rather than tonic.

**3.** VII$^7$ III$^7$ / VI$^7$ II$^{ø7}$ / V (very traditional!)

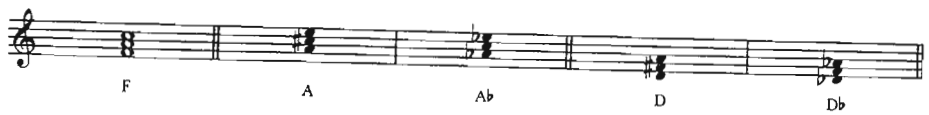
**4.** M. 8, beat 1: we are led to expect G♭ major, because of emphasis on D♭ dominant seventh chord. M. 8, end of beat 3: we have been set up for a♭ minor here, especially with G♮ suggesting a leading tone.

**5.** M. 9, last two beats feature a Ger$^{+6}$ in E♭.

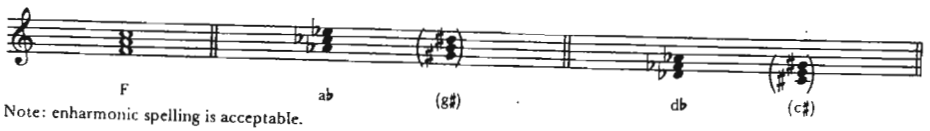
**6.** There is no melodic "closure"; i.e., the closing phrase is identical to the antecedent phrase which opened the composition. Also, the cadential harmonic motion consists of I$^6_4$ moving directly to I in root position.

Part B, p. 471.

**1.**




**2.**



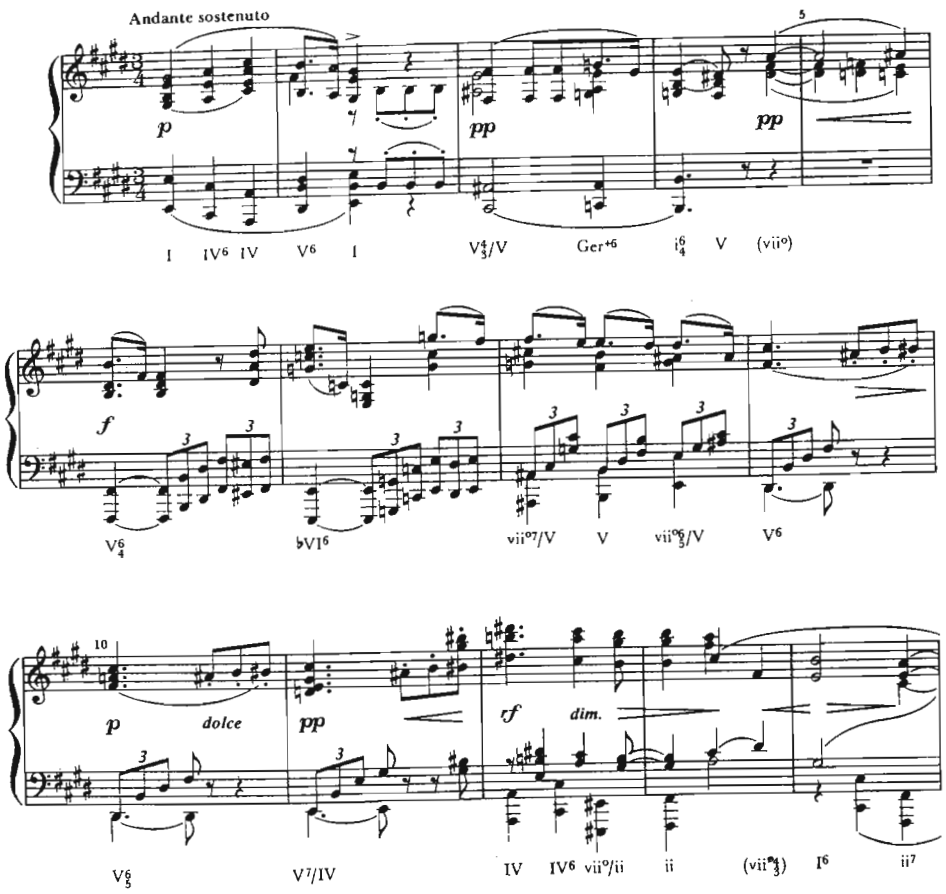

Note: enharmonic spelling is acceptable.

Part C, p. 471.

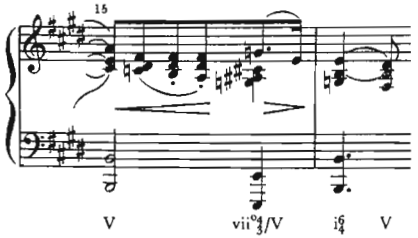
**1.** M. 6 introduces a $\frac{6}{4}$ chord which might suggest a shift to B as tonic. However it "resolves" deceptively to the borrowed subtonic as shown. After lingering on dominant harmony in mm. 9-10, the resolution to V of IV rather than a tonic triad is unexpected. In m. 15, the brief movement to vii/V with *tonic as bass* is used to prepare a half cadence in E.

**2.** Extended use of non-chord tones is prevalent, as in m. 5. In mm. 8-12, we find a succession of strong non-chord tones in the melody. Note too the persistent use of a minor tonic $\frac{6}{4}$. Rapid harmonic rhythm (mm. 1-2, 12-13) is interspersed with much slower harmonic motion.

Brahms, Symphony No. 1, Op. 68, II (piano reduction)

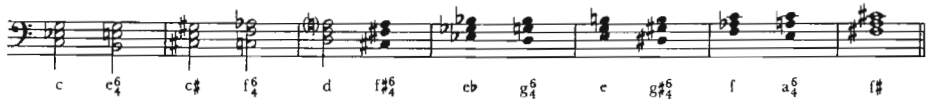




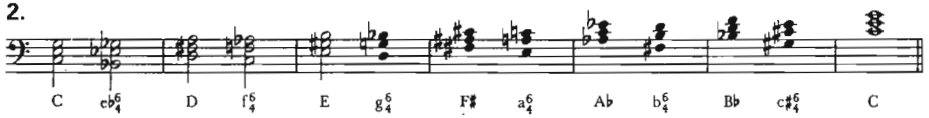




Part D, p. 473.

**1.**




**2.**




Part E, p. 473.

**1.** Leading tone seventh in E♭ (vii°7) over tonic pedal.

**2.** g minor; ii$^6_5$ - VI$^4_3$ - ii$^7$ - VI$^4_2$ (It might also be possible to consider the persistent E♭ as an inner pedal, and analyze: ii$^6_5$ - i$^6$ - ii$^7$ - i$^6_4$)

**3.** ii$^6_5$ moves to I$^6_4$, which ends the phrase. This pattern is repeated in mm. 21-22, although here the $\frac{6}{4}$ moves directly to root position I, which in turn closes the piece.

**4.** M. 20

**5.** Binary or two-part.

Part F, p. 475.

1. a minor. The opening measure may be heard as VI (retrospectively) or as part of an implied supertonic extending throughout the first three measures and leading to V. Because of the dominant preparation, m. 5 will be heard as tonic (a minor), followed by VI - $ii^{o}$ - $vii^{o7}$ (V). M. 9 will be heard as tonic with added 6th, proceeding to $iv^{7}$ (m. 10), $Fr^{+6}$ (m. 11, including "A" from the vocal part), and V (m. 12). The voicing is extremely angular, perhaps intending to picture the distraught state of mind of a young woman who has been betrayed by her lover.
2. Chromatic mediant (A major/C♯ dominant seventh)
3. Both triads are augmented, although their roots (A♭/E♭) are 5th-related.
4. B♭ major. Note use of an augmented V chord in m. 28.
5. Mm. 34-37 systematically prepare a minor through introduction of the leading tone of V (D♯ in m. 34), minor dominant (m. 35), major dominant (m. 36), and addition of seventh to dominant harmony (m. 37).
6. Ternary. Mm. 1-12 = A; mm. 13-37 = B, which is essentially divided into two sections, and might be heard as almost developmental in nature; mm. 37-52 = A and Codetta.

## CHAPTER 28

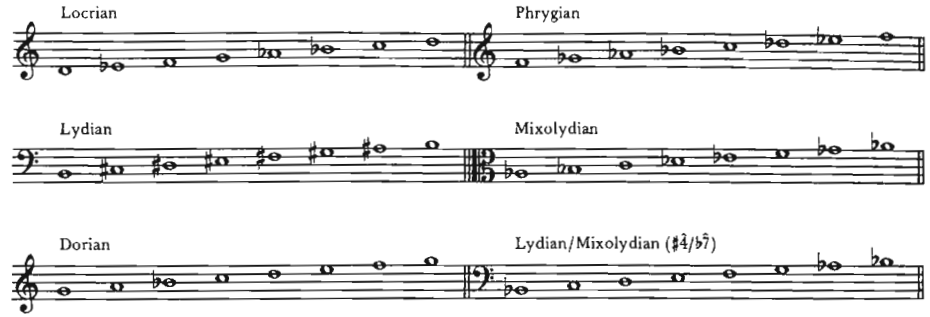
### *Self-Test 28-1*

Part A, p. 488.

1. Ionian, Lydian, Mixolydian
2. Phrygian, Locrian
3. Whole-Tone and Half-Step/Minor Third. Both are derived from the augmented triad, in one case superimposed at the interval of a whole step, and in the other, a half step.
4. Lydian-Mixolydian (♯4/♭7)
5. Fully diminished seventh chord, juxtaposed at the interval of a half step or whole step.
6. Diminished, major, minor.
7. Minor, 2nd and tritone.



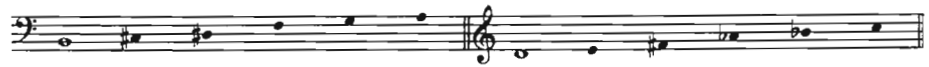
Part B, p. 489.



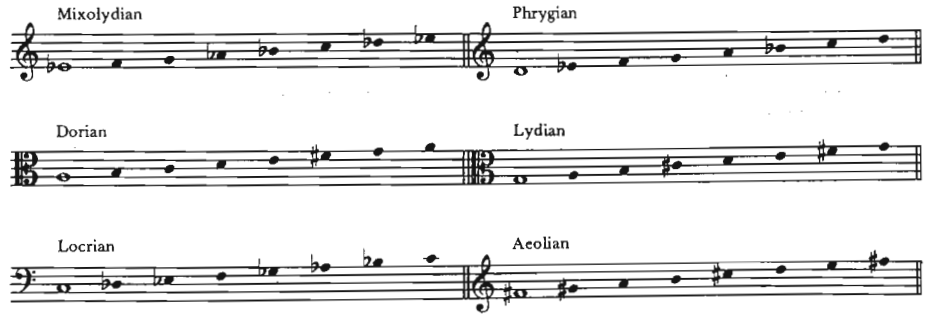

Part C, p. 489.

1.

2.



3.



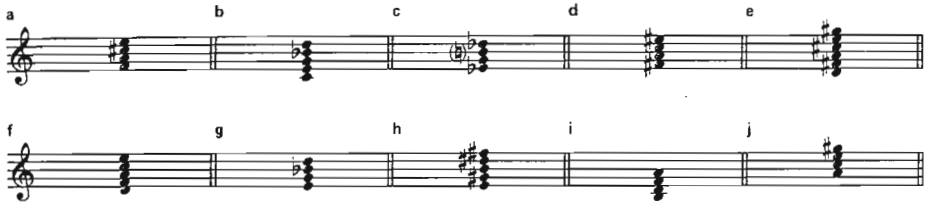
Part D, p. 490.

**1.** Dorian
**2.** Lydian-Mixolydian
**3.** Dorian
**4.** Phrygian
**5.** Lydian-Mixolydian
**6.** Aeolian
**7.** Mixolydian
**8.** Locrian

### *Self-Test 28-2*

Part A, p. 505.

**1.**




**2.**

**a.** polychord
**b.** quartal chord
**c.** added 6th chord
**d.** dominant 9th
**e.** whole-tone chord
**f.** split-third chord
**g.** secundal chord (cluster)
**h.** quintal chord

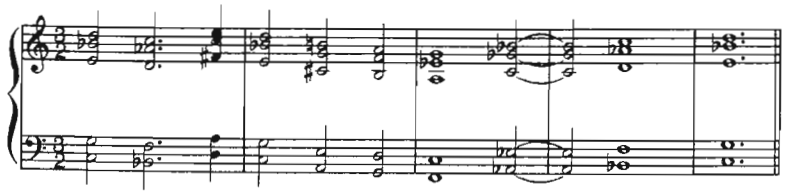
Part B, p. 505.

**1.** Anhemitonic pentatonic
**2.** B♭. In m. 6 it changes briefly to D because of the altered bass pattern.
**3.** Ostinato
**4.** Perfect 4th (prominent in the melody and accompaniment as well)
**5.** Mm. 12-13, within the $\frac{6}{8}$ meter. Mm. 8-9, although notated in $\frac{3}{4}$, will also suggest hemiola to the listener because of the suggested articulation.

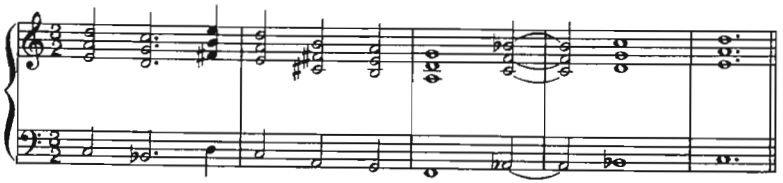


Part C, p. 506.

**1.**



**2.**



### *Self-Test 28-3*

Part A, p. 522.

**1a.** 0, 11, 3  7, 5, 10, 2  8, 3, 6  10, 0, 5, 9, 3

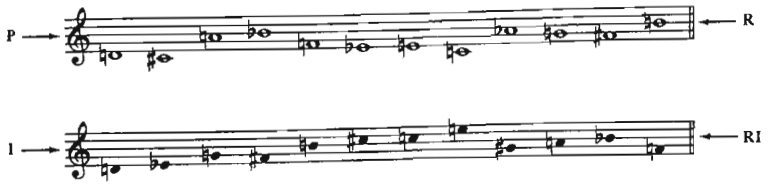
**b.**

{11, 0, 3}  {2, 5, 7, 10}  {3, 6, 8}  {9, 10, 0, 3, 5}

**c.** [0, 1, 4]  [0, 3, 5, 8]  [0, 2, 5]  [0, 1, 3, 6, 8]

**d.** ⟨1, 0, 1, 1, 0, 0⟩  ⟨0, 1, 2, 1, 2, 0⟩  ⟨0, 1, 1, 0, 1, 0⟩  ⟨1, 2, 2, 1, 3, 1⟩

Part B, p. 523




I

| | 0 | 11 | 7 | 8 | 3 | 1 | 2 | 10 | 6 | 5 | 4 | 9 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | D | C♯ | A | B♭ | F | E♭ | E | C | A♭ | G | F♯ | B | 0 |
| 1 | E♭ | D | B♭ | B | F♯ | E | F | C♯ | A | A♭ | G | C | 1 |
| 5 | G | F♯ | D | E♭ | B♭ | A♭ | A | F | D♭ | C | B | E | 5 |
| 4 | F♯ | F | C♯ | D | A | G | G♯ | E | C | B | B♭ | E♭ | 4 |
| 9 | B | A♯ | F♯ | G | D | C | C♯ | A | F | E | E♭ | A♭ | 9 |
| 11 | C♯ | C | G♯ | A | E | D | D♯ | B | G | G♭ | F | B♭ | 11 |
| 10 | C | B | G | A♭ | E♭ | D♭ | D | B♭ | G♭ | F | E | A | 10 |
| 2 | E | D♯ | B | C | G | F | F♯ | D | B♭ | A | A♭ | D♭ | 2 |
| 6 | G♯ | G | E♭ | E | B | A | A♯ | F♯ | D | D♭ | C | F | 6 |
| 7 | A | A♭ | E | F | C | B♭ | B | G | E♭ | D | D♭ | G♭ | 7 |
| 8 | B♭ | A | F | F♯ | C♯ | B | C | G♯ | E | E♭ | D | G | 8 |
| 3 | F | E | C | C♯ | G♯ | F♯ | G | E♭ | B | B♭ | A | D | 3 |
| | 0 | 11 | 7 | 8 | 3 | 1 | 2 | 10 | 6 | 5 | 4 | 9 | |

P → 11 ← R

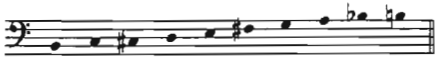
RI



Part C, p. 525.

**1.** Constant repetition of the bassline (passacaglia).

**2.**



The tonal center is probably B, because of its position as the upper and lower boundaries of the reiterated ground bass, as well as its metric accentuation. Clearly, however, there is no sense of "function" in the key of B because of the chromatic saturation caused by the strict planing, as well as by the dense counterpoint which occurs throughout.

**3.** Strong emphasis on quartal melodic construction and prominent dotted rhythm leading up to the high point.

**4.** Extensive use of quartal harmonies, especially prominent in mm. 7-12. Occasional use of dotted rhythms. Brief stepwise figures regularly incorporated.

**5.** This motive occurs as beats 2-4 in the opening measure. It recurs in the "alto" voice in m. 5, "tenor" in m. 9, and as closing gesture in m. 17.

### *Self-Test 28-4*

Part A, p. 555.

**1.** Total serialization is the process whereby non-pitch aspects of a piece are subjected to a predetermined order. Composers such as Boulez and his teacher, Messiaen, were influential in the development of this compositional technique.

**2.** The procedures illustrated are:

**a.** asymetric meter

**b.** mixed meter

**c.** added value

**d.** metric modulation

Part B, p. 555.

1. The term *aleatory* is used to describe music in which various elements of a composition are, in varying degrees, determined by chance.
2. Because of the way it "frames" or "organizes" silence, *4′33″* heightens the listener's awareness of surrounding sounds or noises, causing what might ordinarily be heard as distractions to become a part of the aesthetic of the listening experience.
3. Minimalism. Steve Reich, Terry Riley, Philip Glass, John Adams, Joan Tower

Part C, p. 556.

George Crumb *(Makrokosmos I)*
Joan Tower *(Petroushkates)*

Part D, p. 556.

1. sine wave: a sound without overtones
2. white noise: nonpitched hissing sound consisting of all audible frequencies at random amplitudes
3. oscillator: tone generator
4. *musique concrète:* natural sounds which have been recorded on tape and then subjected to modification by means of altered playback speed, reversal of tape direction, fragmentation, tape loop, and other technical manipulations.
5. MIDI: Musical Instrument Digital Interface, a process whereby the keyboard of one synthesizer can be made to drive the sound generators of another, thereby greatly enhancing the capabilities of a single performer.

# *Index of Music Examples*

All examples are identified by page number.

# *Subject Index*