1
TRIADS

Figured bass begins with the **triad.** So does functional harmony, that is, the type of harmonic theory that uses symbols consisting of Roman numerals or letters and which has been taught since the late nineteenth century. But the two systems use the idea of the triad in very different ways. In functional harmony, practically every chord is considered to be a triad that has been inverted, altered, or otherwise modified. But in figured bass a triad is understood in a much simpler and more literal way: it is simply a chord made up of three notes—a bass note plus the notes that lie a third and a fifth above it. There are no inversions; there are no roots. A chord is just a chord: a collection of notes sounding at the same time.

This concept is so simple that it may take some getting used to for anyone already trained in functional harmony. Thus the present chapter deals exclusively with the use of the triad in certain situations. First, however, a few basic definitions:

The **basso continuo,** or simply **continuo,** is the part written at the bottom of a Baroque score, beneath the other instrumental and vocal parts, which are sometimes referred to as the **obbligato** parts. In eighteenth-century works, the continuo part is often played by at least two instruments—a melody instrument such as the cello, viola da gamba, or bassoon, plus a chordal instrument such as the harpsichord, organ, or lute. The chordal instrument not only plays the bass line but adds chords, or, more properly, upper parts or voices. These upper voices are improvised, but the player is usually guided by **figures** placed above or below the bass line, which therefore is referred to as a **figured bass.** By adding upper voices to the figured bass, one **realizes** it, and the resulting part is called a **realization.**

We shall use the term *figures* for both the numerals and the accidentals used in figured bass notation. Such notation aims at being as economical as possible. Thus the three or four voices of a realization are often indicated by a single symbol on any given bass note—or by no symbol at all. Thus in Exercise 1.1a the only figures are the accidentals in measures (mm.) 6–8.

Most of the Exercises consist of figured bass lines to be realized by the student. The steps explained below for the realization of Exercise 1.1a will serve equally well for the remaining ones. Naturally, some exercises are more difficult than others. Some require rather lengthy explanations, whereas others are fairly self-explanatory. The going may be difficult at first, but things should go more easily as one grows accustomed to the special approach to harmony taken in figured bass realization. This chapter may require two or three weeks of study and practice for those who are entirely new to figured bass. Such players may find it best to work on just a few exercises at a time. The care and diligence invested here will pay ample dividends later on.

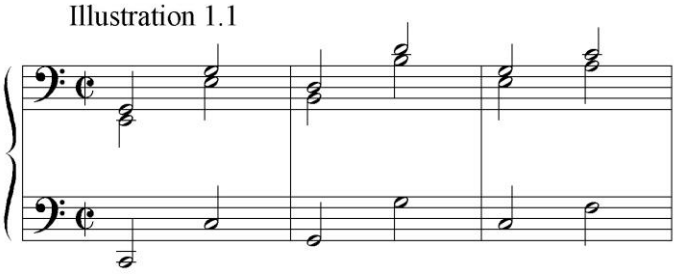
Initially, the goal should be simply getting from one note to the next without fumbling, even if this means stopping and thinking for half a minute before playing each chord. With practice, the steps that are explained here in great detail will become second-nature, and it will be possible to play these exercises as if they were real music.

Exercise 1.1a. The first step in realizing any figured bass is to play the bass line itself several times as written, left hand alone. One should observe the *melodic* intervals in the line; for instance, the bass in Exercise 1.1a is restricted to octaves, fifths, and fourths.

The next step is to identify the notes called for above each bass note. Although most of the notes in Exercise 1.1a bear no figures, each is meant to bear a triad. To be more precise, a bass note lacking figures is normally accompanied by the third and the fifth. (See Illustration 1.1.) By "third" is meant the note that is separated from the bass by the interval of a major or minor third.

The “fifth” is the note a perfect fifth above the bass.

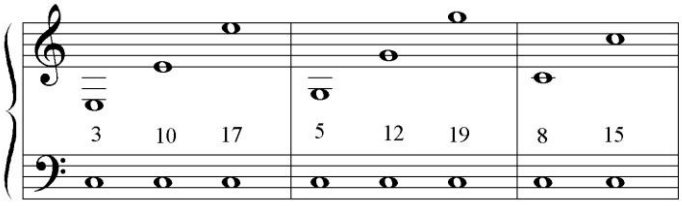
Illustration 1.1



One could have indicated the same chord more explicitly, as 5/3, but this is rarely necessary.[1] If, however, one of the upper notes requires an accidental, this is indicated in the figures. An accidental occurring alone (without any numeral) refers to the third of the chord. Thus the natural in m. 7 refers to the note F, and it cancels the sharp in the previous measure.

In principle, the third and the fifth of the chord may be played in any register. In other words, these **simple** intervals can be expanded into **compound** intervals: the third can become a tenth or a seventeenth, the fifth can become a twelfth or a nineteenth, and so forth.[2] (See Illustration 1.2.) But the range of one’s keyboard imposes certain obvious limitations. And it is necessary to keep the upper voices from ascending too high above the bass, for the realization will have a fuller sound when the voices are relatively close to one another. Placing the upper voices too high—a common error in published realizations—also tends to put them in the same register as the obbligato parts, which can interfere with the latter, causing the realization to lose its character as an accompaniment. On the other hand, when the bass is very deep, the upper parts should not follow it too far into the lower register. This can reduce the accompaniment to an unpleasant rumbling sound, especially on the organ. It is best to keep the upper parts within the range *e–g2,* and this limitation should be observed in each of the Exercises.[3]

Illustration 1.2



Normally the upper parts are played by the right hand. At first this might seem to mean that only three realizations are possible for the first triad in the exercise, as shown in Illustration 1.3. But it is also possible to exchange the upper notes, placing the fifth G *beneath* the third E (see Illustration 1.4). This is to **invert** the two upper voices, but the chord itself has not been inverted; the bass note remains the same. The configurations, or **dispositions,** of the chords shown in

[1] Groups of figures written in vertical form, with the greatest figure at the top, are shown in the verbal text in the form x/y/z, where x, y, and z represent figures reading from top to bottom.

[2] Figured basses from the early seventeenth century sometimes include compound intervals, probably because the realization was to be played in a specific register.

[3] For an explanation of the pitch symbols, see the Introduction.

Illustrations 1.3 and 1.4 are fully equivalent. They represent equally correct ways of realizing the triad, and the player must become familiar with each of them.

Illustration 1.3

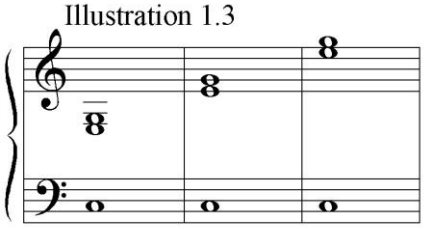
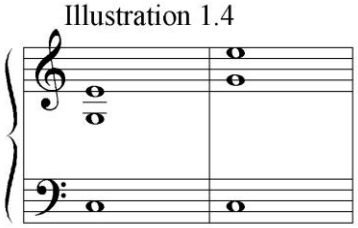
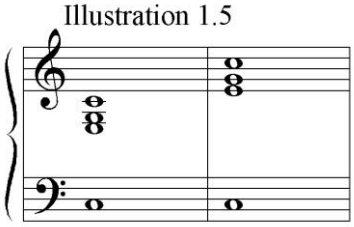


Illustration 1.4



So far the Illustrations have been in just three parts: bass plus two upper voices. But figured basses are most often realized in four parts: bass plus three upper voices. The Exercises are meant to be realized in four parts except where otherwise noted. Because there are only three different notes in a triad, the fourth part will have to **double** one of the existing parts. Thus in Illustration 1.5 the *bass* is doubled. Doubling the bass can also be described as playing the **octave.** The full figuring of the chord is therefore 8/5/3.

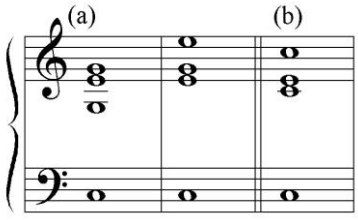
Illustration 1.5



Doublings may be at either the octave or the unison. Some writers counsel against unison doublings, as they reduce the actual number of sounding tones. But unison doublings cannot be entirely avoided if the voice leading is to be pure. We shall permit them if used with restraint. The term *octave* is used for any doubling of the bass. Even if the tenor actually doubles the bass at the unison (as in Illustration 1.8, m. 2), the note in the tenor can be called the octave (figure 8).

The realizations in Illustration 1.5 are said to be in **closed position.** It is not possible to fit another note of the triad between any two of the upper parts. Illustration 1.6 shows some examples of **open position.** The doublings in these chords are between the upper parts. In Illustration 1.6a, the soprano doubles the tenor; in Illustration 1.6b both soprano and tenor double the bass. Open positions are best reserved for certain special situations, such as those taken up in Chapter 2.

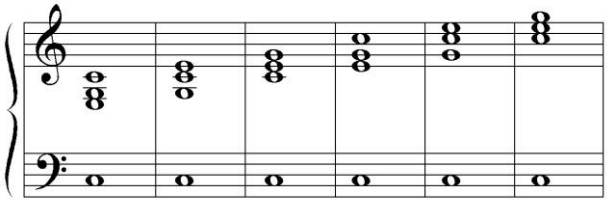
Illustration 1.6



This leaves us with six possible realizations for the first chord in Exercise 1.1a (see Illustration 1.7). A similar number of possibilities exists for each chord in the exercise. It is

therefore helpful to identify each of the possible realizations over each of the remaining bass notes. It is important to experience the "feel" of each chord—which should not be difficult for keyboard players, as these triads occur with great frequency in keyboard music.

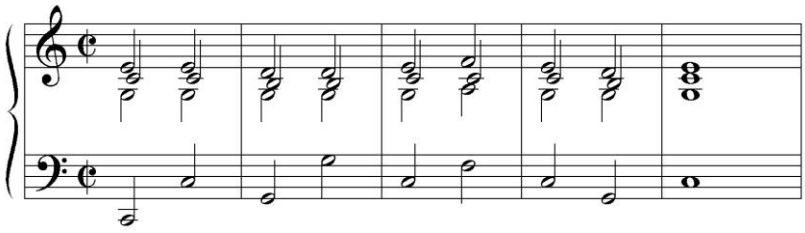
Illustration 1.7



We have now examined the bass line thoroughly and determined what notes are to be played in the upper parts. It remains to join the upper voices of the chords into a smooth progression. Instead of thinking of the exercise as a series of chords, we wish to realize it as simple four-part counterpoint, with each part moving in the smoothest manner possible. This may seem rather frightening, but it is actually quite simple. All that is necessary is to choose an initial chord and then have the upper parts move in the smallest possible interval from each chord to the next.

For example, Illustration 1.8 begins with a chord in which the soprano has the third, that is, the note *e1*. When the bass leaps up by an octave to the second note, there is no need for the upper parts to move at all. Therefore they remain in place. Next the bass descends by a fourth, to *G*. The tenor does not need to move; it remains anchored on the note *g* while the soprano and alto descend by step. One can proceed in like manner through the remainder of Illustration 1.8.

Illustration 1.8



The term **voice leading** refers to the movement or motion of any voice (we "lead" the soprano from *e1* to *d1*, and so forth). We shall use the term **progression** to refer to the movement of all the voices from one chord to the next. When starting work on any Exercise, it will be helpful to observe carefully the voice leading involved in each progression. As Illustration 1.8 proceeds from m. 1 to m. 2, the bass descends by a fourth, the soprano and alto descend by step, and the tenor remains in place. In fact, in every progression in Exercise 1.1a there is one voice that does not move at all. In other words, there is one tone common to every pair of successive chords.

It would be possible to tie the notes common to each pair of chords. It might even be desirable to do so, especially when playing on the organ. On the harpsichord, however, tied notes may die away too soon, leaving the second chord sounding empty. For this reason it is generally advisable to avoid ties when playing continuo, even though they occur in many written-out realizations—both modern ones and those surviving from the past. Ties nevertheless can serve as a visual aid, identifying voices that remain fixed on one note in the course of a progression. Ties will be so used in some later Illustrations.

In Illustration 1.8, the upper voice, and indeed all the voices, move in pleasant, albeit not very interesting, melodic lines. Illustration 1.9 shows the soprano part alone, with figures indicating the interval between each note and the bass. This same line might just as well have been placed in the alto or the tenor, as shown in Illustration 1.10.

Illustration 1.9

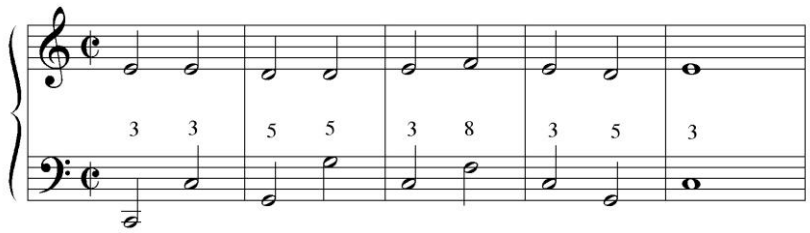
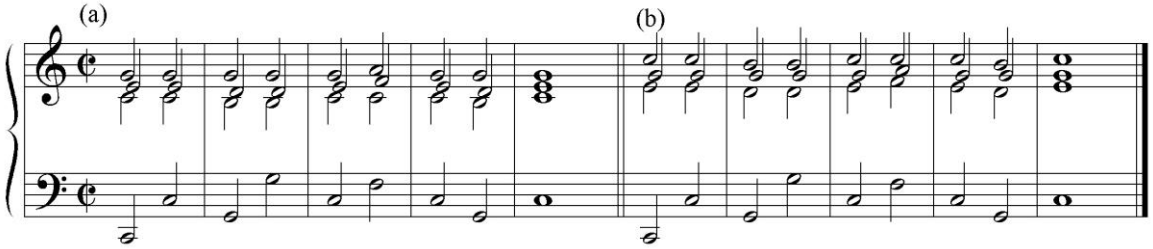


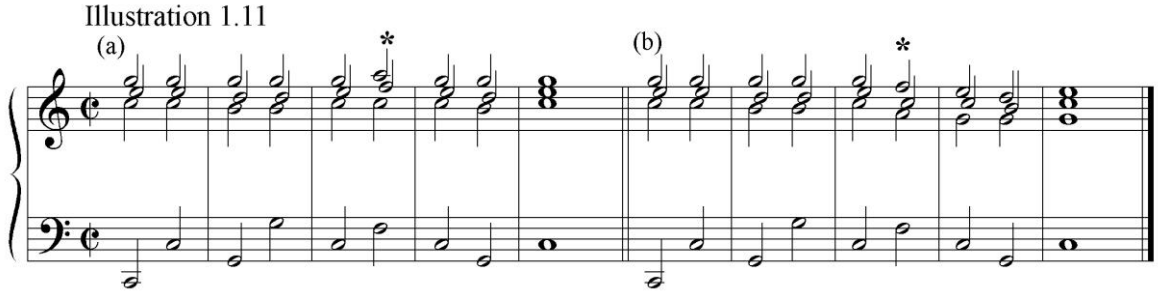
Illustration 1.10



From a practical point of view, there is little difference between the realizations shown in Illustrations 1.10a and 1.10b. When accompanying a low-lying instrumental or vocal part, one would probably prefer a lower realization. For the purposes of this book, however, no one realization is preferable. Indeed, it is a good idea to practice each exercise in all possible ways, starting with each of the possible realizations of the first chord and seeing where it leads.

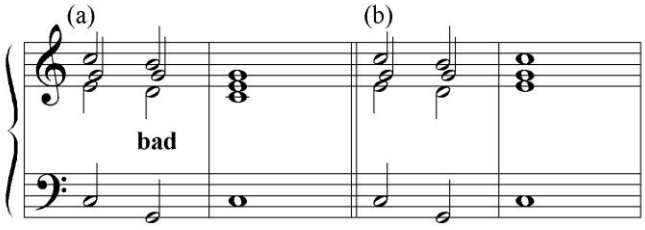
It may seem that we have now exhausted all that can be said about this musically rather simple exercise. But, alas, even here all sorts of things can go wrong. And indeed something has gone wrong in Illustration 1.11a. The asterisk in m. 3 shows what can happen if the first chord is realized in too high a position. If the soprano starts on *g2*, it will want to ascend in m. 3 to *a2*. But this note lies outside the range adopted for our realizations. One solution might be to start over from a lower position. But one can hardly retreat to the beginning when performing real music. Thus it is necessary to adopt the solution shown in Illustration 1.11b. Here the soprano descends to *f2* at the asterisk. The voice-leading in this progression is faultless, but it does involve leaps in the inner voices—tenor and alto—which each descend by a third.

Illustration 1.11



Such leaps are perfectly acceptable when they occur in inner parts. But the same can sound awkward in the soprano, as Illustration 1.12a shows. Here the soprano descends from *b1* to *g1*. The problem here is that the note *b1* is a **leading tone,** lying a half step beneath the note *c2*. Leading tones want to move upward. Not every progression allows them to do so, but this one does. Hence the realization shown in Illustration 1.12b is much better; it avoids the leap in the soprano and has smoother voice leading in the inner parts as well. The major third—that is, the note lying a major third or tenth above the bass—is often a leading tone. Thus the major third demands special attention, especially when it is in the soprano.

Illustration 1.12



Some writers on figured bass suggest that one should always concentrate on creating a good melodic line in the soprano. *All* the parts, however, should normally be as smooth as possible. Only in exceptional circumstances is it necessary to compose a real tune for the soprano. The plain, simple voice leading illustrated here is usually best, not only when realizing these exercises but when accompanying from a figured bass in real music.

The second half of Exercise 1.1a employs the same principles as the first half. Note, however, the accidentals in mm. 6, 7, and 8. Accidentals of this type, not attached to a numeral, always refer to the third of the chord (occasionally the figures include a numeral as well as the accidental, as 3# or #3). The note called for in m. 6 is F-sharp; in m. 7, it is F-natural. Everything else stays the same; thus on the second half of m. 6 we play a D-major triad, on the second half of m. 7 a D-minor triad.

Exercise 1.1b. We are finally prepared to go on to the next exercise. This one differs from Exercise 1.1a chiefly in the greater number of figures: that is, accidentals referring to the third of the chord. In m. 8 (first ending), it is understood that not only the third but the fifth is sharpened, producing a B-major triad.

In m. 4, only the second note bears an accidental. This means that the minor third C on the first beat becomes the major third C-sharp on the second beat—an example of **chromatic** voice leading. Chromatic motion is also called for in m. 5.

The first ending contains a trap for the unwary continuo player. When the bass rises suddenly to the note *b*, the two hands will run into each other or even cross if the realization is too low to avoid a collision with the bass. The upper voices should never cross below the bass. To avoid this, one has to plan ahead, leaping into a higher register when required—not too often, one hopes, and only by as large a leap as is necessary. The best place for a leap is at the end of a phrase or at a double bar, where even a very wide leap, such as an octave, is acceptable.[4] But one sometimes has little choice; one leaps when one has to.

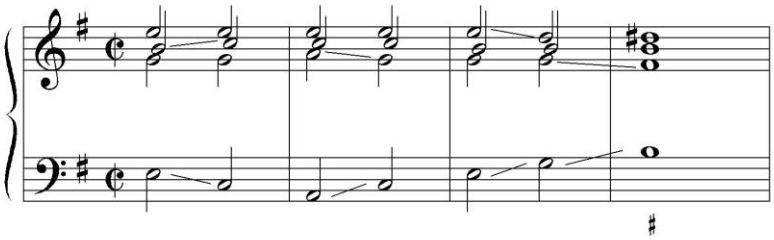
At times one may want to leap to avoid having to play a chord that feels uncomfortable under

[4] Some examples of leaps are shown in the Appendix; see the realizations of Exercises 4.2 (mm. 4–5) and 4.4 (at the double bar).

the hand. This should be avoided unless the chord or the progression to which it belongs is incorrect. Real music requires one to play uncomfortable chords, and it is important to practice the exercises in many different ways. Try starting from each of the possible realizations of the first chord, not leaping except when absolutely necessary, even at repeats.

Exercise 1.2. Here the bass moves in thirds. As a result, the voice leading of the upper parts differs from that in Exercise 1.1. Now, with each chord change, two upper parts hold their notes and only one moves (Illustration 1.13). Moreover, the moving voice always moves in the direction opposite that of the bass; this is called **contrary motion.** Contrary motion is distinct from **parallel motion,** in which the parts move in the same direction; we have already seen numerous examples of this. **Oblique motion,** the movement of one voice against a held or repeated note in another, can also be observed in Illustration 1.13.

Illustration 1.13



Contrary motion is often said to be preferable to the other types. This is because two voices moving in contrary motion are more clearly independent of one another, producing audible **counterpoint:** the combination of distinct melodic lines. Contrary motion is indeed desirable in figured bass realization. But it is impossible for all four parts to move simultaneously in contrary motion. Moreover, to attain the smoothest possible voice leading, it is sometimes necessary to dispense with contrary motion.

Chromatic motion also occurs in Illustration 1.13—at the end, where the soprano moves from *d2* to *d#2*. The chromatic motion at this point may be rather startling. Yet chromatic motion, from the point of view of figured bass, is merely an embellishment or variation of oblique motion. In Illustration 1.13, the chromatic motion in the soprano is an inflection of the note *d2*. The accidental could have been omitted without affecting the voice leading.

Exercises 1.3a–b. The progressions in these Exercises *require* some use of contrary motion. In Exercise 1.3a, the bass ascends by step in m. 1; it descends by step in m. 9. Illustration 1.14 shows what happens if m. 1 is realized in parallel motion. This produces consecutive octaves in the tenor (Illustration 1.15a). In addition, the soprano contains consecutive fifths (Illustration 1.15b).

Illustration 1.14

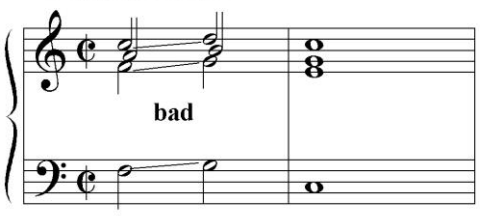
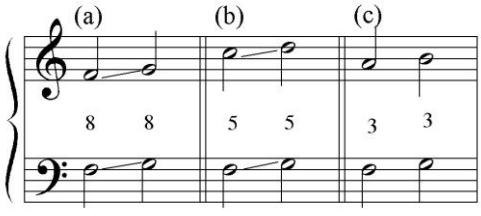


Illustration 1.15



Voice leading such as this has been avoided in serious polyphony since the fifteenth century, even though consecutive thirds, as in the alto (Illustration 1.15c), or consecutive sixths have always been allowed. The rule against consecutive fifths and octaves takes priority over all other considerations. Thus, despite the smooth voice leading in Illustration 1.14, some of that smoothness must be sacrificed to avoid forbidden parallelisms.

The solution is to *use contrary motion whenever the bass moves by step from one triad to another.* If the bass moves upwards, as in Illustration 1.16, all three upper parts move downwards. To put it another way, if the bass ascends, the hands should move toward one another. This will produce a leap in one of the upper voices. As Illustration 1.17 shows, even the soprano is forced to jump downwards in mm. 5–6, to avoid parallel octaves. By the same token, if the bass descends by step, as in Illustration 1.18, the upper parts should rise; the hands move apart.

Illustration 1.16

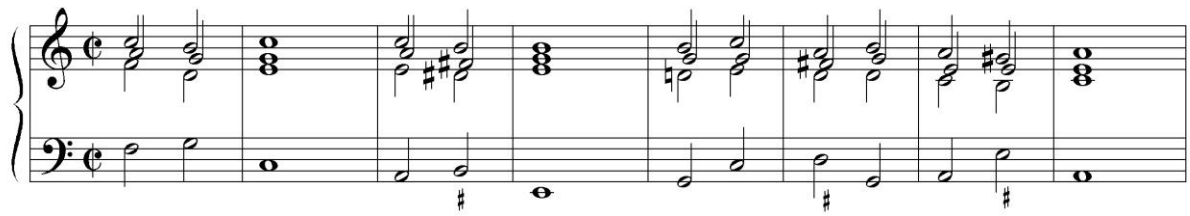


Illustration 1.17

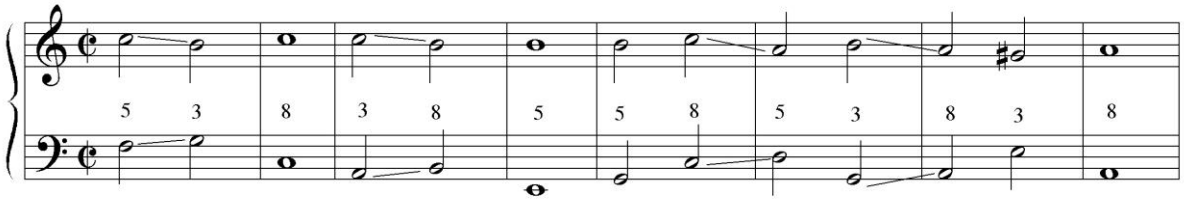
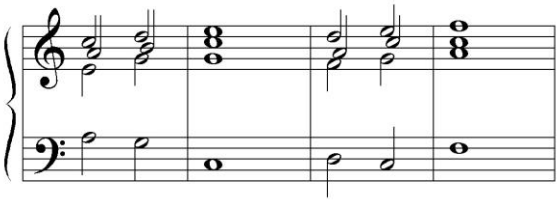


Illustration 1.18



Exercise 1.3c. Measure 5 of this Exercise introduces a new figure, the numeral 5 followed by a sharp (#). This figure stands for the sharpened fifth (C-sharp). The same accidental is sometimes indicated by a figure 5 followed by a cross or plus sign: 5+.[5] Accidentals applying to a figure may be placed either before or after the numeral—if they occur at all, for some composers were careless about indicating such things.

Exercise 1.4. This Exercise uses all the progressions discussed so far.

Exercises 1.5a–c. These three Exercises consist largely of **sequences:** phrases in which a

[5] Sometimes the plus sign is reduced to a stroke through the numeral, although this symbol can also mean a 6/5-chord; see Chapter 10.

short melodic pattern is repeated at different pitch levels. Ideally, the upper voices will also be sequential, so that the sequential nature of the bass line is reflected in the upper voices. But this is not always possible; the rules of voice leading or the desire for smooth upper parts may prevent the realization from following a pattern. For example, Exercise 1.5a consists of ascending sequences. Unless one takes the first chord quite low, it will be necessary to introduce a few downward leaps into the upper voices to keep them within the acceptable range.

Exercise 1.6. More practice in all the above. Be sure to practice with the first chord taken in various positions.

Exercise 1.7 is from the motet *O Domine Jesu Christe* by Ludovico Grossi da Viadana (ca. 1560–ca. 1627). The motet appeared in Viadana's *Centi concerti ecclesiastici* (Venice, 1602). This was the first published work to give rules for figured bass realization. As in many of the Exercises taken from real music, the figures have been somewhat simplified.

Exercise 1.8. From Arcangelo Corelli (1653–1713), trio sonata op. 1, no. 10, fifth movement. Corelli's trio sonatas were regarded as models of beautiful and correct composition throughout the later seventeenth and eighteenth centuries. They will be the chief source for our Exercises extracted from real music. Note the sequences, a common feature of Corelli's style.

Exercise 1.9. This is intended to provide practice in "aiming" for the chords that are written out in the Exercise. The rules requiring smooth voice leading can be disregarded, for it will be necessary to introduce at least a few small leaps now and then, as in mm. 2–4 (see Illustration 1.19). Within this passage, one would ordinarily play the first three chords as shown in Illustration 1.20. But to reach *f#2* at the end of the phrase, as required by the Exercise, one would then need to make the extreme leap shown over the bass notes *a–d.* Illustration 1.19 is preferable for maintaining a relatively smooth soprano line.

Illustration 1.19

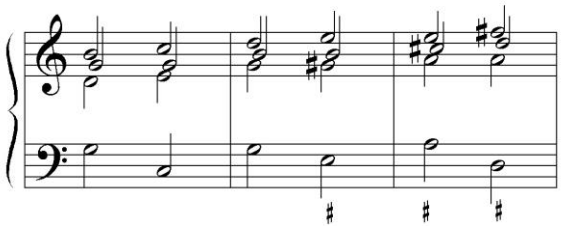
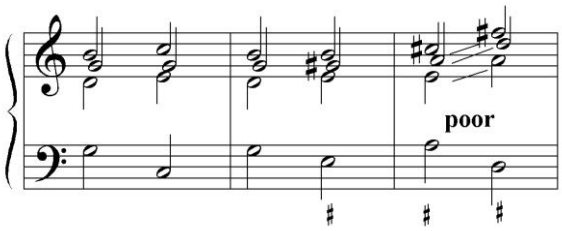


Illustration 1.20



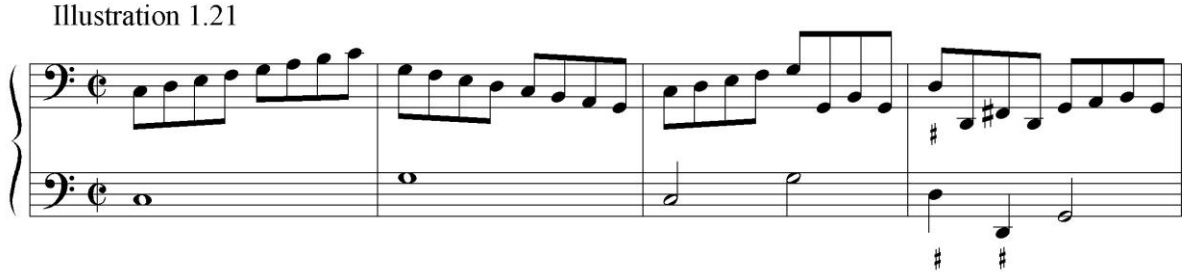
In real music, it is often necessary to aim for some particular realization of a given chord—or to avoid one. This is especially true at cadences, where many writers recommend ending with the octave, that is, doubling the bass, in the upper part—avoiding the third or fifth. This rule would be difficult to apply universally. Yet it probably should be followed at final cadences, especially in lightly scored pieces, where the individual notes of the continuo realization are most likely to be audible. Hence Exercise 1.9 places the octave in the top part before the double bars in mm. 16 and 24.

It is useful to practice aiming at a particular final chord in other Exercises as well—but only after learning them in the usual way. In learning real continuo parts, it can be helpful to write in the top note of chords where it is important to aim at a given disposition. This can help one avoid ending above the soloist in the final cadence of an aria or sonata!

Exercises 1.10a–b. Unfortunately for continuo players, not all basses consist solely of long notes bearing triads. Most bass lines in the real world contain **passing tones:** notes that do not receive chords of their own. These notes "pass" melodically from one harmonically essential

bass note that does bear a chord to another. Passing tones (also called passing notes) are a type of written-out embellishment. Measures 1–4 of Exercise 1.10a are an embellished or varied version of the simpler line shown on the lower staff of Illustration 1.21. That lower staff is a melodic **reduction** of the actual bass line. One plays chords only on the notes of the reduction, whose rhythm is that of the actual harmonic progression—that is, the **harmonic rhythm.** Within Exercise 1.10a, the harmonic rhythm initially moves in whole notes, then half notes starting in m. 3.

Illustration 1.21



How does one determine which bass notes are to bear chords? Sometimes the composer helps by drawing dashes or horizontal lines beneath the passing notes. This has been done in the first half of Exercises 1.10a and 1.10b. Often, however, one must make the decision on one's own. If one cannot consult the score and has only the figured bass as a guide, some guesswork may be necessary. Chords usually fall on the beats, or at least the accented beats of each measure. But one must pay attention to the melodic contour of the bass line. The harmonically essential bass notes are likely to be those occurring at melodically exposed points—at the beginnings of scales, or before and after leaps.

If, however, both notes of a leap fall within the same triad, then no change of chord is necessary. This occurs at the ends of mm. 3 and 4 (*G* and *B*) and likewise in m. 5 (*C* and *e;* see Illustration 1.22). Beware, however, of passages like m. 7. Here the harmonic rhythm starts with a half note, but it accelerates to quarter notes in the second half of the measure (Illustration 1.23). In real music one often must refer to the score to determine which bass notes need chords, as is also necessary when realizing an unfigured bass (discussed in Chapter 12).

Illustration 1.22

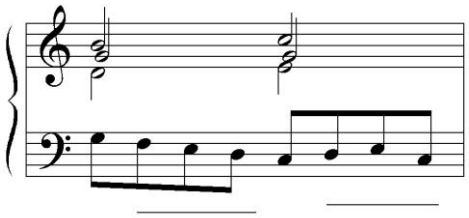
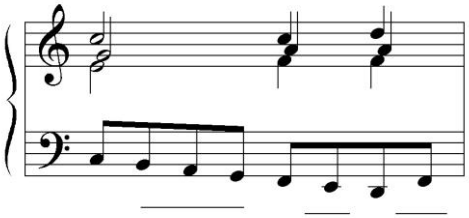
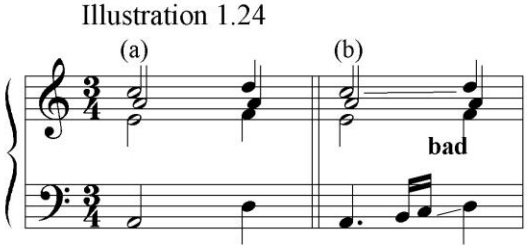


Illustration 1.23



One might suppose that a figured bass line that contains passing tones can always receive the same realization as its melodic reduction. Alas, this is not the case. Consider Illustration 1.24, which is drawn from Exercise 1.10b. The bass of Illustration 1.24a is the reduced version of the actual bass in m. 1. The realization shown is entirely correct. But the same realization yields parallel octaves when the bass is ornamented by passing tones (Illustration 1.24b.)

Illustration 1.24



The forbidden octaves can be avoided only by introducing a downward leap, as in Illustration 1.25a. The leap may sound awkward when placed in the soprano, so one might aim at a realization that places the leap in an inner voice (Illustration 1.25b). In theory, forbidden parallelisms are created in such a progression even when the bass remains in its reduced form. Illustration 1.24a is said to contain **hidden octaves,** since the leap in the bass could be filled in melodically to produce parallel octaves.

Illustration 1.25

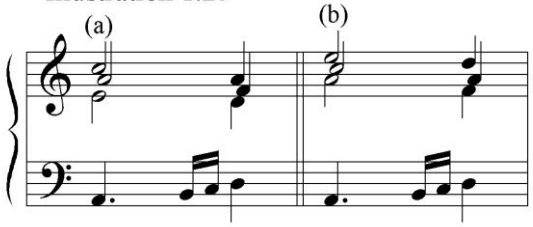


Illustration 1.26 shows a case of **hidden fifths,** between soprano and tenor. Despite theoretical reservations against hidden parallelisms, in four-part realization it is impossible to avoid them, and a continuo player rarely needs to be concerned about them. In Illustration 1.26, hidden fifths could have been avoided by playing the opening chord in a different position (for example, with *c2* in the soprano). But, having chosen to place *f2* in the top voice, one cannot avoid hidden fifths without introducing something far worse. For example, having the soprano leap down to *b1* would create a melodic tritone (diminished fifth). Baroque composers generally avoided that interval in melodic lines except as an expression of extreme pathos.

Illustration 1.26

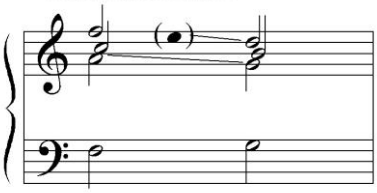


Illustration 1.27

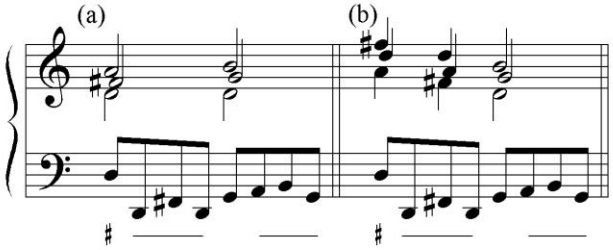


Illustration 1.27a, from m. 4 of Exercise 1.10a, shows a borderline case. The hidden octaves are probably acceptable, even though they involve the leading tone F-sharp. But the situation might be different if the realization placed the leading tone in the soprano. One solution in that case would be to leap to a different chord on the second beat (Illustration 1.27b).

Exercise 1.10c. From *Nach dir, Herr, verlanget mich*, attributed to J. S. Bach as Cantata 150. In this movement the continuo part (the lower line) is an embellished version of a bass line that is played simultaneously in a reduced version for the bassoon. Thus, by glancing at the bassoon part, the organist or harpsichordist can determine the essential bass notes. (Usually it is not so easy!) Despite the sixteenth rest at the beginning, it is permissible and even desirable to play a chord on the downbeat—in this case, a D-major triad, as the bassoon part implies.

2
TRIADS IN THREE PARTS; OPEN SPACINGS

Four-part harmony has been regarded as the norm since the eighteenth century. But in realizing a figured bass it is often necessary to reduce the number of parts, as when accompanying a quiet passage or a soft solo instrument like the transverse flute playing in its low register. Thus every player must be prepared to play in just three or even in two voices. Although four-part counterpoint is usually considered more difficult to write than three-part counterpoint, the latter is more difficult to improvise, at least in the strict style of realization that is our present aim. The difficulties lie in the fact that one must continue to give the impression of full harmony despite the fact that one is playing fewer notes. Two-part accompaniment is even more difficult, since the one line played by the right hand becomes in effect an obbligato part. In other words, one's realization becomes an exercise in counterpoint. Such playing requires great skill and may need to be fully written out in advance. We cannot be concerned with it here.

Three-part realization is not quite so exacting, but it is nevertheless more difficult than what was taught in Chapter 1. One must take care that the essential character of each chord remains clear, even when one of the notes that it would normally include is absent; with triads, this means that the third of each chord must be present. Instead one might omit the octave, as in Illustration 2.1a. Or one might leave out the fifth, doubling the bass (Illustration 2.1b). By omitting the fifth, we are left with an **incomplete** chord. This is acceptable as long as the third is present. But omitting the third would leave an **open fifth** (Illustration 2.2). Open fifths are not clearly major or minor and have been avoided in Western music since the fifteenth century.[6]

Illustration 2.1

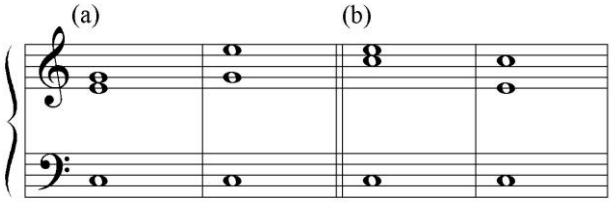
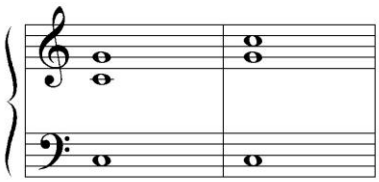


Illustration 2.2



At this point one should return to Exercises 1–10 of Chapter 1, realizing them in three parts. The same rules apply as before: avoid parallel fifths and octaves, and keep voice-leading as smooth as possible. But the need to avoid open fifths means that even the simplest of the exercises will require frequent leaps in the upper parts. In addition, it will be necessary to use open spacings for many chords.

A three-part realization of the first Exercise is shown in Illustration 2.3. Asterisks indicate open spacings, and at each of these points one of the voices leaps. This is to avoid open fifths; Illustration 2.4a shows what would otherwise happen in m. 3. A different possibility is shown in Illustration 2.4b, which shows complete triads on both notes, but at the expense of a leap in both upper parts.

[6] An exception occurs in the final chords of certain Baroque works in archaic, pseudo-Renaissance style. It is unclear whether continuo players were expected to add the third in such cases.

Illustration 2.3

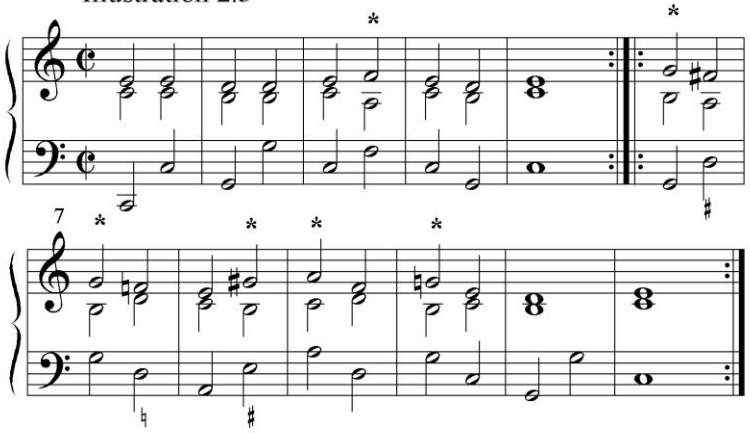
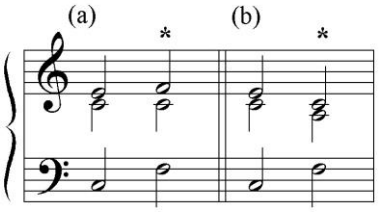
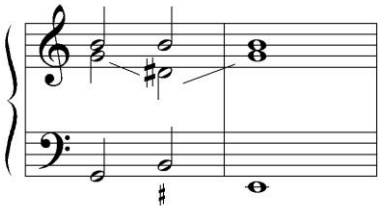


Illustration 2.4



Take another look at m. 3 of Illustration 2.3. Notice that the two upper voices move in contrary motion: the soprano ascends by step while the middle voice leaps downward. This type of contrary motion is common in three-part progressions. Odd melodic intervals may arise as one seeks to create full harmony with only three voices. For example, in Illustration 2.5 the middle part descends and then ascends by diminished fourth. This is tolerable, at least when the unusual leap is in the middle voice. A better solution for this particular progression (from Exercise 2.2, mm. 9–10) is given in the Appendix.

Illustration 2.5

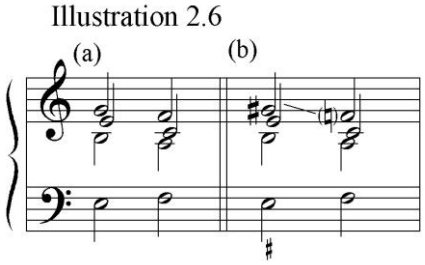


Three-part realization will probably go more slowly than realization in four parts. If realizing all ten Exercises of Chapter 1 grows excessively frustrating, one might skip ahead to Exercises 2.11–13. These introduce an important technique related to what has been discussed above.

Exercises 2.11a–c. Some common progressions *require* open spacings, even when realized in four parts. This is so whenever two consecutive bass notes separated by a half step both bear major triads. Consider, first, Illustration 2.6a. Here the bass ascends by half step. Only the second chord is a major triad, and the progression from a minor triad to a major triad follows a familiar pattern (compare Illustration 1.16).

Now consider Illustration 2.6b. Here a sharp has been added under the first bass note, making *both* chords major triads. Merely inserting a sharp into the realization forces the soprano to leap down an augmented second. This interval, like all augmented and diminished intervals, is rare in Baroque melodic lines. The note *g#1* is also a leading tone, making it doubly unwilling to descend to *f1*.

Illustration 2.6



The only solution is for *g#1* to ascend, as in Illustration 2.7a. The other voices move as before, resulting in contrary motion between soprano and alto. The second chord, above the bass note *f*, is in open spacing. Within this chord, the third (A) is doubled. Most harmony textbooks warn against doubling the third of a triad, but there is no other way to realize this progression in four parts.

The same doubling, with open spacing, is necessary when the order of the two chords is reversed, as in Illustration 2.7b. In short, when the bass moves by step and each note bears a major triad, one must double the third within the higher chord.

The doubled thirds in Illustration 2.7 are an octave apart. But the two voices bearing the third can also meet in a unison (Illustration 2.8). Unison doublings reduce the actual number of sounding notes, resulting in a loss of sound on harpsichord or organ. Many writers warn against them, yet unison doublings cannot always be avoided. For most purposes they are fully equivalent to octave doublings.

Illustration 2.7

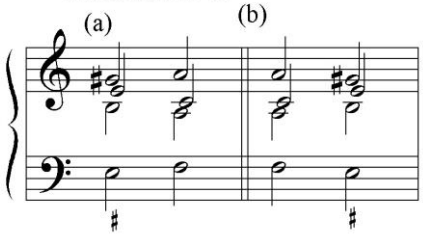
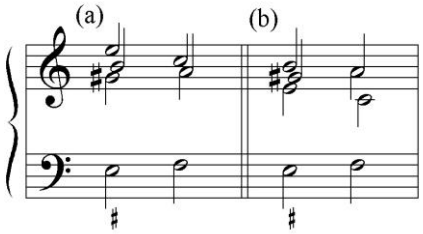


Illustration 2.8

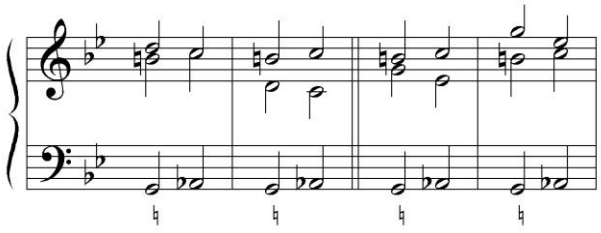


Exercises 2.11a and 2.11b provide practice with basses ascending and descending by step, respectively. The exercises are difficult (and somewhat contrived, since in real music these are rather rare progressions). If they prove too difficult, it is unnecessary to spend a great deal of time on them. In **Exercise 2.12,** mm. 1–3, the half step arises as part of a sequence. **Exercise 2.13** contains examples of all the progressions considered to this point.

Exercises 2.11, 2.12, and 2.13 can also be practiced in three parts. Because of the reduced number of sounding tones, one should avoid the unison doublings shown in Illustration 2.9a. Those doublings are necessary when the first chord includes the fifth. Therefore the solution is to omit the fifth on the first (lower) bass note (Illustration 2.9b).

Three-part realization of these exercises is difficult, and if one can play them satisfactorily in four parts there is no reason not to proceed to Chapter 3.

Illustration 2.9



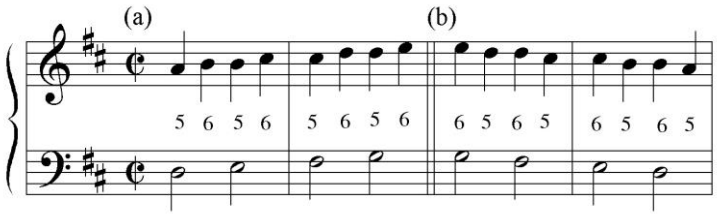
3
6-CHORDS

Triads normally contain the third, the fifth, and (when realized in four parts) the octave. All three intervals are **consonances,** meaning that they do not imply or require a subsequent **resolution,** as do **dissonances.** Only one other type of chord is made up entirely of consonant intervals; this is the **6-chord.**

In functional harmony, the majority of 6-chords are regarded as first-inversion chords. That is, they arise when the bass note of a triad is transferred to an upper part, leaving the third of the chord in the lowest voice.[7] But chord inversions play no part in figured bass realization. Here, 6-chords arise not through the inversion of chords but through voice leading. In figured bass, therefore, the word *triad* refers only to 5/3-chords. It has nothing to do with 6-chords, which, as far as the continuo player is concerned, are a distinct type of sonority.

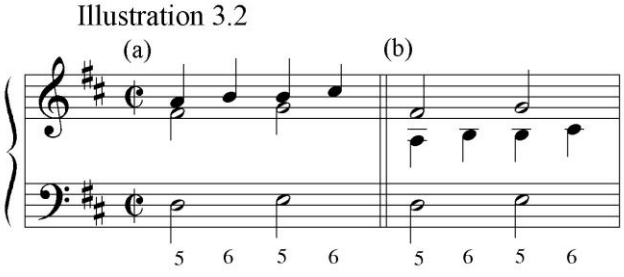
For example, in Illustration 3.1a a melodic line is produced by repeated motion from the fifth to the sixth. The result is a series of **5–6 progressions.** Illustration 3.1b shows the corresponding descending progression. There are two consecutive figures for each bass note; by convention, each figure takes half the value of the bass note.[8]

Illustration 3.1



Exercise 3.1 is based on Illustrations 3.1a and 3.1b. It is to be realized in three voices, as shown in Illustrations 3.2a and 3.2b. The exercise alternates continuously between triads and 6-chords. Notice that the 6-chords arise through the motion of a single voice; the other voice moves in parallel thirds with the bass. The figure 5, normally omitted when a triad is called for, is specified here to make the voice-leading clear. Because the third is present in both the triad and the 6-chord, there is no need to indicate it specially.

Illustration 3.2

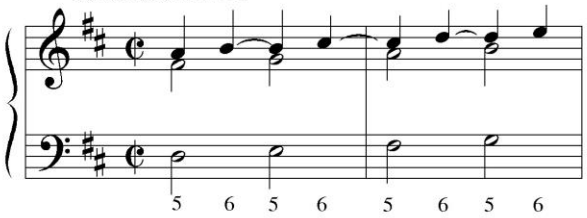


[7] The *second* inversion of the triad leaves the fifth of the chord in the bass. In figured bass realization, second-inversion chords are treated as dissonances; they are a type of 6/4-chord, discussed in Chapter 6.

[8] This is true regardless of where the second figure is actually printed or written on the page. If the bass note is dotted, the second figure falls on the dot, taking one half the time of the first figure.

The exercise involves many repeated notes; therefore one might wish to introduce ties, as in Illustration 3.3. This produces **syncopation** within the voice that bears the ties; that part no longer moves on the beat. Syncopation enhances the rhythmic independence of the voice containing the ties, and it would be encouraged if one were writing a counterpoint exercise. But it is not necessarily a good idea to play such ties in a continuo part. One of the chief functions of the continuo is to help establish the tempo and maintain good ensemble with the other musicians. This is best accomplished by playing full chords on each bass note that bears a chord. The ties shown in Illustration 3.3 would weaken that effect.

Illustration 3.3



Exercise 3.2 is similar to Exercise 3.1, but the bass notes are now repeated as the upper part moves from 5 to 6 (or vice versa). This exercise, and indeed all the exercises in this chapter, can be realized in four as well as in three parts. But four-part realization is difficult and need not be attempted for the time being.

Exercise 3.3 introduces a new wrinkle: chromatic motion in the bass. This has no effect on the underlying voice leading, apart from requiring the addition of a few accidentals in the upper voices. Thus a raised third (G#) is required in m. 1 over the bass note *e*. Natural signs are appended to figures in mm. 5 and 6, standing for C-natural. The placement of such accidentals is sometimes erratic; they may be omitted, or they may be placed too far to the right, so that they appear to represent separate chords. If reading the figures as written leads to something that is musically nonsensical, try reading them another way.

Exercise 3.4. Here the 6-chords are produced through stepwise motion of the bass, a very common progression. In functional harmony, the chords in mm. 1–2 would be symbolized as I, V/6, I. But not all 6-chords have a dominant function, and it is best not to think in terms of functional harmony while realizing any of these Exercises.

The opening of this Exercise is realized in Illustrations 3.4 and 3.5. Ties are shown in Illustration 3.4 to point out how one of the upper parts holds or repeats its note. In performance one would probably restrike the note, as in Illustration 3.5a. The tied (or repeated) note is initially in the middle voice (mm. 1–2), then in the upper voice (in mm. 3–4).

Illustration 3.4

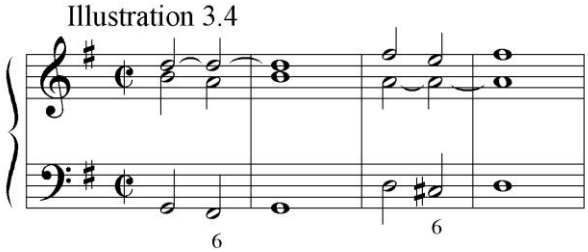
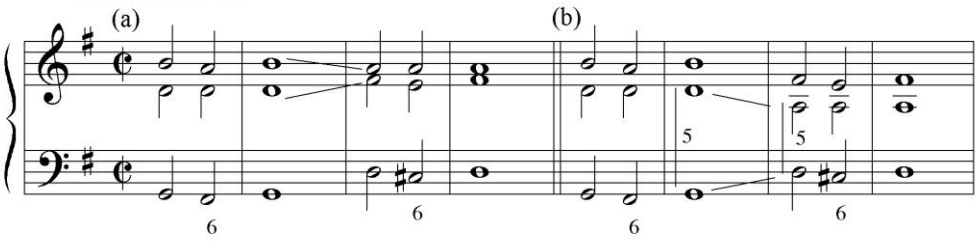


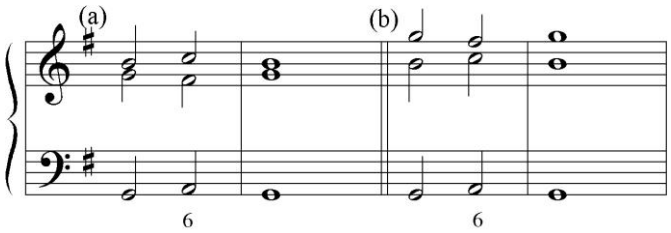
Illustration 3.5



The two upper voices exchange roles in this manner to maintain smooth voice-leading. Doing so also avoids the consecutive fifths shown in Illustration 3.5b. These are not *parallel* fifths, so they are tolerable. But the realization in Illustration 3.5a is more elegant as it involves less jumping around by the upper parts.

Exercise 3.5 contains another important progression involving 6-chords. These 6-chords differ significantly from those in the preceding Exercises. Consider the intervals within the first 6-chord of Illustration 3.4. The top voice has the *minor* sixth (D), and the middle voice has the *minor* third (A). Compare this with the first 6-chord in Illustration 3.6a. Here the sixth (F#) is a *major* sixth, and the interval between the two upper parts *(f#1/c2)* is a diminished fifth or **tritone.** In Illustration 3.6b, where the upper parts have been exchanged, the interval between them is an **augmented fourth** *(c2/f#2).*

Illustration 3.6



The diminished fifth and augmented fourth are dissonances. The expression *tritone* can refer to either of them.[9] As a dissonance, the tritone moves with particular urgency to its **resolution** in the following chord. The diminished fifth closes into a third, whereas the augmented fourth opens into a sixth. One can think of the two notes forming the tritone as leading tones. One of these ascends by half-step in the normal manner. The other is an *inverted* leading tone that descends by the same interval.

These two leading tones move in opposite directions, by contrary motion. Most dissonances require special treatment, as discussed in Chapters 5–11. In Exercise 3.5, one need take care only that both notes of the tritone move in contrary motion by half step.[10] This is not always possible, especially when playing in four parts. But at least the ascending leading tone (the *real* leading tone) should ascend.

A new symbol is introduced in m. 3: the figure 6 with a stroke or slash drawn through it. This means that the sixth is sharpened: one plays C# in m. 3, G# in m. 6. The slash probably stands for the cross or plus sign that can be appended to the figure with the same meaning (6+). A sharp before or after the figure (6#) means the same thing.[11]

Measures 7–8 introduce another new idea: consecutive 6-chords. This presents no problem in three parts, although one should avoid the realization with the third of each chord in the upper voice. That produces parallel fifths, as shown in Illustration 3.7a. Parallel motion from a

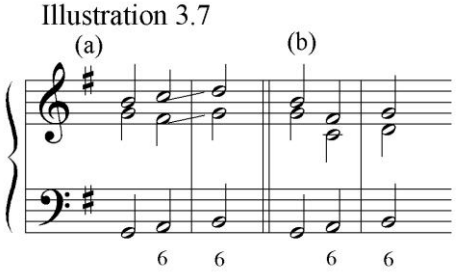
[9] Strictly speaking, a tritone comprises three whole steps, which is true only of the augmented fourth.

[10] The tritones in these 6-chords are *passing* dissonances, unlike those introduced in Chapter 6.

[11] In French figured basses the 6 with a stroke can refer to the 6/4/3-chord (see the discussion of Illustration 4.5 in Chapter 4 as well as the section on French figuring in Chapter 12).

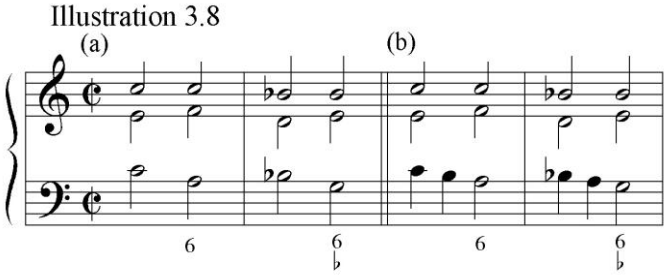
diminished to a perfect fifth is tolerable, indeed unavoidable in certain progressions. But it is not very elegant, especially in three parts. Illustration 3.7b is preferable, despite the leaps.

Illustration 3.7



Exercises 3.6–7. The 6-chords here present nothing new in themselves. But the context is different: the bass contains leaps of a third (Illustration 3.8a). Such a bass line could be ornamented by filling in the leap with a passing tone, as in Illustration 8b; the realization remains the same. One might practice realizing both exercises with the thirds in the bass ornamented in this manner.

Illustration 3.8



Exercise 3.8. Again we have consecutive 6-chords, as in Exercise 3.5. Here, however, some of the successive 6-chords will contain parallel fifths if realized as in Illustration 3.9. These fifths are both perfect, unlike the ones in Illustration 3.7. Hence these successions of 6-chords can no longer be played with the third of each chord in the top voice. If you start with such a chord, as in Illustration 3.9, you must modify the next one, leaping as in Illustration 3.10. For similar reasons, there is only one way to play mm. 5–7, regardless of how one starts in m. 5 (Illustration 3.11).

Illustration 3.9

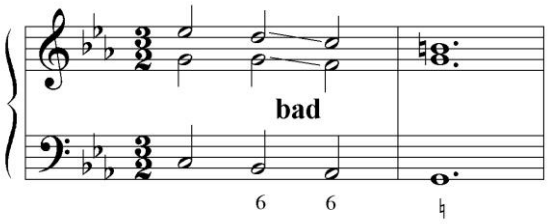


Illustration 3.10

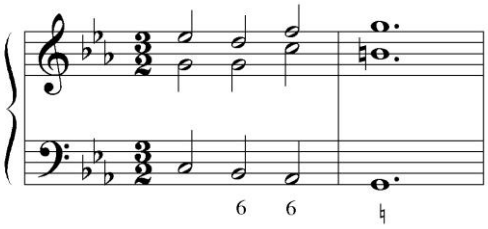
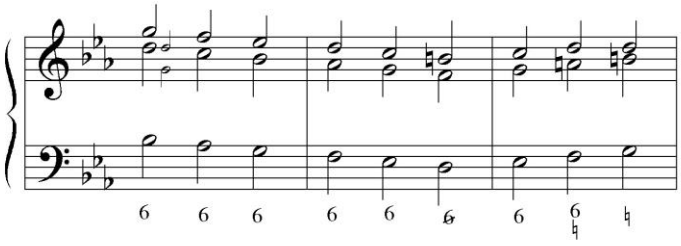
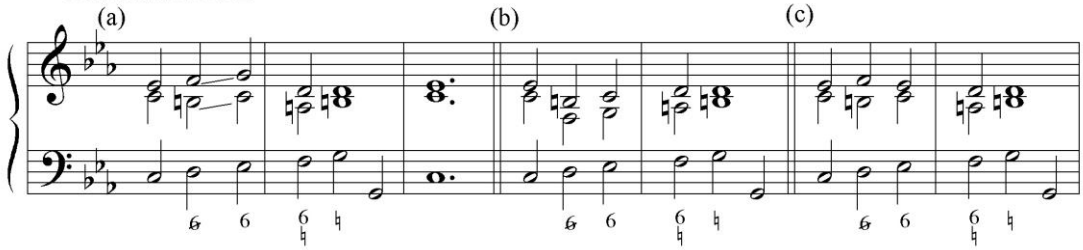


Illustration 3.11



Measures 8–9 begin with ascending 6-chords. These offer some choice, as the first of these 6-chords contains a tritone. Illustration 3.12 shows three possibilities. Illustration 3.12a still contains parallel fifths, but the first fifth is diminished (a tritone) and therefore allowable. Illustration 3.12b avoids the parallelism but has an awkward leap: the soprano descends through a diminished fourth (*eb1* to *b*). Smoother voice leading is achieved in Illustration 3.12c by doubling the third bass note *(eb)*. The 6-chord on that note incomplete, lacking the third (G). This is acceptable if done only occasionally, especially on a weak beat.

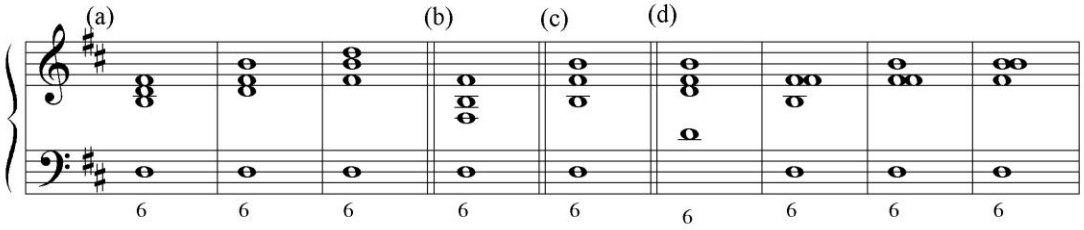
Illustration 3.12



Realization in four parts. Progressions of consecutive 6-chords as in Exercise 3.8 are most readily realized in three parts. Real music sometimes requires four-part realization, for it would weaken the continuo part to reduce the number of voices wherever a series of 6-chords occurs. Thus it is useful to learn to play these progressions in four as well as in three parts.

First let us consider the possible ways of a playing a 6-chord in four voices. Closed positions include doublings of the bass (Illustration 3.13a). Open positions involve doubling either the third (Illustration 3.13b) or the sixth (Illustration 3.13c). All these doublings are at the octave, but unison doublings are also possible (Illustration 3.13d).

Illustration 3.13



One is often told not to double the bass of a 6-chord; some writers also discourage doubling the third. But when playing from a figured bass, no type of doubling can be ruled out. Composers at different times have shown varying degrees of toleration for "forbidden" doublings. The doublings in Illustration 3.13a are by no means unusual, although they are less common when the bass note bears a sharp.

When adding a fourth voice to the 5–6 progression (Exercises 3.2–3), the basic problem is to avoid the parallel octaves shown in Illustration 3.14. The simplest solution is to omit the octave in each of the 6-chords: instead of doubling the bass, double the third or the sixth. The result is a series of leaps in the added voice (Illustration 3.15). The same solution applies in Exercise 3.3.

Illustration 3.14

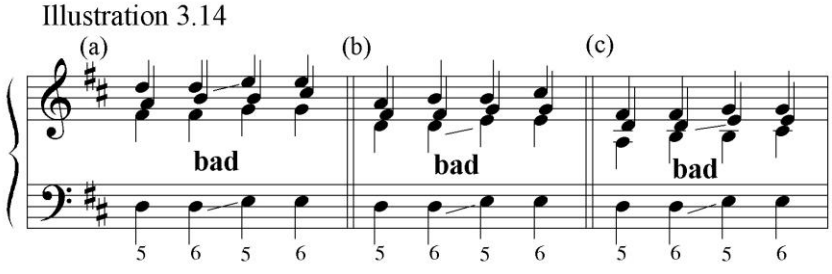
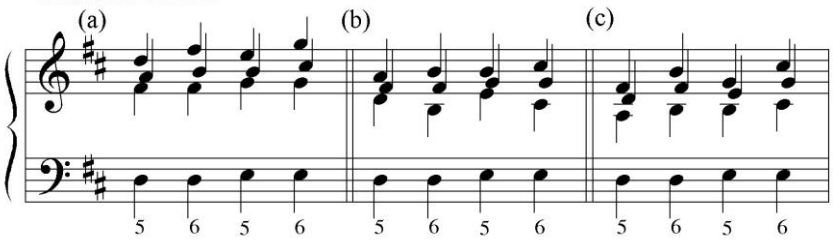
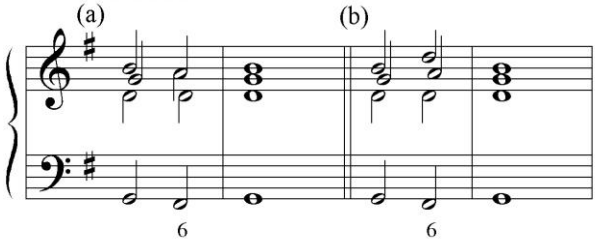


Illustration 3.15



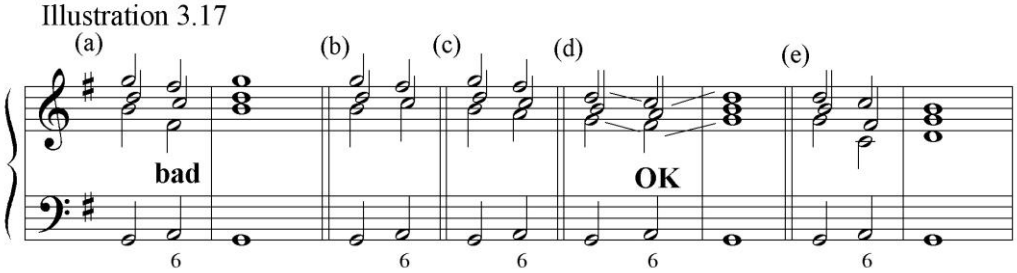
Similar considerations apply in Exercise 3.4. To avoid parallel octaves one employs open positions, doubling the third (Illustration 3.16a) or the sixth (Illustration 3.16b). Notice that both illustrations proceed from the same starting position. Some writers object to the unison doubling in Illustration 3.16a, but at times the smooth smooth voice-leading of this illustration seems preferable to the leaps of Illustration 3.16b. Both realizations are acceptable for our purposes.

Illustration 3.16



On the other hand, certain doublings are positively objectionable. For example, in Exercise 3.5, the first 6-chord contains the leading tone F-sharp. This note should not be doubled, as it is in Illustration 3.17a. Instead one may double the third (Illustration 3.17b) or the bass (Illustration 3.17c). Notice, however, that if one starts with the fifth (D) in the upper voice, parallel fifths may follow (Illustration 3.17d). These are tolerable, as the middle fifth is a tritone. The solution in Illustration 3.17e is more elegant, despite the leaps in both inner voices.

Illustration 3.17



Exercises 3.6–7 pose no special problems for four-part realization. Once one has solved the initial measure in each half, it should be possible to repeat the solution sequentially in the following measures.

Exercise 3.8, with its chains of 6-chords, is another matter. Despite the simplicity of the bass line, there is no equally simple way of realizing it in four parts. One must alternate between various types doublings in successive 6-chords. In Illustration 3.18a, a doubling of the sixth (G) on the second beat is followed by a doubling of the third (C). In Illustration 3.18b the reverse occurs: a doubling of the third (D) is followed by a doubling of the sixth (F).

Illustration 3.18

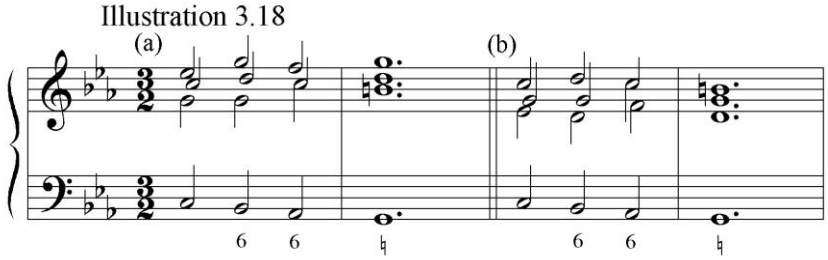
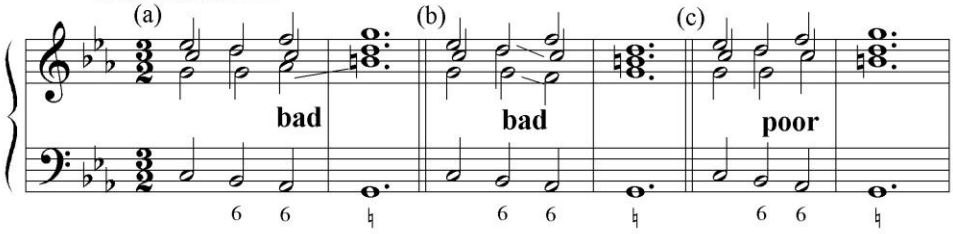


Illustration 3.18a shows some of the pitfalls of this progression. Suppose one starts with the soprano on *eb2,* as in Illustration 3.18a. If one then proceeds as in Illustration 3.19a, the tenor ascends through an augmented second *(ab1–b1).* As always, augmented melodic intervals are best avoided. In addition, the bass note *Ab* descends by half step; it considered an inverted leading tone, which should not be doubled.

Illustration 3.19



Unfortunately, if the tenor instead descends to *f1,* it produces parallel fifths, as in Illustration 3.19b. The only solution is for the tenor to leap up to *c2,* doubling the alto, as in Illustration 3.19c. But then there are successive unison doublings, and the number of voices is effectively reduced to three. Hence the best solution is to return to the realization shown in Illustration 3.18a.

It takes time and patience to learn such a progression. In many pieces, especially quick ones that are lightly scored, there is no harm in reverting to three-part realization for a series of 6-chords. But neither is there any harm in familiarizing oneself with the basic principles shown in Illustration 3.18: avoid unison doubling for as long as possible, but use it when needed; also, be ready to leap when necessary, to avoid forbidden parallels. This last principle applies especialy in the passage over an ascending bass shown in Illustration 3.20.

Illustration 3.20

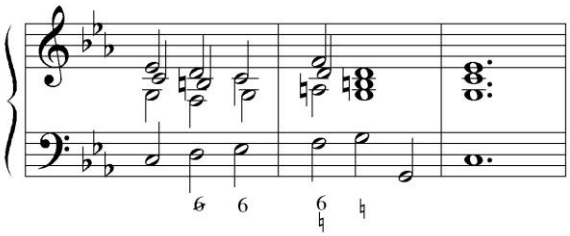
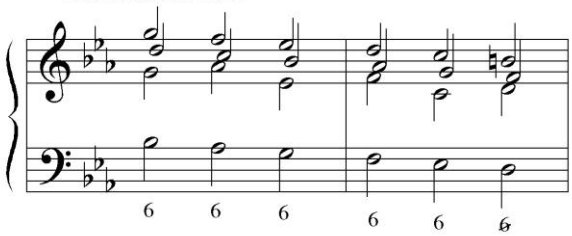


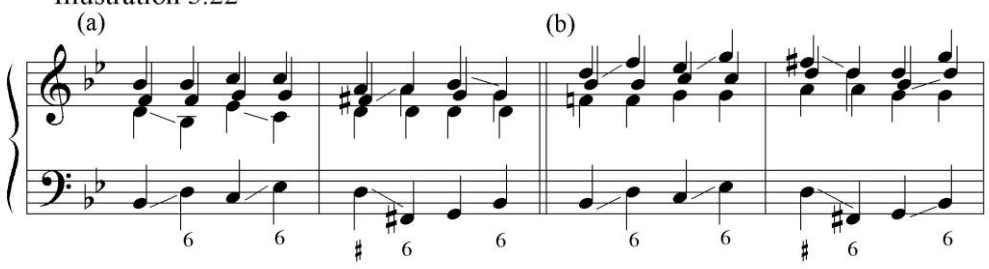
Illustration 3.21



Particularly ungainly is the long series of 6-chords shown in Illustration 3.21. The solution shown is to alternate between doubling the sixth and doubling the bass. Some of the chords may be uncomfortable to play, and if the passage were in the major mode instead of the minor, one might find oneself doubling some leading tones. Yet in a sequence such as this, the pattern is more important than the individual sonority.

Exercise 3.9. Here, finally, is a progression that is perhaps easier to realize in four than in three parts. In functional terms, the exercise involves the alternation between a triad in root position and its first inversion. One solution, shown in Illustration 3.22a, is to let one of the upper voices alternate or exchange notes with the bass in each pair of chords. In the first measure, the bass moves from *Bb* to *d,* and the tenor moves in contrary motion from *d1* to *bb.* Another possibility, shown in Illustration 3.22b, is for one of the upper parts to move in *parallel* motion.

Illustration 3.22



In both Illustrations 3.22a and 3.22b, the pattern of the first measure cannot be followed in the second. In Illustration 3.22a, this is because the tenor needs to avoid ascending through the tritone *c1–f#1;* in Illustration 3.22b, the soprano should not ascend above *g2.* In both illustrations, however, one avoids doubling the bass of the 6-chord.

Exercise 3.10. This Exercise contains the greater part of the fifth movement—a quick *gavotta*—from Corelli's "Christmas" concerto (op. 6, no. 8). In view of the rapid tempo—signified by the use of cut time—one might alternate between three- and four-part harmony. Three-part realization will facilitate the realization of the long chain of 6-chords in the final section.

Exercise 3.11. Corelli, trio sonata op. 1, no. 4, first movement (complete). The last two measures are tricky. The chromatic motion in the bass and the *adagio* indication—we would perhaps write *ritard*.—imply a need for sturdy, full chords. To avoid unison doublings—which would weaken the sound—the upper parts might leap about as in Illustration 3.23 (compare the realization in the Appendix).

Illustration 3.23

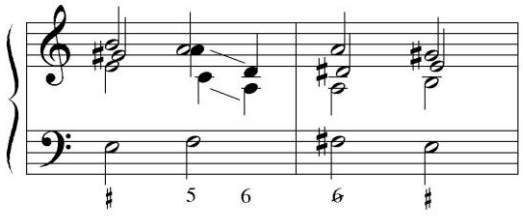
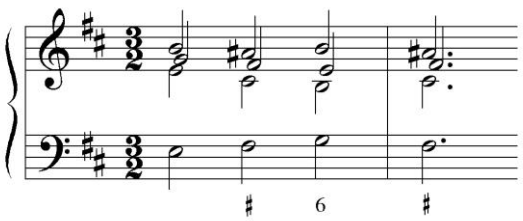


Illustration 3.24



Exercise 3.12. From Corelli, trio sonata op. 2, no. 8, third movement. Measures 6–7 comprise a *hemiola,* constituting in effect a single measure of 3/2-time (Illustration 3.24). The last two chords form a **Phrygian cadence,** in which the bass descends by half step. The bass note *g* is an inverted leading tone that should not be doubled.

Exercise 3.13. Corelli, trio-sonata Op. 1, No. 8, fourth movement (complete). The dynamic markings are original; one might reflect them by changing the number of voices (not by switching manuals, though that would, of course, be possible in real music). *Forte* is understood at the beginning; one might begin in four voices and switch to three at the *piano* in m. 33. Notice the passing tones in mm. 3, 11, etc. Although the figure 6 appears in m. 3, one need not strike a new chord at that point. This 6 has the same significance as a dash (horizontal line) drawn beneath the bass, such as we saw in Exercise 1.10.

Exercise 3.14. From Corelli, trio sonata op. 3, no. 1, third movement (abridged). Again it is helpful to alternate between three and four voices. The bass contains many passing tones, but only a few of these are distinguished by horizontal lines, added for this Exercises (there are none in the original). Measure 11 contains an **escape tone** *(c1),* a special type of passing tone that moves in the direction opposite that of the line as a whole.

As in the previous exercise, some of the 6-chords need not be restruck. Measures 15, 17, and 18 require only a single chord on the downbeat, and even m. 16 involves only two chords (Illustration 3.25). One might, however, repeat the initial chord on the second beat to reflect the strong accent implied there by the octave leap in the bass. Other chords could also be repeated to provide greater rhythmic impetus even though they are not strictly necessary, for instance on the first two beats of mm. 17 and 18.

Measures 24–25 contain another hemiola. There are further hemiolas in mm. 12–13, 22–23, 32–33, and 34–35, although these bars lack the tie over the barline that makes the hemiola in mm. 24–25 so clear. In each of these passages, however, a tie within one of the two violin parts suggests the presence of a hemiola. In m. 2 as well, it would be possible to restrike the F-major triad on the third beat, implying another hemiola. Yet the violin contains a tie in mm. 2–3, and the downbeat of m. 3 can be articulated as a strong beat, even though it is followed by another chord on beat 2.

4
MORE PROGRESSIONS WITH TRIADS AND 6-CHORDS

Although the triad and the 6-chord are the only consonant sonorities in figured bass, they occur in an infinite variety of contexts. This chapter will explore some additional progressions involving these chords.

Exercises 4.1–2 introduce two new progressions in which the sixth of the 6-chord is a leading tone. This is the same type of 6-chord seen previously in Exercise 3.5. We shall call such a chord a **leading-tone 6-chord.**

Exercise 4.1 is to be realized in three parts. As Illustration 4.1 shows, the moving voice passes from the fifth (D) through the leading tone (E). With the addition of a second upper voice (Illustration 4.2), we have in effect *two* leading tones, since the note B-flat acts as a downward leading tone. It descends by half step as the note E ascends by the same interval. The last 6-chord in both exercises is best played with the bass doubled, as shown in Illustration 4.3 (compare Illustration 3.12a).

Illustration 4.1

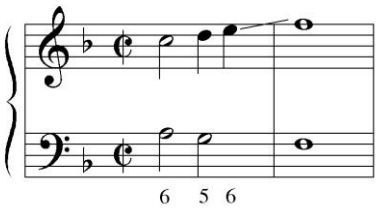


Illustration 4.2

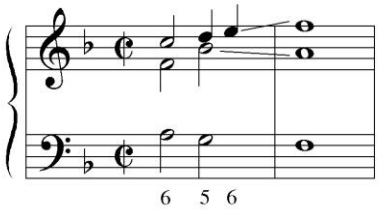
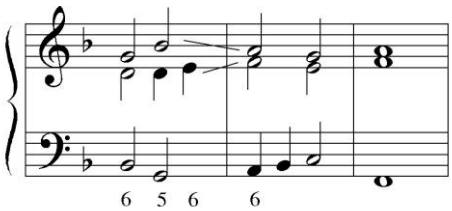


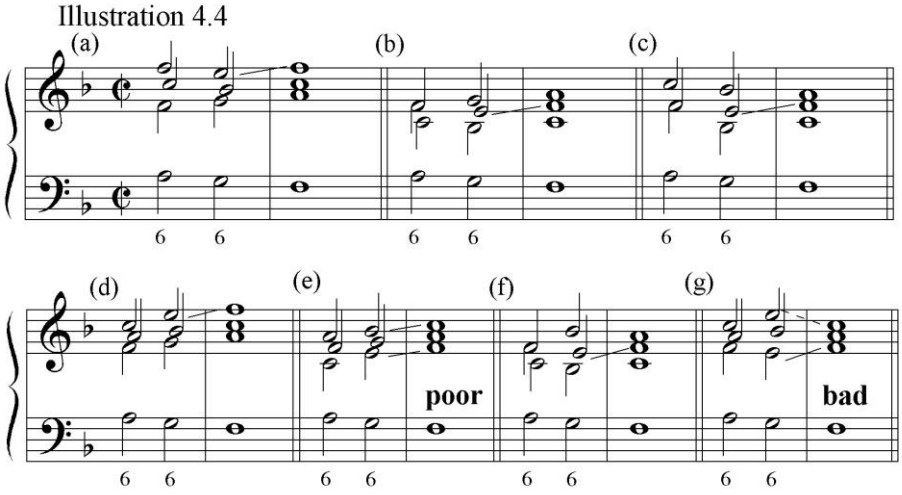
Illustration 4.3



As already seen in Exercise 3.5, this type of 6-chord contains an unprepared dissonance—the tritone between the upper voices. Exercises 4.1–2 show that such a dissonance can arise through passing motion. This is a simpler form of dissonance treatment than the more complicated process of preparation and resolution that will be described in Chapter 5.

Both exercises can be realized in four parts, but this is essential only for Exercise 4.2. As in Exercise 3.5, it is necessary to distinguish between leading-tone 6-chords, in which the leading tone (the sixth) should not be doubled, and ordinary 6-chords, where any tone may be doubled. Illustration 4.4 shows seven realizations of mm. 1–2. Only the last of these (Illustration 4.4g) is really unusable, due to the doubling of the leading tone (E). The parallel fifths in Illustration 4.4e may also seem questionable, but they are allowable, as the first fifth is diminished.

Illustration 4.4



Occasionally one finds this progression realized by modern editors as in Illustration 4.5. This usage is not unknown in certain traditions of figured bass realization, especially that of eighteenth-century France. But it changes the plain 6-chord to a 6/4/3-chord, in which the third (B-flat) as well as the bass (G) acts as a dissonance (see Chapter 9). In functional terms, this 6/4/3-chord is a second-inversion dominant seventh. Rameau and many subsequent theorists have not even recognized this chord as a dissonance. Yet it is such for Corelli, Bach, and many other Baroque composers. The realization shown in Illustration 4.5 was rarely if ever used in their more contrapuntally oriented tradition. It should be avoid except when playing in the French style of the later Baroque (as discussed in Chapter 12).

Illustration 4.5

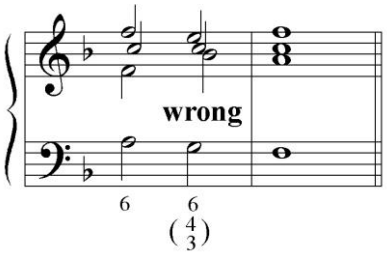
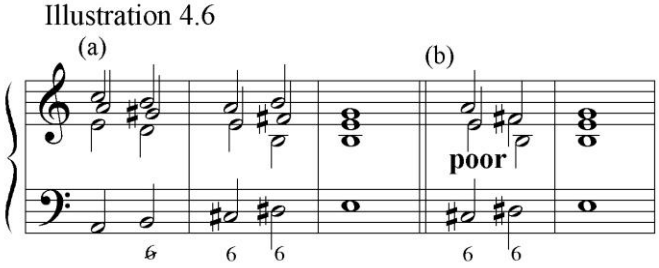


Illustration 4.6

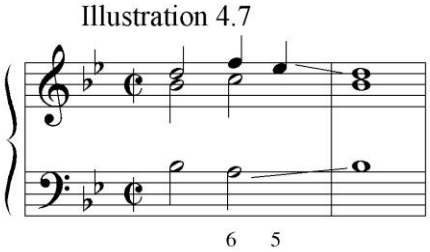


Exercise 4.3 joins leading-tone 6-chords with others in which the *bass* has the leading tone. This exercise is somewhat easier to play than Exercise 3.8. Both contain consecutive 6-chords, but in the present exercises there are never more than three such chords in a row moving in the same direction. Nevertheless, as in any series of 6-chords, one must double a different note in each successive sonority (Illustration 4.6a). This leaves several possible realizations, although one should avoid consecutive unison doublings (Illustration 4.6b).

Exercise 4.4. Corelli, trio sonata op. 2, no. 1, fourth movement (complete). This very short, lively dance movement is best realized in three parts, although a four-part realization is given in the Appendix.

Exercises 4.5–7. introduce another progression involving a passing dissonance, here the diminished fifth. The chord in which it occurs is the **diminished triad.** Exercise 4.5 should be played in just three parts. The moving voice passes through a diminished fifth (tritone), an interval that is sometimes indicated in the figures by a 5 followed by a flat.[12] Although not strictly necessary, the flat is included in Exercises 4.5–11 (but not in the Illustrations) wherever the fifth is diminished. As Illustration 4.7 shows, the bass of the diminished triad is usually a leading tone. The fifth itself, in this case E-flat, is an inverted leading tone that should descend.

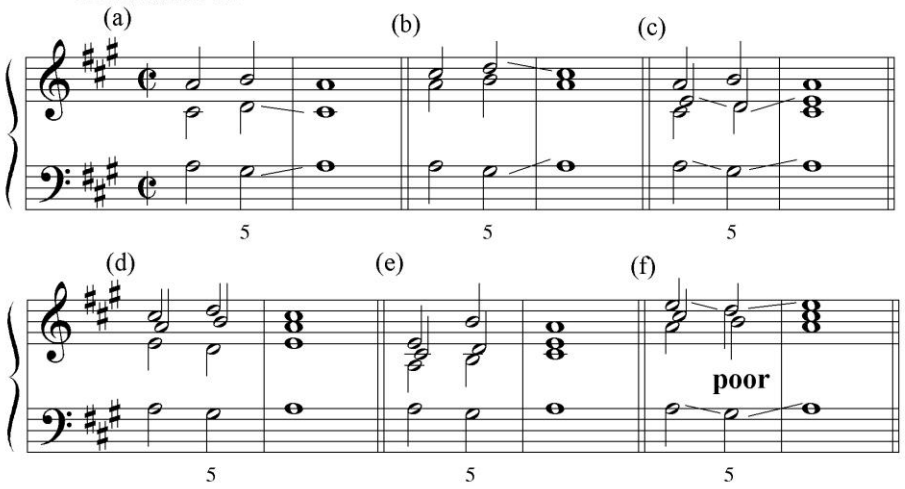
Illustration 4.7



[12] The same can also be indicated by a 5 with slash drawn through it, although in France the latter came to mean a 6/5-chord—that is, a first-inversion dominant seventh. Like the 6/4/3-chord shown in Illustration 4.5, the 6/5 is a dissonance that is usually specified in the figures when required (see Chapter 10).

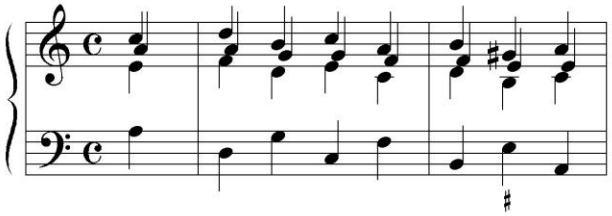
The diminished triad stands alone in Exercises 4.6–7. In three voices it is easy enough for both leading tones of the diminished fifth to close inward to a major third (Illustration 4.8a–b). But in four parts one has to double the fifth at the octave or the unison, as shown in Illustration 4.8c–f. To put it another way, the diminished triad takes an open position when realized in four parts. Wide leaps, as in Illustration 4.8e, may be necessary to avoid unison doublings, which in these cases are acceptable. Also acceptable—indeed, unavoidable—are parallel fifths, as in the alto of Illustration 4.8c, although it is best to keep these out of the soprano.

Illustration 4.8



Exercise 4.8. In some progressions the bass of a diminished triad is *not* a leading tone. This occurs in sequences of the type seen in this exercise. Here each diminished triad is realized as if it were an ordinary one, despite its dissonant sound (see Illustration 4.9). One must remain on guard against realizations that would introduce a melodic augmented second into one of the upper parts. Such would be the case if the penultimate chord of Illustration 4.9 were *e1/g#/b1*—hence the leaping pattern adopted throughout the illustration.[13]

Illustration 4.9



Exercise 4.9a–c. These exercises introduce the **augmented triad,** a relatively rare chord in Baroque music. The defining interval of the chord is the augmented fifth, most often indicated by an accidental or "plus" sign added after the figure: 5+ or 5#.[14] The augmented fifth is another

[13] Because some players routinely changed 5-flat–chords into 6/5-chords, a few eighteenth-century writers advocated a special symbol, the figure 5 beneath a half-circle, for the diminished triad, especially when it occurs in sequences as in Exercise 4.8. This notation never came into general use.

[14] The stroke can sometimes indicate a diminished fifth; see note 1.

dissonance, often appearing as an **appoggiatura,** that is, an accented passing dissonance. Appoggiaturas are generally slurred to the following note, as in Illustration 4.10. In any case, the augmented fifth always ascends. It is usually a sort of leading tone and should never be doubled. In four parts it can lead to somewhat unusual progressions (Illustration 4.11). But the chord itself is rather rare, except in French eighteenth-century music. Hence one need not be greatly concerned with these exercises.

Illustration 4.10

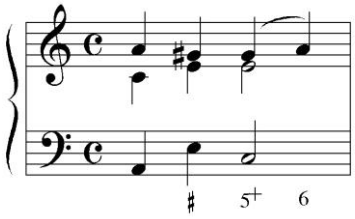
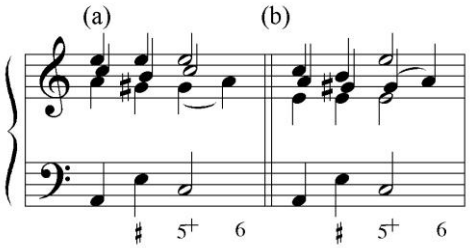


Illustration 4.11



Like the diminished triad, the augmented triad occasionally appears in a series of chords as a substitute for an ordinary triad. Exercise 4.9b, which employs only triads and 6-chords, is varied in Exercise 4.9c through the substitution of augmented fifths for several ordinary (perfect) fifths. Here one need not treat the augmented triads any differently from normal ones (Illustration 4.12). This is how the chord appears in **Exercise 4.10**, one of its rare appearances in Corelli (from trio sonata op. 2, no. 9, fourth movement).

Illustration 4.12

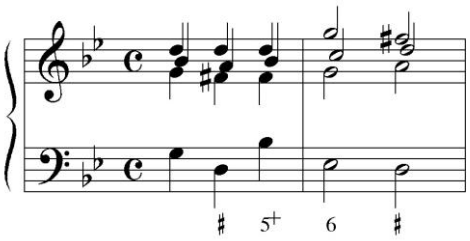
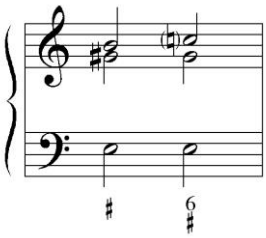


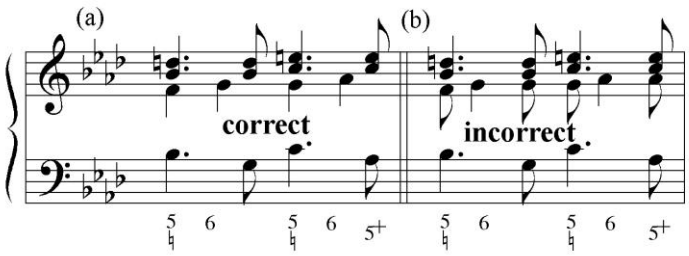
Illustration 4.13



Exercise 4.11, m. 3, introduces what we would call the first inversion of the augmented triad. The result is an unusual 6-chord containing a major third (G#) together with a minor sixth (C) (Illustration 4.13). The chord is rare in Baroque music, turning up occasionally in sequences like the one in Exercise 4.11, which is best realized in three parts. Like the augmented triad, the chord's characteristic interval is a passing dissonance: the **diminished fourth** between the two upper parts (*g#1/c2* in Illustration 4.13).

Exercise 4.12. From Corelli, trio sonata op. 2, no. 9, fourth movement. Measure 9 contains both the augmented triad, on the last bass note, and, just before that, its first inversion, on the fourth beat. The exercise is quite difficult; see the realization in the Appendix for some suggestions. Remember, too, that the second figure on a dotted note is played with the dot. Illustration 4.14 shows the correct interpretation of this notation, which occurs in m. 9 and elsewhere. Another way of putting it is that the first figure gets two-thirds of the value of the bass note.

Illustration 4.14



Exercise 4.13. Here is introduced one last passing dissonance, the **augmented sixth.** This is a rare interval in Baroque music, especially in works composed before 1700. There it is confined to highly chromatic pieces in which other unusual dissonances may also occur. For this reason no excerpts from real music are given. The exercise should be played in both three and four parts. In the first half of the exercise, the chord arises by chromatic motion within the upper voices (Illustration 4.15). The augmented sixth (F#) is a leading tone, and the bass (Ab) is an inverted leading tone. Thus, in four parts, one can double only the third (C) (Illustration 4.16). Suppose, however, that one started Exercise 4.13 as shown in Illustration 4.17a: doubling the sixth (F) on the second beat . In that case one would have to change the distribution of the notes for the augmented sixth, as shown—or, better, to use the solution shown in Illustration 4.17b.

Illustration 4.15

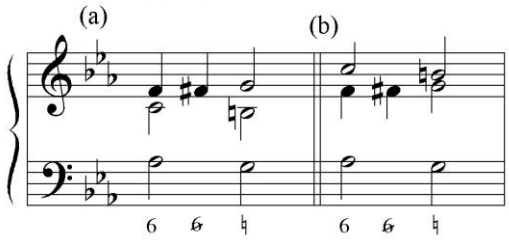


Illustration 4.16

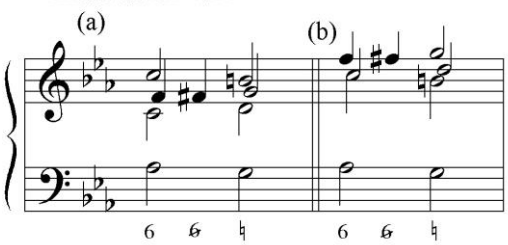
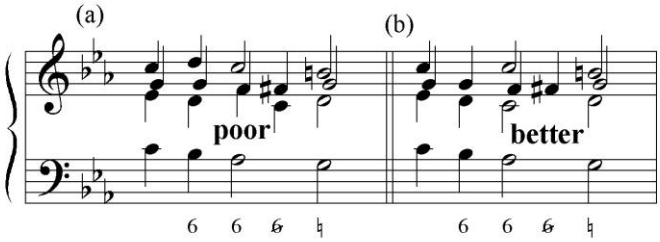


Illustration 4.17



5
DISSONANCES: 5/4-CHORDS AND 9-CHORDS

Introduction to Dissonances

The triads and 6-chords discussed in Chapters 1–4 have mostly been *consonant* chords. Even those that contained dissonances, such as the leading-tone 6-chord, have not required substantially different treatment from the others.

Things are different with the dissonant chords introduced here and in the next five chapters.[15] These chords contain **essential dissonances:** dissonances that are prepared and resolved according to certain rules. Essential dissonances are more than passing sonorities. Theorists have offered various definitions for the term *dissonance,* as well as various explanations for the special treatment that essential dissonances require. We need not concern ourselves with the theoretical issues except to note that dissonances are a type of *interval*. In Baroque music (as in Renaissance and Classical music), the presence of dissonant intervals within a chord makes the chord unstable. We expect a chord containing a dissonance to move quickly to a chord that contains the **resolution** of the dissonance, according to well-defined rules.

It bears repeating that dissonances are intervals, that is, two notes separated by a given number of steps. Although we sometimes refer to single notes as being dissonant, what we really mean is that the note forms a dissonant interval with another note. For example, all ninths are dissonant in figured bass. If we come across the symbol 9, it means that the bass forms a ninth, a dissonant interval, with one of the upper parts. The chord containing the ninth is also dissonant, but this is because the chord incorporates a dissonant interval.

In tonal music the **consonances** are major and minor thirds, perfect fifths, major and minor sixths, and octaves. All other intervals are dissonances, represented by such symbols as 2, 4, 7, and 9. Dissonant chords can also be signified by certain combinations of figures that normally represent consonances; for example, the 6/5-chord contains a dissonance.

The 5/4-Chord

This chapter is concerned only with ninths and certain types of fourth. The fourth is an ambiguous interval. When a perfect fourth appears between two of the upper parts (as between *g* and *c1* in Illustration 1.5), it is usually considered a consonance. But a fourth involving the bass—that is, any interval represented by the symbol 4 in the figures—is usually an essential dissonance. Essential dissonances differ from passing dissonances in the rhythmic treatment of the two voices that form the dissonance. In this chapter we are concerned with the rhythm of the upper part. For this voice to prepare and resolve the dissonance properly, it must be **syncopated.** Syncopation has already been seen in the 5–6 progression (Illustration 3.3). In its inverted from, this becomes a 6–5 progression, as shown in Illustration 5.1. Here ties mark the syncopations Without the syncopations, the upper part would form a series of parallel fifths (Illustration 5.2).

[15] Some theorists avoid the term *chord* for dissonant sonorities, which are unstable and lack well-defined harmonic functions. From the point of view of figured bass, however, every vertical configuration of notes is a chord, and we will use the term in this sense.

Illustration 5.1

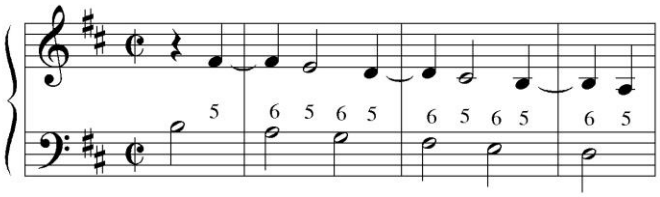
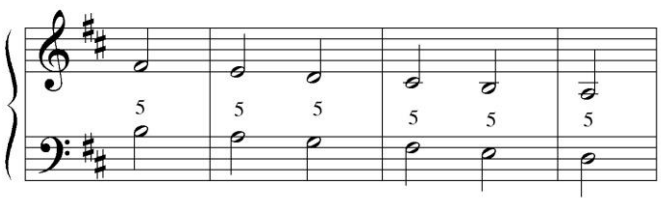


Illustration 5.2



What if the bass of Illustrations 5.1 and 5.2 were to be transposed up by a third? The two voices would then form a series of parallel thirds (Illustration 5.3). Adding syncopation would turn this into a series of 4–3 progressions (Illustration 5.4). Each 4 in this progression is an essential dissonance, preceded by a *preparation* and followed by a *resolution.*

Illustration 5.3

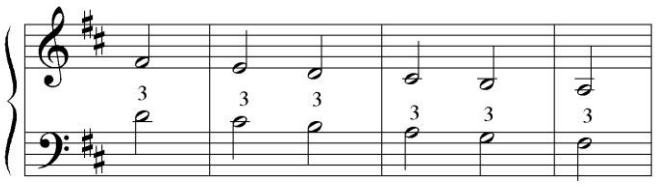
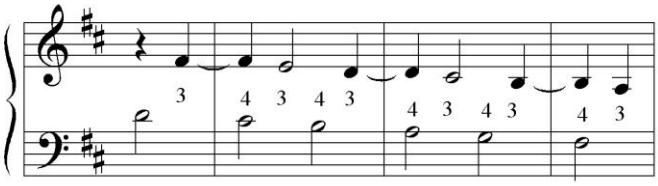
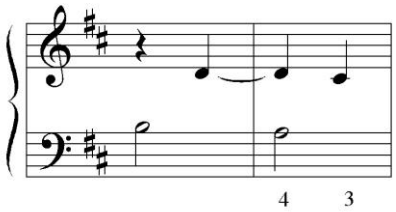


Illustration 5.4



Consider what happens within any of these 4-3 progressions, as in Illustration 5.5. Initially, over the bass note *b*, we have an ordinary consonant interval: the third *d1*. This is the **preparation** of the dissonance. Next, as the bass moves to *a*, the upper part sustains the note *d1*, forming a dissonant fourth. Finally, the upper part descends by step, again forming a consonance—a third—with the bass. This is the **resolution** of the dissonance.

Illustration 5.5



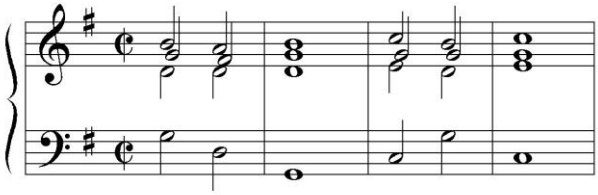
Essential dissonances are normally prepared, and they usually resolve downwards by step. Because this type of dissonance is created by syncopating, or suspending, the upper voice, it is sometimes called a **suspension.** In continuo playing, however, one often restrikes the syncopated note rather than observing the tie. Indeed, this is usually preferable when realizing a continuo part on the harpsichord. That is because the expressive value of a dissonance lies in its being accented, its resolution softer. On the harpsichord, one can achieve this dynamic effect by restriking the dissonant note and slurring it smoothly into the resolution.

Ties are shown in many of the Illustrations of dissonances that appear below. In practice, however, one can repeat the tied note; if so, the dissonance is still considered to have been properly prepared.

The principles of preparation and resolution outlined above govern most dissonant progressions. Each is, in essence, an embellishment of a simpler consonant progression, that is, a series of triads and 6-chords, without suspensions and dissonances.

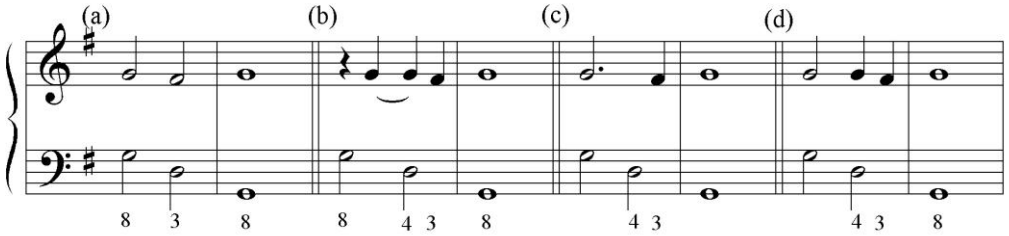
Exercise 5.1a. One could start practicing this exercise by ignoring the figures, playing as if it contained only a simple succession of triads. In that case the first four measures might be played as in Illustration 5.6.

Illustration 5.6



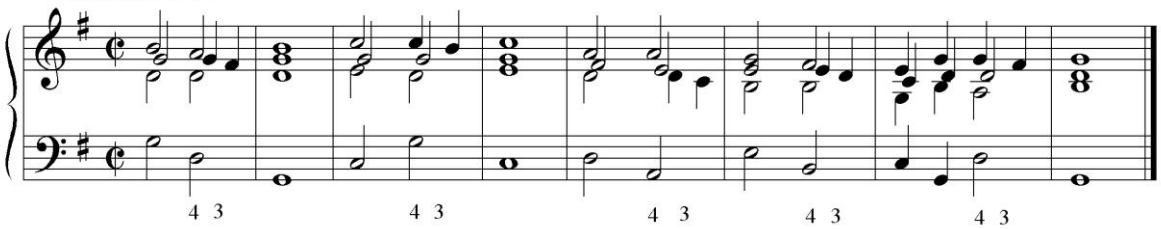
Now let us extract the alto from mm. 1–2, as shown in Illustration 5.7a. Here the alto proceeds from the octave *(g1)* to the third *(f#1)* above the bass note *d.* If we syncopate this alto line, we produce the progression shown in Illustration 5.7b. The first note in the alto—the preparation of the dissonance—is still the octave (figured as 8). But this note becomes the fourth—a dissonance—as the bass moves to *d.* Resolution is to the third, as before. Rather than incorporating a literal syncopation, the alto might be realized as in Illustration 5.7c or 5.7d.

Illustration 5.7



In Illustration 5.8 the entire exercise has been realized. In m. 1, the 4–3 progression occurs in the alto. But it falls in the soprano or the tenor in subsequent measures. In each case, the remaining voices—the parts not involved in the preparation and resolution of the dissonance—can be described as **free voices.** Notice, in mm. 1–2, that the free voices (soprano and tenor) are exactly the same as in Illustration 5.6.

Illustration 5.8



Completely figured, the dissonant chord would be indicated as 8/5/4. It is rarely necessary to indicate the octave. But the numeral 5 is often included in the figures, to distinguish this chord from others that also contain the fourth. Thus this sonority is known as the 5/4-chord.

Thus far our attention has been on the dissonant fourth formed by the bass and one of the upper voices. But the 5/4-chord contains other dissonances as well:in m. 1 these are the fourth between tenor and alto *(d1/g1)* and the second or whole step between alto and soprano *(g1/a1).* We might term these intervals **secondary dissonances.** From the player's point of view, they are

less important than the primary dissonance that includes the bass note. If the primary dissonance is prepared and resolved properly, the secondary dissonances will take care of themselves.

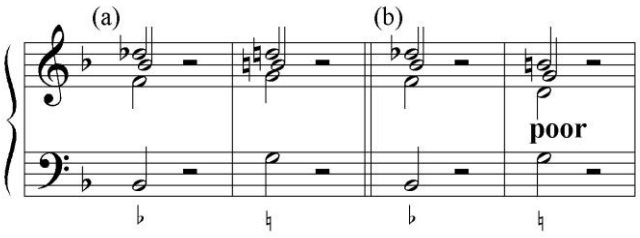
Exercise 5.1b introduces two new ideas. In m. 4 the dissonance resolves to a major third: C-sharp, not C. Because the accidental refers to the third, the numeral 3 can be omitted. But one must take care not to confuse the pair of symbols (4 and #) with the single, combined, symbol for a raised fourth (4# or 4+). In the latter, there is no space between the numeral (4) and the accidental sign (# or +). In mm. 4, 7, etc., the accidental is set further to the right of the figure 4. This distinction is sometimes overlooked by editors and music typographers.

The second half of Exercise 5.1b introduces a series of 4–3 progressions over successive bass tones. As each dissonance resolves, another is prepared in a different part. For a realization, see the Appendix. As the latter shows, a series of 4–3 progressions can cause the right hand as a whole to descend rather rapidly. To prevent the hands from colliding, it may be necessary to start rather high and leap back up whenever possible (as at a double bar, or when taking repeats).

Exercise 5.1c. Compare the bass motion here with that in Exercises 5.1a–b. In the latter, the dissonance was always prepared by the *octave* of the previous chord. Now the preparation is by the *fifth*.

Exercise 5.1d. From Corelli, concerto grosso op. 6, no. 8, third Allegro. The bass drops down an octave as the fourth resolves, but the realization of the 4–3 progression remains as in Exercises 5.1a–b. Note the chromatic modulations in mm. 4–5 and 7–8. Neither the accidentals among the figures nor the rests in the bass line should affect the voice leading (Illustration 5.9).

Illustration 5.9



The 9-Chord

Suppose we were to take a series of octaves and syncopate the upper voice. The result would be a series of 9–8 progressions (Illustration 5.10). Compare Illustration 5.4. There each fourth resolved to a third; here the ninth resolves to the octave.

Illustration 5.10

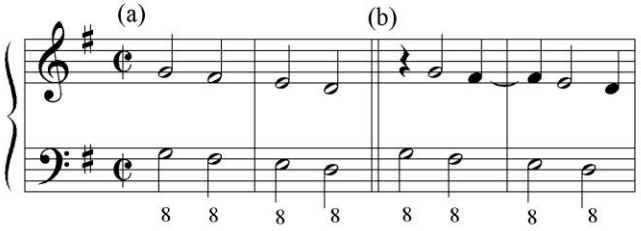
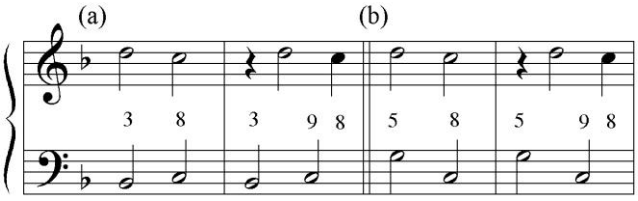


Illustration 5.11



The progression in Illustration 5.10b remains close to parallel octaves. Despite the syncopations, it was rarely used by good composers. Instead of being prepared by the octave, the ninth is more frequently prepared by the third (Illustration 5.11a) or by the fifth (Illustration 5.11b).

Why do these Illustrations use the figures 9 and 8, as opposed to 2 and 1? The figure 2 would have to resolve to 1, but that numeral could easily be misunderstood as a staccato sign. The figure 2 does appear in continuo parts, but it is usually reserved for chords in which the dissonance is prepared and resolved by the bass. That is very different from the 9–8 progression (see Chapter 9).

Like the 4–3 progression, the 9–8 progression embellishes or varies a pair of simple triads (Illustration 5.12a). The dissonance can be incorporated into any of the three upper parts, as shown in Illustrations 5.12b–d. The figure 8, standing for the octave, is always written, to show the resolution of the dissonance. The 9-chord can be indicated more precisely by the symbol 9/3 or 9/5, or even 9/5/3. Usually, however, the plain 9 suffices.[16]

Illustration 5.12

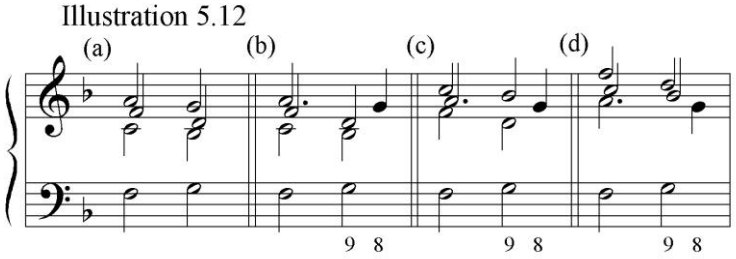
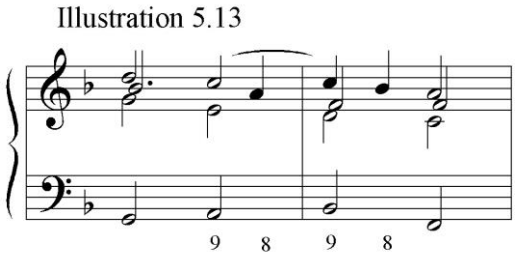


Illustration 5.13



Exercise 5.2a. Here each of the ninths is prepared by the third, as in Illustrations 5.11a and 5.12. Practice first as a series of triads, omitting the dissonances. In the last measure, the third of the 9-chord is raised, as shown by the figures 9/# (without a 3). The 9–8 progression occurs twice in mm. 5–6, over two successive bass notes. As one ninth resolves, another is prepared in a different voice. The dissonances are shown in Illustration 5.13 as suspensions, first as a dotted half note in alto *(bb1)*, then as a tied *c2* in the soprano.

Exercise 5.2b. Here the ninths are prepared by the fifth (compare Illustration 5.11b). This causes a few oddities in the voice leading, as shown in Illustration 5.14. For instance, the first chord contains the leading tone *b1*. Yet this note is forced to descend. In descending, moreover, it creates hidden fifths with the bass. These, however, might be objectionable only if they occur in the soprano (Illustration 5.14c). Still, one should avoid placing the dissonance in the tenor.

Illustration 5.14

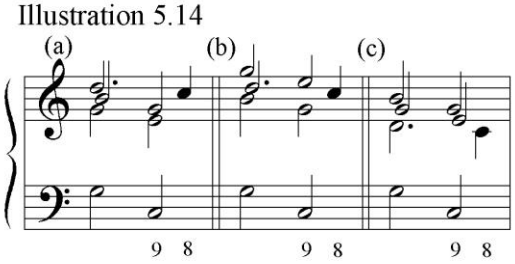
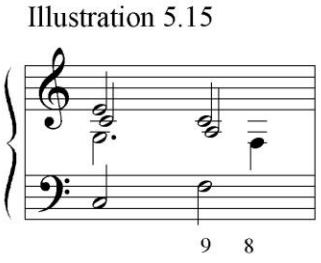


Illustration 5.15

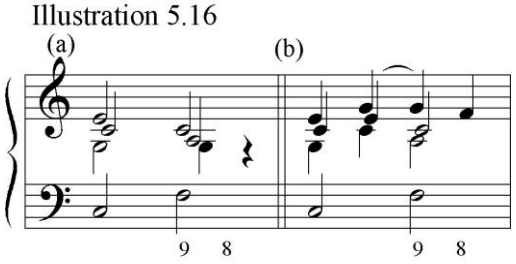


Another reason for keeping the ninth out of the tenor is shown in Illustration 5.15. Here, because of the low register of the upper parts, the tenor collides with the bass. The resolution is actually to the unison *(f/f)*, although it is still indicated by the figure 8. One could just leave out

[16] The 9-chord of figured bass is not the equivalent of the chord of the ninth in functional harmony. The latter consists of a triad plus two more above the bass note, including the seventh. The result, in terms of figured bass, is the 9/7-chord, a double dissonance (see Chapter 11).

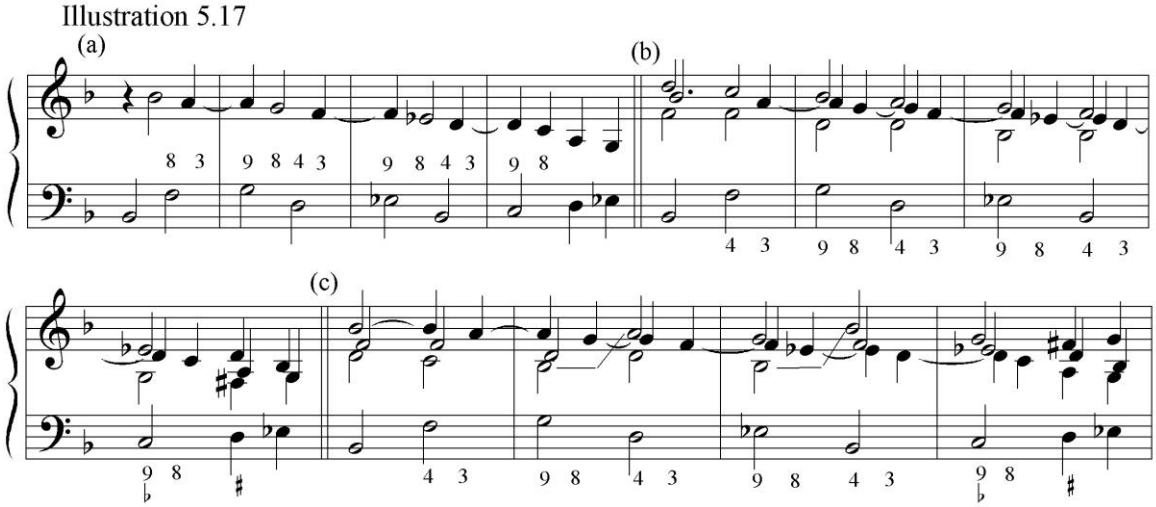
the resolution (Illustration 5.16a). Otherwise one must leap to a higher register to prepare the dissonance (Illustration 5.16b).

Illustration 5.16



Exercise 5.2c. From Corelli, concerto grosso op. 6, no. 8, first Allegro. Here we see the 9–8 and 4–3 progressions used in ways that are characteristic of Corelli and other Baroque composers. Note the series of dissonances in mm. 11–14. These form a type of descending sequence known as a **chain of suspensions.** The resolution of each dissonance serves as preparation the next one, as shown in Illustration 5.17a. This can be realized as in Illustration 5.17b. Ties are shown to make the suspensions clear on the page, but one would not necessarily play them.

Illustration 5.17



As in any descending sequence, the upper parts may be drawn into a dangerously low register. Were the sequence to continue for two more measures, the realization shown in Illustration 5.17b would pass below the note *e*, our lower limit. In such a case, one might be tempted to introduce **voice crossing,** as in Illustration 5.17c. Some theorists allowed this. But it is impossible to hear voice crossing on a keyboard instrument, although it occurs frequently between the two violin parts in music by Corelli and other composers. Continuo players occasionally must resort to voice crossing. But it is best avoided, especially in these Exercises.

Exercise 5.3. A dissonance can be prepared in a 6-chord as well as in a triad (5/3). But not every possible realization of a given triad or 6-chord can prepare a given dissonance. If, for example, a fourth or ninth is preceded by a 6-chord, the latter may need to be realized in open position. Indeed, it is the preparation of the dissonance, rather than the dissonance itself, that requires the most attention.

Thus, in **Exercise 5.3a** one cannot begin with the closed spacing of the 6-chord. This would force one to play an open form of the 4-chord, which is awkward although not entirely incorrect (Illustration 5.18). Doubling the sixth is also weak, as it results in hidden fifths (Illustration 5.19). Thus, the best solution is to double the third (Illustration 5.20).

Illustration 5.18

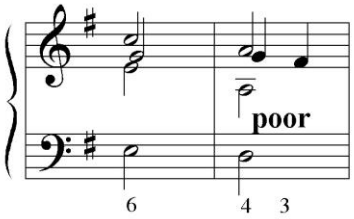


Illustration 5.19

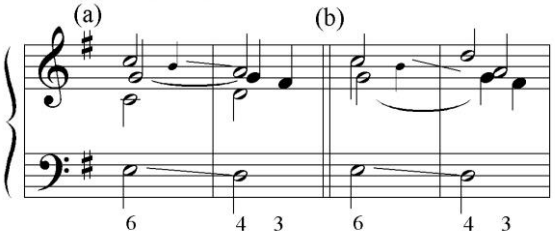
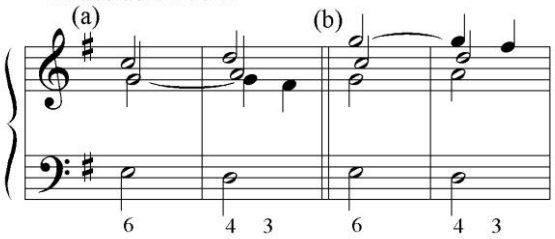


Illustration 5.20



In practice one may be forced to use the less desirable doublings from time to time. As a general rule, however, in this progression it helps to avoid doubling the bass of the 6-chord. Indeed, it is best to avoid doubling the bass in *all* 6-chords, although there are many exceptions.[17]

Exercise 5.3b is somewhat easier, since all forms of the 6-chord work here without causing problems (Illustration 5.21). The same is almost true in **Exercise 5.3c,** although doubling the sixth produces hidden fifths (Illustration 5.22a).

Illustration 5.21

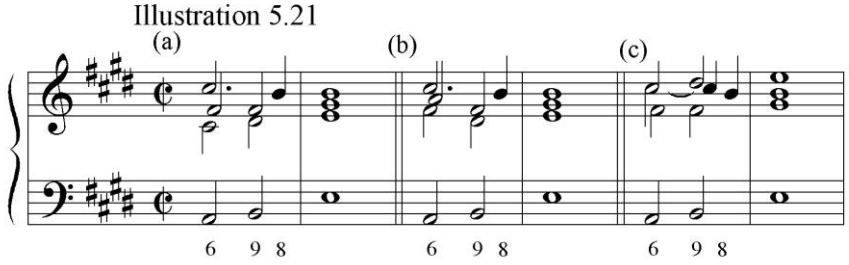
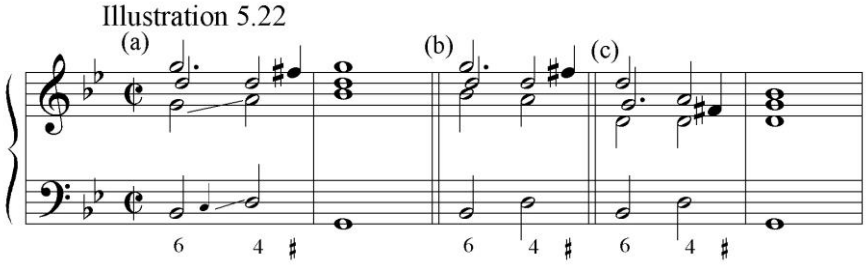


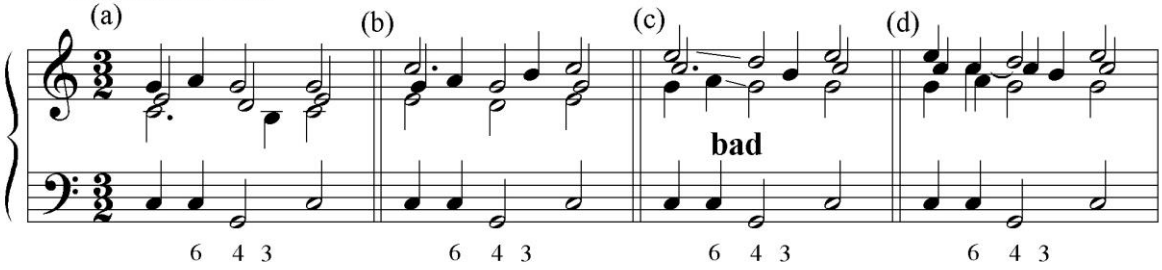
Illustration 5.22



[17] As noted in Chapter 3; another exception occurs in Exercise 5.3d below.

Exercise 5.3d is more difficult, as only a few forms of the 6-chord will work. One *must* double the bass, playing the 6-chord in closed position (Illustrations 5.23a–b). This is because it is now the octave (C) that prepares the dissonance. The form of the 6-chord shown in Illustration 5.23c—with the third in the soprano—cannot be used: doing so creates parallel fifths. That forbidden progression can be avoided by using an incomplete 6-chord, as in Illustration 5.23d.

Illustration 5.23



The 6–4–3 progression of Exercise 5.33d is rare in real music. It is nevertheless one of many progressions in which one must avoid certain forms of a particular chord. It would be futile to try memorizing rules for all such situations. Instead, through frequent practice one gains an intuitive sense of which realizations are best for each progression.

Three-Part Realization

In lightly scored compositions, or when accompanying quiet instruments or voices, it may be necessary to play in just three parts, especially on the organ. As when doing so in progressions of triads and 6-chords, with dissonances one strives to maintain the salient elements of each chord. These naturally include the essential dissonance (indicated in the figures) and its preparation. Equally crucial, however, is the secondary dissonance that appears as a second or a seventh between the two upper parts.

Thus, in realizing the 5/4-chords of Exercise 5.1, one leaves out the octave (Illustration 5.24a). This means retaining the fourth (G) and the fifth (A) of the 5/4-chord. Without the fifth, the dissonant chord is quite weak (Illustration 5.24b). By the same token, when playing the 9-chord shown in Illustration 5.25, the ninth (F) is better accompanied by the third (G) than by the fifth (Bb).

Illustration 5.24

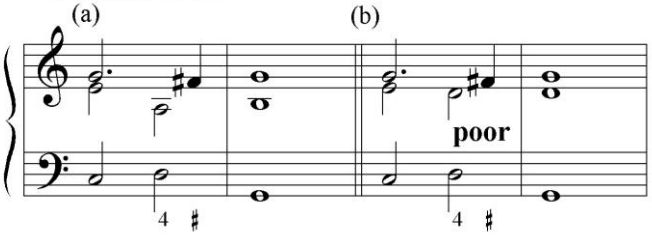
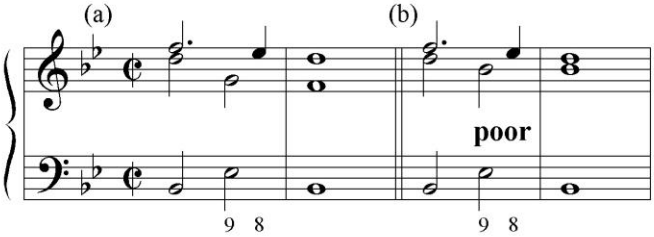


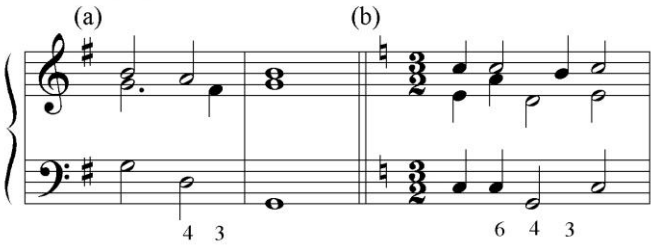
Illustration 5.25



Regardless of the number of parts, proper preparation and resolution of the dissonance take precedence over most other considerations. Only the rule against parallel fifths and octaves is more important. In Exercise 5.1a, therefore, the initial triad must be realized in incomplete form

(Illustration 5.26a). The same is true of the 6-chords in Exercise 5.3d, even though this leaves the 6-chord itself quite weak (Illustration 5.26b). Like many dissonant progressions, this one simply does not work well in fewer than four parts.

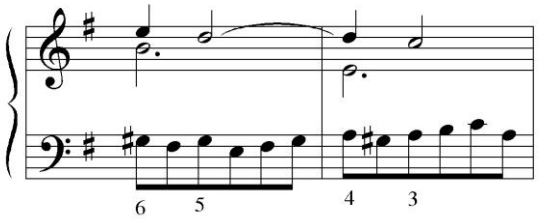
Illustration 5.26



Three-part realization of some of these Exercises is rather difficult. But it is worth attempting, as it focus attention on the essential skill of looking ahead to the dissonance and preparing it. All the above Exercises should be practiced in three parts, although there is no need bring them up to tempo. Two further Exercises, on the other hand, are somewhat simpler in three voices, reflecting their origin in music conceived for just three principal parts (two solo violins and cello).

Exercise 5.4. From Corelli, concerto grosso op. 6, no. 4, Vivace. The tempo mark means "lively," not "very fast"; a quick minuet tempo is appropriate. This Exercise is particularly suitable for three-part realization because of the diminished fifths, which are awkward to play in four parts. Not all of the running notes in the bass receive their own chords. For instance, the dissonance in m. 2 is prepared on the second beat of the preceding measure, which bears a diminished fifth (*d2;* see Illustration 5.27). A passing dissonance, the diminished fifth is treated as if it were a consonance, without preparation. It nevertheless resolves downward, after the 5 turns into a 4 over the "walking" bass line.

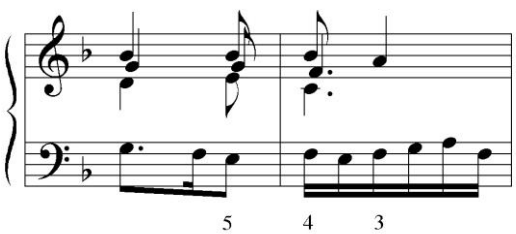
Illustration 5.27



Exercise 5.5. From Corelli, concerto grosso op. 6, no. 5, second movement. This Exercise works conveniently in either three or four parts. Because the bass ascends fairly high, it may be necessary for the right hand to leap upwards or to use voice crossing at opportune moments.

In the opening two measures, the dissonant fourth is prepared in a *diminished* triad. Because the bass note of that chord *(e)* is a leading tone, it is best to double it in the alto or tenor, as in Illustration 5.28 (or as in the realization shown in the Appendix), not in the upper part.

Illustration 5.28



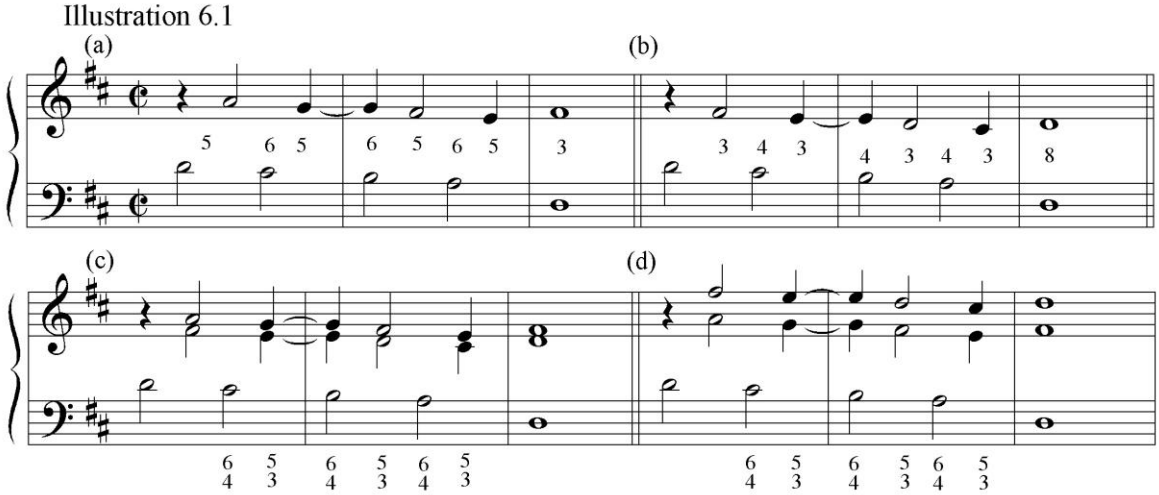
6
MORE PROGRESSIONS WITH FOURTHS AND NINTHS

The 6/4-Chord

There is more than one type of 4-chord. Next to the 5/4-chord, the most important is probably the 6/4-chord, which in functional harmony usually appears as the second inversion of the triad. In figured bass this chord is treated as a dissonance, since it contains the fourth. Thus it is fundamentally different from the triad and its first inversion, that is, the 6/3-chord.

As before, we can begin by considering separately each of the voices involved in this chord. Illustration 6.1 shows the motion of two upper parts. One contains a series of 6–5 progressions (Illustration 6.1a). The other presents a series of 4–3 progressions (Illustration 6.1b). Taken individually, neither of these progressions offers anything new. But when the two are combined, as in Illustration 6.1c, we have a new progression that includes the 6/4-chord.

Illustration 6.1



Notice that the two upper voices move in parallel thirds, or, as in Illustration 6.1d, in parallel sixths. This is characteristic of the 6/4-chord. As the fourth resolves to the third, the voice bearing the sixth moves to the fifth. Thus it is necessary to indicate both the third and fifth in the chord containing the resolution, even though this is an ordinary triad (a 5/3-chord).

Exercise 6.1a. This exercise is to be realized in three parts. Illustration 6.2 shows two possible realizations for the first two measures. In practice, one would probably not play the ties; these are shown, as before, to make the voice leading clearer.

Illustration 6.2

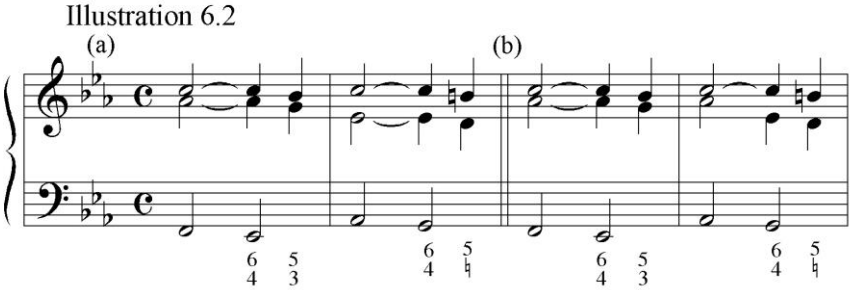


Illustration 6.2a, showing the preparation and resolution of the fourth, is similar to Illustrations 6.1c and 6.1d. Notice, however, that the middle voice leaps downward after m. 1. This allows the chord on the downbeat of m. 2 to be a comlete triad (5/3). It is possible, however, to use the solution shown in Illustration 6.2b. Here the inner voice does not leap until beat 2 of m. 2. This is possible because the note *eb1,* although part of a 6/4-chord, is not dissonant. Only the fourth, in the upper part *(c2),* is a dissonance, requiring preparation. The part containing the sixth is a free voice and does not have to move in parallel thirds (or sixths) with the voice that contains the dissonance.

Although the 6/4-chord resolves to a triad, the fifth in that triad does not have to be perfect. In mm. 3, 5, and 6, the fifth is diminished. In other words, the 6/4-chord resolves to a diminished triad, another dissonant chord, as in Illustration 6.3. In mm. 3 and 6, moreover, the fourth is a *diminished* fourth. This makes it more dissonant than the ordinary form of the interval.

Illustration 6.3

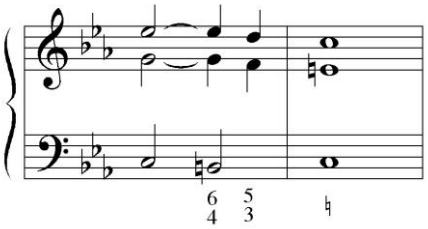
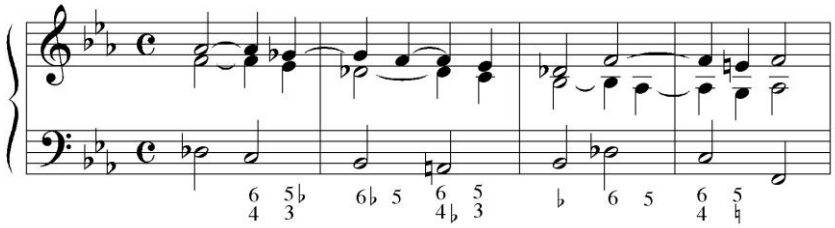


Illustration 6.4

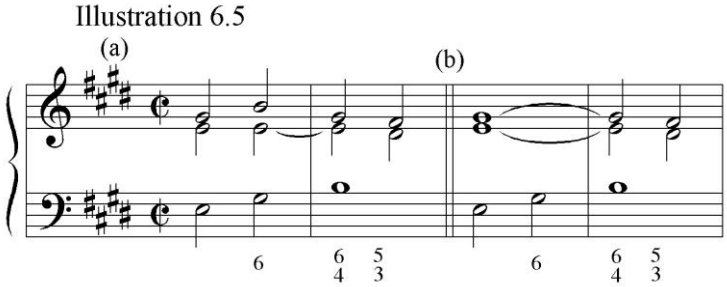


The successive dissonances, incidentally, are in different voices. In Illustration 6.3, the diminished fourth *(eb2)* appears in the soprano, whereas the diminished fifth *(f1)* is in the middle voice.

The 6–5 progressions in mm. 6 and 7 of the Exercise can be realized as shown in Illustration 6.4. Although the sixth is not dissonant, in these measures it can be tied as a *consonant* suspension.

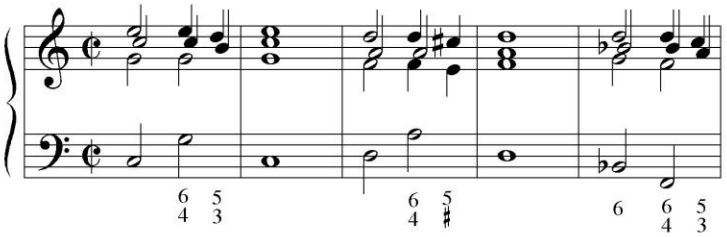
Exercise 6.1b. Again in three parts. Previously the 6/4-chord was prepared in a triad; now it is prepared in a 6-chord. The latter can be realized in complete form (Illustration 6.5a) or in incomplete form (Illustration 6.5b). The former gives fuller harmony; the latter has smoother voice leading.

Illustration 6.5



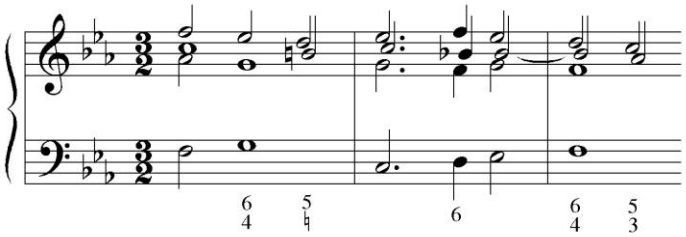
Exercise 6.1c. Here we proceed to four-part realization. Adding the fourth voice here is simple, as the additional part remains stationary as the dissonance resolves (Illustration 6.6). In m. 5 the dissonance is prepared within a 6-chord; this requires doubling the bass (Bb), as in the last measure of Illustration 6.6. This progression is therefore another exception to the general rule of avoiding the octave in 6-chords.

Illustration 6.6



Exercise 6.1d. Another four-part exercise. As Illustration 6.7 shows, the dissonance is now prepared by the fifth: C in m. 1, Bb in mm. 2–3.

Illustration 6.7



Exercise 6.1e. Again in four parts. The dissonance is prepared by the third of a 6-chord (Illustration 6.8).

Exercise 6.1f. Here the 6/4-chord resolves not to a triad but an ordinary 6-chord, that is, a 6/3 (Illustration 6.9). Notice that the 3 in the latter chord is indicated not by the numeral 3 but by a dash. The dashes are a reminder to keep the sixth of the chord stationary as the dissonance resolves. These are often omitted in real music, forcing the player to determine from the context what the progression actually is. This progression, which is somewhat unusual, is much easier to play in three voices.

Illustration 6.8

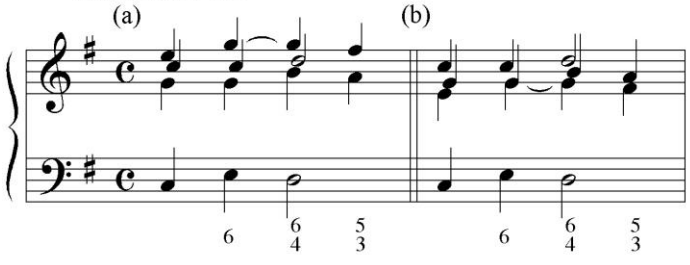
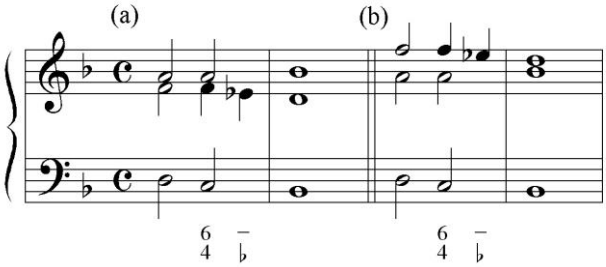


Illustration 6.9



Exercise 6.1g. From Corelli, trio sonata op. 4, no. 9, third movement. The most common usage of the 6/4-chord is in cadences such as the one that concludes this Exercise. Corelli, however, rarely used this particular cadential formula, which seems to have become more common with composers of the following generation, as in the next two exercises.

Exercise 6.1h. From Handel, sonata for violin and continuo HWV 371, second movement.[18] In the second full measure, the sixteenth-note *g* is a passing tone, as are the two thirty-seconds at the opening.

[18] This work is sometimes known as "op. 1, no. 13," a spurious designation attached to it in the nineteenth-century edition of Handel's complete works. Handel's actual opus 1 was a set of twelve sonatas; this work was unpublished in Handel's lifetime.

Exercise 6.1i. From a sonata for violin and continuo attributed to Handel (HWV 370), second movement.[19] All but the first of the four sixteenths are passing tones. Moreover, of the three 6/4-chords figured here, only the last contains an essential dissonance. The first two 6/4-chords are consonant passing chords produced by the motion in the bass. These figures are the equivalent of dashes, and the player can simply sustain the chord struck on the downbeat.

The eighth rests in these measures illustrate a frequently encountered problem. Precisely where in the measure should one place chords: only over the bass notes, some of which fall on unaccented parts of the measure, or on the rests, which fall on strong beats? The answer depends on the size of the ensemble, the rhythm of the obbligato parts, and other factors. Here, placing a chord on the first note after each rest produces a jarring accent off the beat. Therefore it is probably best to play chords over the rests, as in Illustration 6.10a. The underlying voice leading is that shown in Illustration 6.10b. Notice the doubling of the note C, to avoid parallel octaves with the bass (despite the rests). Another solution is to delay the chords until the next beat, as in Illustration 6.11.[20]

Illustration 6.10

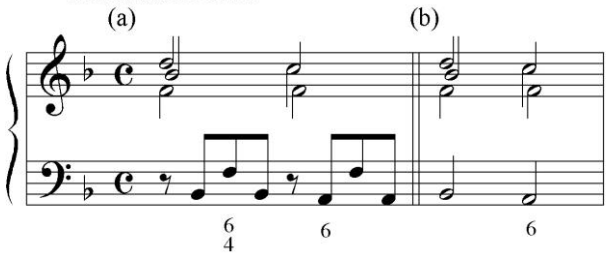
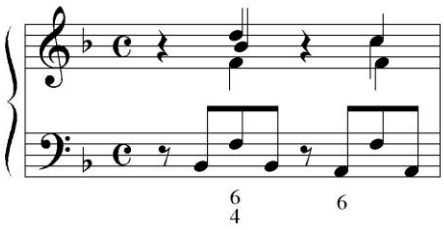
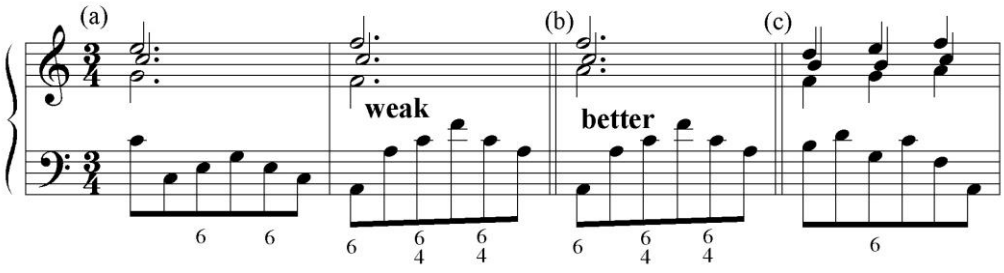


Illustration 6.11



Exercise 6.1j. From Corelli, trio sonata op. 4, no. 7. This movement is a sarabande, yet the tempo mark is *Vivace;* not all sarabandes are slow! As in the previous Exercise, the 6/4-chords in m. 5 are the results of consonant passing notes in the bass. In this measure it is probably best to double the bass note *A* on the downbeat. This assures full harmony throughout the measure (Illustration 6.12b); otherwise one hears momentary open fifths on the second beat (Illustration 6.12a). In m. 6, only the bass notes on beats bear chords; the others can be treated as passing tones (Illustration 6.12c).

Illustration 6.12

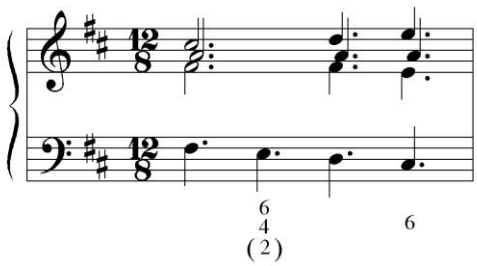


[19] This sonata was the twelfth composition in Handel's opus 12, but it probably is not actually by Handel, rather a spurious addition by the eighteenth-century publisher.

[20] C. P. E. Bach mentions the practice of playing chords on rests—even when all the other players are silent—to keep the ensemble together (*Essay*, ii.37.4). This might have been done especially when the keyboard player was directing the ensemble; the chord serves as the equivalent of a conductor's downbeat.

Exercise 6.1k. From Corelli, sonata for violin and continuo op. 5, no. 9, second movement (end). Two of the four 6/4-chords in this Exercise are passing chords that might have been indicated by dashes: those in the first and third complete measures. In these measures the bass note is a *dissonant* passing tone (Illustration 6.13).

Illustration 6.13



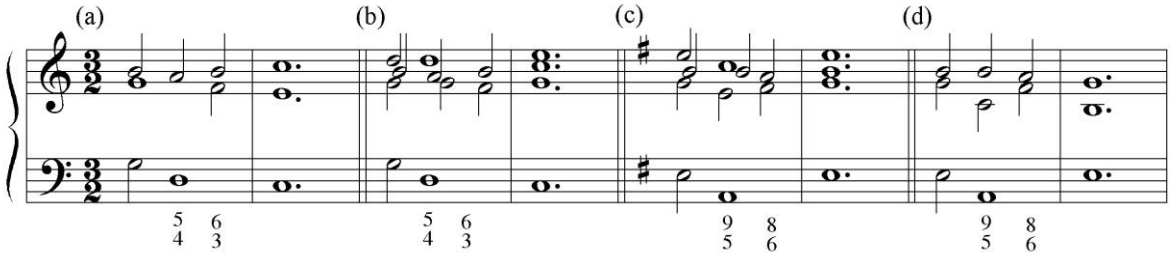
The 6/4-chords over these bass notes are actually instances of the 6/4/2-chord (discussed in Chapter 9). Perhaps Corelli expected the passage to be realized in only three parts, omitting 2 (F#). One might, however, begin in four parts, switching to three parts at the *piano* indication, which signals an echo of the preceding phrase.

Some Unusual 4–3 and 9–8 Progressions

Exercises 6.2a–c. The progressions in these exercises are somewhat unusual, but they are worth studying because they introduce new types of voice leading. In each case, the resolution of the dissonance is accompanied by motion in another part as well (as with the 6/4-chord). In these progressions, however, the two parts in question contain contrary rather than parallel motion.

In Illustration 6.14a, as the fourth *(g1)* resolves downward, the free voice (the soprano) ascends. Illustration 6.14b shows the same progression in four parts. Exercise 6.2a should be practiced in both three and in four parts.

Illustration 6.14



Exercise 6.2b is based on a similar progression involving the 9-chord. This can be played satisfactorily only in four parts (Illustration 6.14c). Three-part realization requires the free voice to hop about somewhat erratically, like the middle part in Illustration 6.14d.

Exercise 6.2c is from trio sonata op. 3, no. 3, third movement, one of the few passages by Corelli that employ these progressions. It is, fortunately, a Largo.

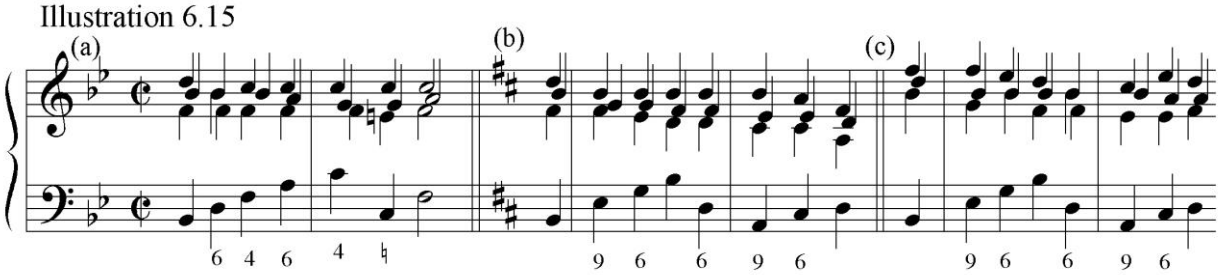
The 4–6 and 9–6 Progressions

Thus far the bass has remained stationary whenever an essential dissonance resolves. But in

every progression seen up to this point, the bass is a free voice and therefore can move in any number of ways at the resolution. (This remains true until the 2-chords introduced in Chapter 9.)

When the bass moves at the resolution of a dissonance, the chief difficulty is the unfamiliar way in which the resolution is indicated by the figures. In Illustration 6.15a, the dissonance in m. 1 *(bb1)* resolves in the normal way. But the resolution *(a1)* takes place within a 6-chord instead of the usual triad. Moreover, the bass of that 6-chord *(a)* must be doubled. This is because the fourth in the previous chord *(bb1)* resolves downward by step, even as the bass moves upward.

Illustration 6.15



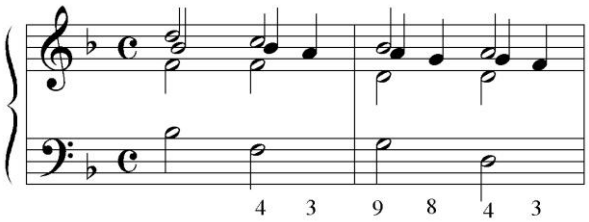
The progression involving a 9-chord is similar (Illustration 6.15b). After the first 9-chord, the ninth *(f#1)* resolves to the sixth *(e1)* of the following 6-chord. The voice leading is simplest if, again, one doubles the bass of the 6-chord. An alternative is shown in Illustration 6.15c, but this requires contrary motion between the upper parts.

Exercise 6.3a. Measures 1–2 are realized in Illustration 6.15a. In mm. 5 and 6, each dissonance is prepared in a diminished triad, in which it is best to double the bass.

Exercise 6.3b. For mm. 1–2, see Illustrations 6.15b–c.

Exercises 6.3c–d. Exercise 6.3c is a simplified (or *reduced*) version of Exercise 6.3d, which is from Corelli, concerto grosso op. 6, no. 8, third movement. The latter illustrates use of the 4–6 and 9–6 progressions over a walking bass. Such a bass adds passing tones to a simpler line. One might simplify it further as shown in Illustration 6.16, which shows the underlying 4–3 and 9–8 progressions.

Illustration 6.16



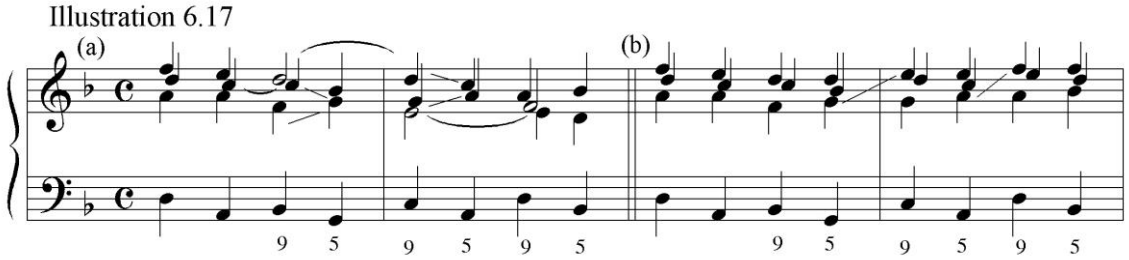
Exercises 6.3e–f. Exercise 6.3e is a reduction of Exercise 6.3f, from Corelli, trio-sonata op. 3, no. 1, fourth movement. In four parts it is best to double the bass of the diminished triad in m. 2.

The 9–5 Progression

Exercise 6.3g. Here the bass *descends* after each 9-chord. Realization in four parts is somewhat awkward, requiring contrary motion as shown in Illustration 6.17a. This could be avoided

through voice crossing, as in Illustration 6.17b. A more elegant alternative would be to insert leaps like those discussed below in relation to Exercise 6.3i (see Illustration 6.19).

Illustration 6.17



The figuring in Illustration 6.17a shows a peculiarity typical of Corelli: the dissonance (the ninth) resolves to the third of the following chord, yet the resolution is indicated by the figure 5. The same appears in **Exercise 6.3h,** from Corelli's trio sonata op. 3, no. 8, first movement.

Exercise 6.3i. From Corelli, trio sonata op. 4, o. 1, fourth movement. One might start by playing a reduced version of the bass, as in Exercises 6.3c and 6.3e.

The high notes of the bass in mm. 3–4 will bring the hands uncomfortably close together, especially after the preceding chain of suspensions; these cause the right hand to descend rather precipitously (Illustration 6.18). One could solve the problem through voice crossing; a better solution is to introduce leaps, as in Illustration 6.19. Here the leaping eighth-note chords of the right hand reinforce the melodic articulation of the bass line. The latter begins as a sequence in which each group of three adjacent notes is followed by a small leap, grouping the eighth notes in the pattern 3 + 1.

Illustration 6.18

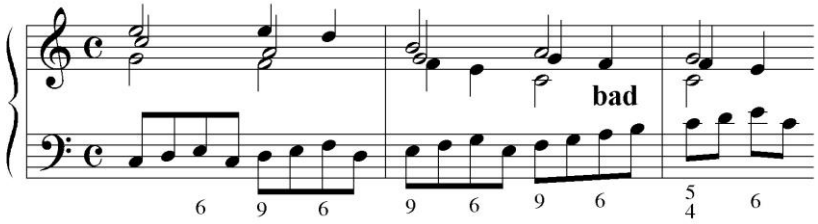
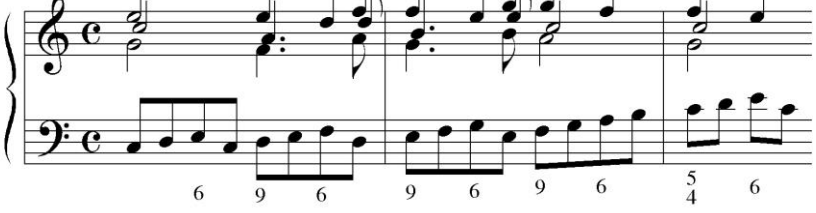


Illustration 6.19



7
7-CHORDS

Triads and 6-chords are the two consonant chords of figured bass. The dissonances discussed in the last two chapters, the fourth and the ninth, most often resolve to triads. Another dissonance, the seventh, most often resolves to a 6-chord.

The 7/3-Chord

In its simplest form, the seventh arises in a chain of suspensions as in Illustration 7.1. In three parts, the added voice moves in parallel thirds with the bass (Illustration 7.2). It is less easy to add a fourth voice, since the progression embellishes a series of parallel 6-chords. So clumsy is four-part realization of a chain of 7–6 progressions that is is often best to reduce the latter to just three voices. (For four-part realization of a related progression, see Illustration 7.23.)

Illustration 7.1

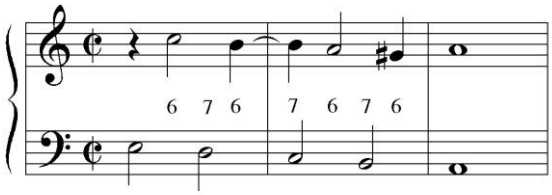
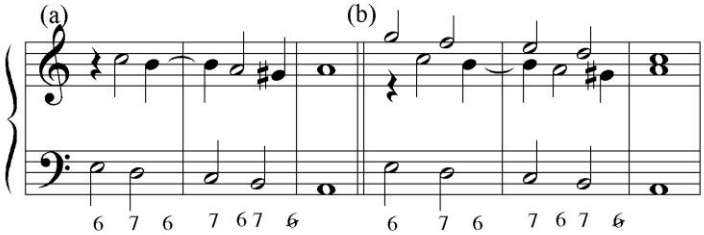
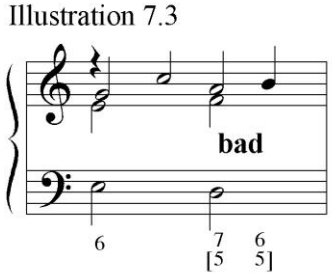


Illustration 7.2



Fortunately, not all 7-chords occur in chains of suspensions. Individual 7-chords are readily played in four parts. When playing in three parts, however, the 7-chord, or more precisely the 7/3-chord, contains only the third and the seventh. In four voices one may add the fifth, but adding the octave instead will avoid the problem shown in Illustration 7.3. Here the presence of the fifth *(a1)* in the 7-chord leads to an unintended 6/5-chord when the seventh *(c2)* resolves. (For 6/5-chords, see Chapter 10.)

Illustration 7.3



The figures rarely distinguish between the 7/3- and the 7/5-chords; the symbol 7 may mean either one, and in many progressions either chord can be used. But the fifth is rarely *required*, and it can usually be omitted unless explicitly called for. The distinction between 7/3- and 7/5-chords is further discussed below in the section on the 7/5-chord.[21]

The 7-chord of figured bass is very different from the seventh-chords of functional harmony, including the dominant-seventh. The latter is a major triad in root position, with a minor third

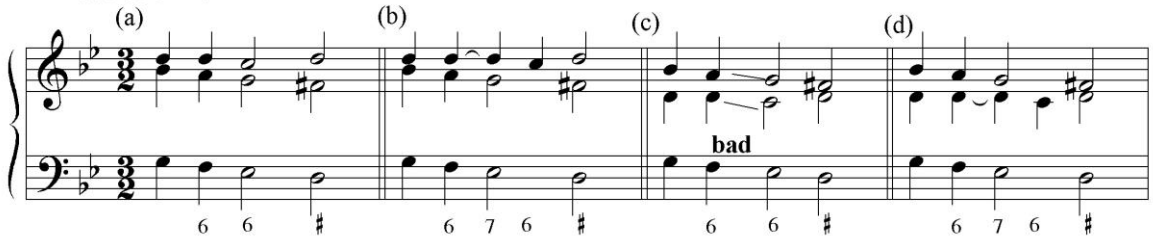
[21] C .P. E. Bach considers the matter in detail in his *Essay*, ii.13.

added at the top. The seventh in that chord is always a *minor* seventh. But the 7/3-chord of figured bass may contain instead a major seventh or even a diminished seventh. The third, too, may be either major or minor. Despite this diversity of form, all 7/3-chords are treated in essentially the same manner. The chord appears in so many different contexts, however, that two chapters are needed to deal with it. The present chapter is limited to progressions that remain close to the basic or archetypal one shown in Illustration 7.1.

Exercises 7.1a–c. In Exercise 7.1a the dissonance is prepared by the sixth of the preceding chord; in Exercise 7.1b by the fifth; and in the first two measures of Exercise 7.1c by the octave. Each of these should be played initially in just three voices. They may then be attempted in four parts, although only Exercise 7.1b lends itself readily to that. (The Appendix gives realizations in both three and four parts.)

It may help to play each exercise first without the sevenths, as in Illustration 7.4a. This shows the first measure of Exercise 7.1a without the dissonance, which is added in Illustration 7.4b. Illustration 7.4c is a reminder that inverting the upper voices in a series of 6-chords can produce parallel fifths. Yet the fifths conveniently disappear when 7–6 progressions are substituted (Illustration 7.4d).

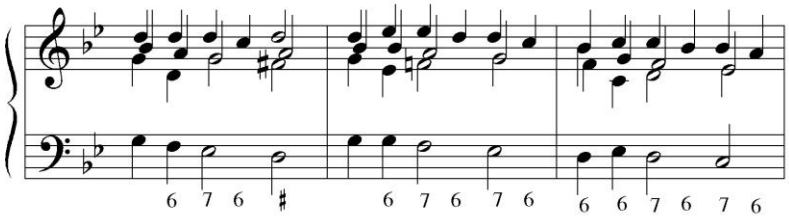
Illustration 7.4



Note the use of an accidental in Exercise 7.1a, m. 4, to indicate the minor seventh (Ab instead of A-natural). In Exercise 7.1c, m. 4, the same accidental makes the first dissonance a *diminished* seventh. It is treated in exactly the same manner as other sevenths.

For four-part realization there is a simple rule to observe throughout Exercise 7.1: double the third of the 7-chord, as in m. 1 of Illustration 7.5. In a series of 7–6 progressions, one must alternate between doubling the third and doubling the bass (see Illustration 7.5, mm. 2–3).

Illustration 7.5

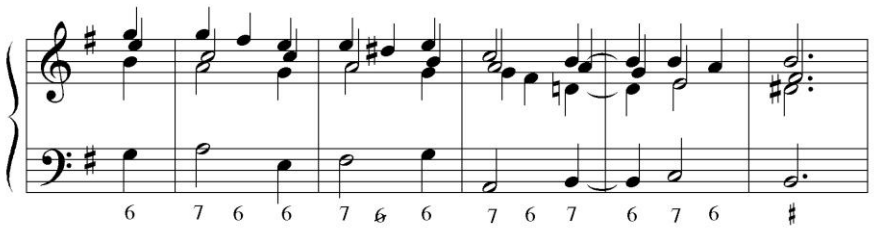


Exercise 7.1d. From Corelli, trio sonata op. 1, no. 12, fourth movement. The sixteenths in mm. 1–2 are best treated as passing tones; simply sustain the chord struck on the preceding quarter note. The sixteenths embellish an ordinary series of 7–6 progressions, which are best played in three parts.

Exercise 7.1e. Here the dissonance is again prepared by the octave, but within a 6-chord (not within a triad, as in the previous Exercise). One must double the bass on each upbeat,

disregarding the rule to avoid octave doublings in 6-chords (Illustration 7.6). This doubling sounds best in four parts, but it must be used even when playing in three. To convert Illustration 7.6 to three parts, one could simply omit the tenor part over the first four bass notes.

Illustration 7.6



Thereafter, however, four parts are almost a necessity. In mm. 3–4, as each 7-chord resolves to a 6-chord, the next dissonance is prepared in the same 6-chord. The successive dissonances *(g1, a1, b1)* occur in different voices. To prepare each one properly, one must double the bass, not the third, in the 7-chords on bass notes A and B.

Exercise 7.1f. From Corelli, trio sonata op. 1, no. 6, third movement. This is better in four parts. One must double the bass of the 6-chords in mm. 6–8, as in Exercise 7.1e.

Exercise 7.1g. From Corelli, op. 1, no. 8, third movement. The problems here are similar to those in the previous Exercise.

Exercises 7.2a–b. To be played in three parts. As with fourths and ninths, the bass does not always stand still and wait for the seventh to resolve. It can move chromatically, as in Exercise 7.2a, in which case the realization is the same as if the bass remained diatonic (Illustration 7.7). Or it can move by step or by leap, as in **Exercise 7.2b,** in which both upper parts move in contrary motion as the seventh resolves (Illustration 7.8). Unlike other 7-chords, which most often resolve to 6-chords, these resolve to triads—a *diminished* triad in m. 3.

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Illustration 7.7

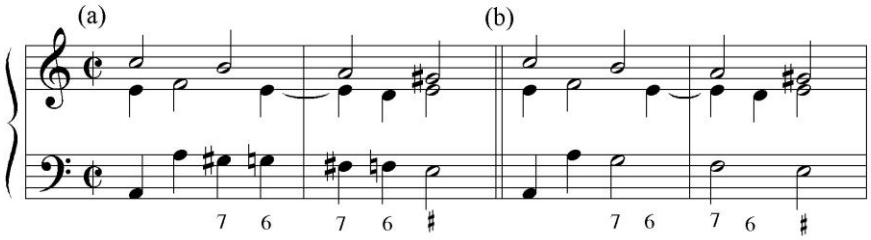
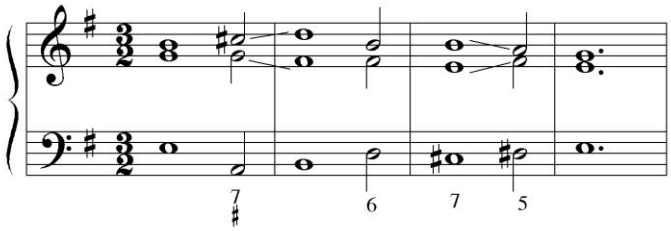


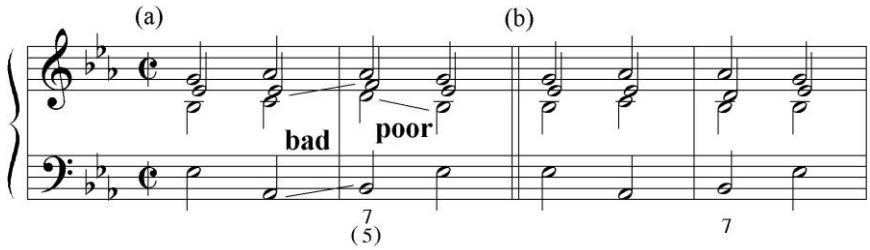
Illustration 7.8



Exercise 7.2c. Here the bass rises by a fourth (or falls by a fifth) with the resolution of each 7-chord. The first three 7-chords function as dominant-sevenths within the familiar V–I progression. One might be inclined to realize them as 7/5-chords. But the seventh is a dissonance

and in strict harmony should be prepared. This is difficult if one uses the 7/5-chord; it can lead to parallel fifths, as in the first measure of Illustration 7.9a. With the inclusion of the fifth, moreover, the leading tone *(d1)* must descend if the following triad is to be complete, as shown in m. 2 of the Illustration.

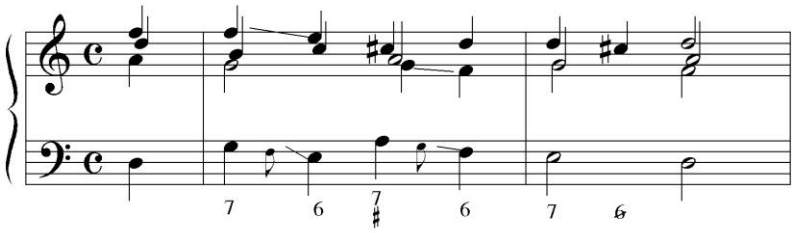
Illustration 7.9



In such progressions, therefore, it is usually better to double the bass, not the third, of the 7-chord (Illustration 7.9b). This leaves the dominant-seventh chord without the fifth, but that is a problem only in certain types of composition in which full harmony is desired on every beat, as in a chorale. There are various ways of getting around this; for instance, J. S. Bach occasionally adopts the solution seen in Illustration 7.9a. There the leading tone *(d1)* descends, which is tolerable so long as it remains in an inner voice (typically the tenor).[22] In practicing these Exercises it is best to insist on the purest possible four-part voice leading.

Exercise 7.2d introduces another example of problematical voice leading. The bass descends by a third as the seventh resolves (Illustration 7.10); this creates hidden octaves, and for this reason the best composers avoided this progression. Yet it is not uncommon, and it appears in Exercise 7.3c below.

Illustration 7.10



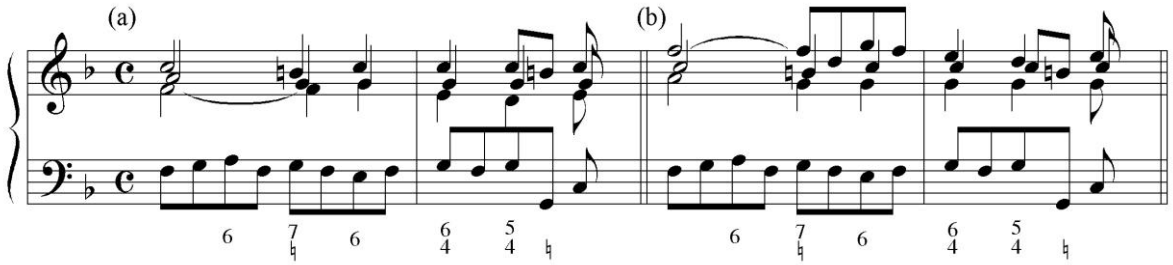
One can even find instances of the same progression in a form that appears to turn the hidden octaves into real ones.[23] This occurs in **Exercise 7.2e,** from the violin sonata op. 5, no. 10, second movement. In mm. 1 and 3, the walking bass fills in the descending third *(g–e)*. In other words, the bass line contains the resolution of the dissonance (E). The seventh F, realized in an upper voice as part of the chord over the bass note *g*, cannot descend by step. To avoid parallel octaves with the bass, the note F in the realization must move elsewhere.

[22] See, e.g., the final cadence of "Wie schön leuchtet der Morgenstern," BWV 436 (no. 375 in the Erk/Richter edition, no. 278 in Riemenschneider).

[23] It is not certain that Corelli, the composer of these Exercises, was responsible for all the figures found in printed editions of his music. In the violin sonatas from which Exercises 7.2f and 7.3c are taken, the seventh is not actually present in the violin part, and it might have been an erroneous addition to the figures.

Illustration 7.11 shows two ways of realizing this **transferred resolution,** as it can be called. In Illustration 7.11a the seventh *(f1)* is in the tenor and moves upward to *g1*, not downward to *e1*. The resolution instead occurs in the bass, transferred to a lower octave *(e).* The seventh F is best realized in an inner voice, but Illustration 7.11b shows a graceful way of realizing the progression if the note is played in the soprano.

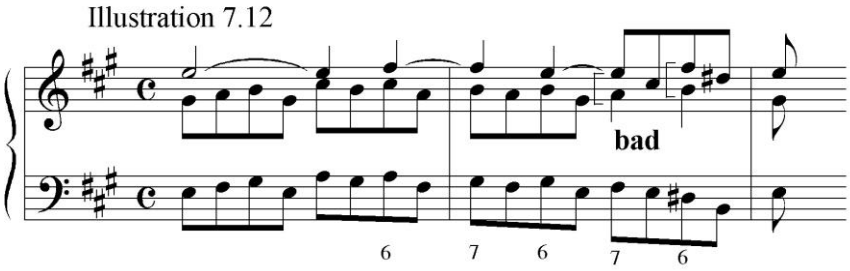
Illustration 7.11



Transferred resolution depends on hearing progressions in terms of chords rather than voice leading. Many Baroque musicians must have understood harmony in this way, particularly in France, where it led to Rameau's theory of harmony. First published in 1725, the latter was the forerunner of modern harmonic theory. Even Rameau, however, was trained in strict counterpoint, which remained the basis of harmony as taught in other parts of Europe into the nineteenth century. The principle that sevenths are dissonances and that they should resolve downwards is important for proper realization of most figured basses, even in French music.

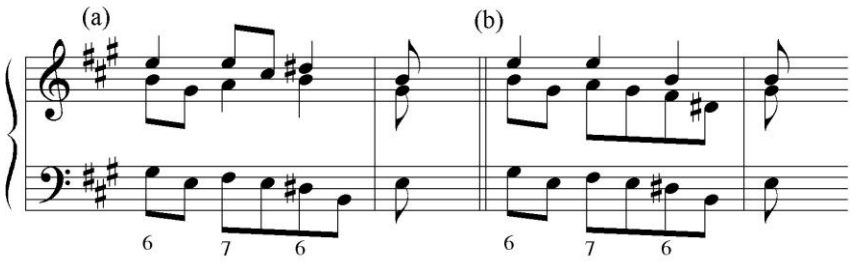
Exercise 7.2f. From Corelli, violin sonata op. 5, no. 11, first movement. The second half of m. 2 presents an even more troublesome version of the progression that was just considered above. Illustration 7.12 shows the beginning of a realization in three parts, but m. 2 is marred by barely hidden fifths.[24] One might avoid them as shown in Illustration 7.13a. Then, however, the soprano and bass are forced to double the leading tone D-sharp. Another possibility appears in Illustration 7.13b. Here the seventh *(e´)* resolves by descending through a fourth, dropping to *b1* instead of *d#2*. Dissonances normally resolve by step, but occasionally a downward leap is the most elegant solution.

Illustration 7.12



[24] Hidden fifths also occur in Illustration 7.11b, but there the first fifth *(b1/f2)* is diminished.

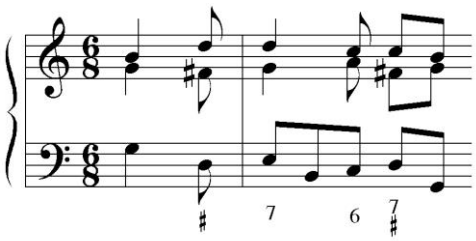
Illustration 7.13



Exercise 7.2g. From Corelli, violin sonata op. 5, no. 9, first movement. This Exercise presents a variation of the same problem. Measures 2, 5, and 6 contain essentially the same progression as in the previous two exercises (despite the eight rest and the upward leap in the bass). At the end of m. 7, however, the bass note g# must be doubled, despite the figure 6. This is to prepare the following 7-chord.

Exercise 7.2h. From Corelli, trio-sonata op. 3, no. 6, fourth movement. The apparent 7–6 progression in the first full measure is a red herring. The bass note *B* is a consonant passing tone, and the 6 means the same as a dash. In other words, the 7-chord on the downbeat does not resolve until the bass reaches the note *c* (Illustration 7.14). Notice that in three parts, as shown, the resolution (*c2*, in the soprano) doubles the bass; the 6-chord is incomplete.

Illustration 7.14



Measure 3 of this Exercise is also somewhat problematical. The fourth G on the downbeat resolves to F-sharp. The latter note also occurs in the bass, which therefore must be doubled in one of the upper parts.

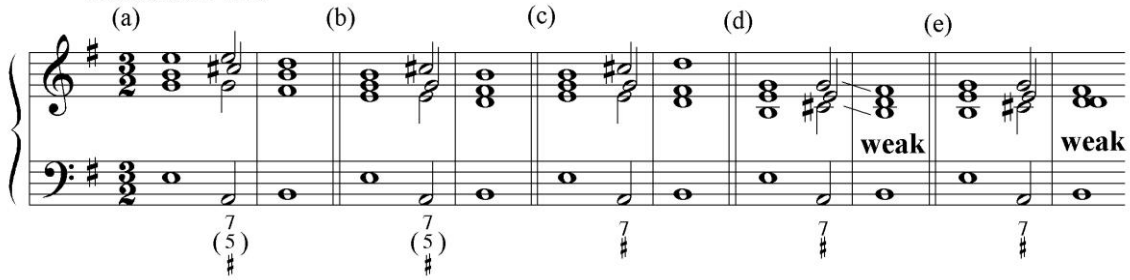
The 7/5-Chord

The 7/5-chord, avoided up to this point, is an important chord in its own right. It is particularly common when the bass bearing the figures 7/5 ascends by step. The resulution occurs in the following chord, usually a triad. One can often play the 7/5-chord in this context even if the figures do not explicitly call for it.

For instance, in Exercise 7.2b one could realize the second chord in m. 1 as a 7/5. The complete figuring would then be 7/5/#, as in Illustration 7.15a. The third of this chord is a *major* third, and it could ascend by step, functioning like a leading tone. Yet, because the bass also ascends by step, the upper voices will often have to descend, as in Illustrations 7.15a–b. In four parts, the note *c#2* can ascend only if the triad containing the resolution is in open position, with the third doubled (Illustration 7.15c).

The progression is awkward if the seventh is in the top voice. One must then choose between parallel fifths (Illustration 7.15d) and a weak unison doubling of the third (Illustration 7.15e). The fifths are permissible, as the first is diminished. As a general rule, however, the seventh is best placed in an inner voice of the 7/5-chord.

Illustration 7.15



Exercise 7.2b presents another difficulty for the use of the 7/5-chord. In m. 3, the resolution of the 7-chord occurs in a diminished triad; the bass has a leading tone *(d#).* The latter should not be doubled; if the 7-chord is realized as a 7/5, then the third (F#) should be doubled in the following diminished triad (Illustration 7.16). This forces the soprano to leap downward by a fifth. That may seem ungainly, but bass parts often leap by fifth. In this progression the soprano and bass parts exchange their customary type of voice leading.

Illustration 7.16

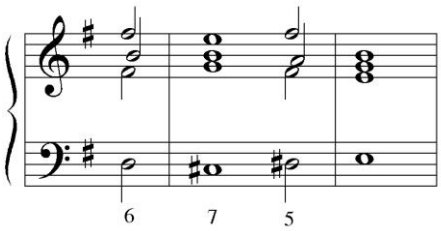
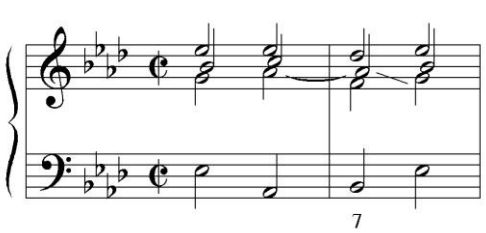


Illustration 7.17



The 7/5-chord is often equivalent to the dominant-seventh of functional harmony. Yet even simple V–I progressions can create voice leading problems, as in Illustration 7.9a. One might just ignore the fact that the seventh is a dissonance, playing as in Illustration 7.17. Here the unprepared seventh could be explained as the product of voice crossing (shown in the Illustration by the tie and diagonal line). On a keyboard instrument, however, voice crossing is inaudible. To allow for the full 7/5-chord, some theorists advocated the momentary addition of a fifth voice, as in Illustration 7.18. But the fifth voice, which has only the two notes *f´1* and *eb1,* is also something of a fiction. When accompanying a quiet soloist, moreover, the momentary increase in volume created by the added voice in the realization might be undesirable (especially if playing continuo on the organ). For this reason it is often best to play 7/5-chords only where they are really needed.

Illustration 7.18

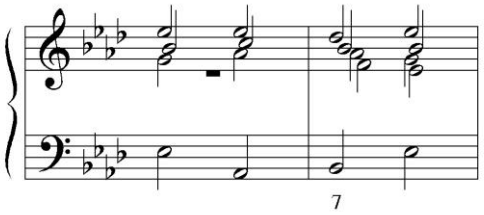
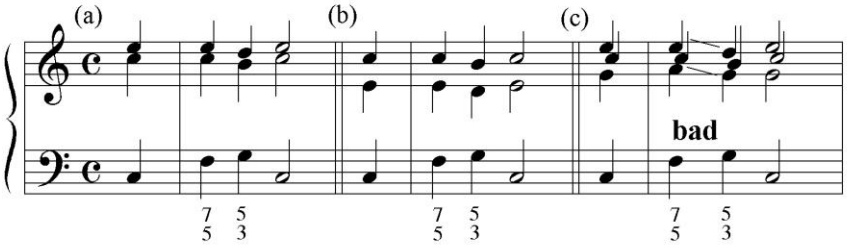


Illustration 7.19



Needless to say, when the figures explicitly call for 7/5-chords, one should play them. In such cases, however, it may be possible to omit the third—something one would never do in a plain 7-chord (that is, a 7/3). An "incomplete" 7/5-chord, without the third, often occurs when the obbligato parts move in parallel thirds or sixths, as in Illustration 7.19. In such passages it may be a mistake to play in four parts, including the third in the 7/5-chord. Doing so not only

thickens the texture but can lead to parallel fifths if the seventh is in the top voice (Illustration 7.19c).

Exercise 7.3a. This exercise contains numerous examples of a cadential progression that is most easily played in three parts. Adding a fourth voice requires taking care that the seventh is properly prepared. This may mean doubling the bass of a 6-chord, as in the final cadence (Illustration 7.20).

Illustration 7.20

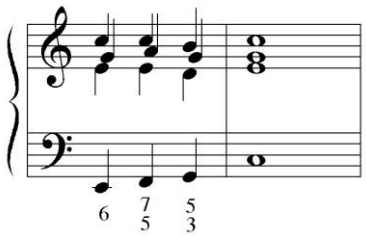
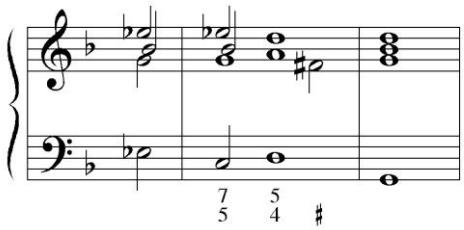


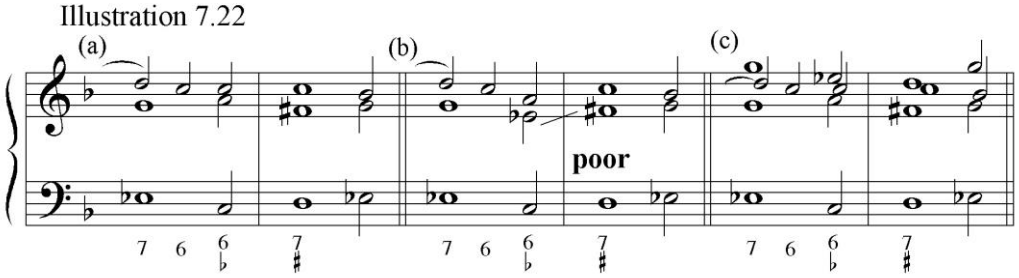
Illustration 7.21



Exercise 7.3b. From Corelli, trio-sonata op. 1, no. 10, fourth movement. The 7/5-chord occurs twice, in mm. 7 and 14. Cadences at both points are an elaboration of the progression seen in Exercise 7.3a. As the seventh of the 7/5-chord resolves, the fifth prepares a dissonance in the following chord, a 5/4 (Illustration 7.21).

Exercise 7.3b works well in both three and four parts. But three-part realization forces one to leave certain chords incomplete. In m. 5, one must double the bass *(c)* of the second 6-chord, to prepare the following dissonance (Illustration 7.22a). On the other hand, the middle voice in that chord cannot move to the third *(eb1)*, which would then lead to a melodic augmented second (Illustration 7.22b). One can include the third of the chord only when playing in four parts. This, however, requires the soprano to leap up to *g2* in the final chord (Illustration 7.22c).

Illustration 7.22

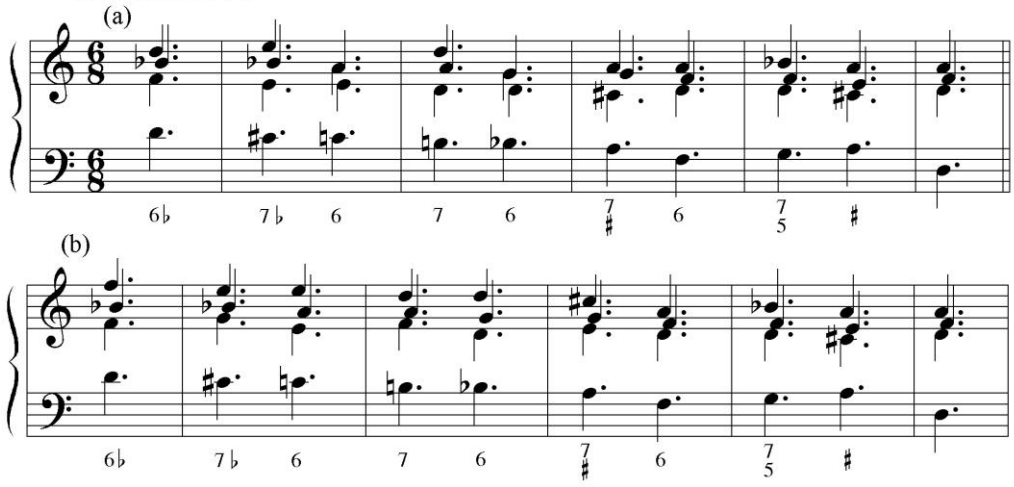


Exercise 7.3c. From Corelli, op. 5, no. 7, fourth movement. Three-part realization presents no special problems and is the most natural way to play this exercise. Four-part realization, although not out of the question, requires rather artful doublings in the 7–6 progression (Illustration 7.23a).

The very first 7-chord of this Exercise contains a *diminished* seventh. This chord is equivalent to the fully diminished seventh-chord of functional harmony—a diminished triad with added seventh.[25] But the figures call only for the seventh, and the intended chord is an ordinary 7/3. Realization as a diminished-seventh chord would require adding the fifth, as in Illustration

[25] The diminished-seventh chord is sometimes analyzed as a dominant-ninth lacking the root. In Exercise 7.3c, m. 1, the root would be A and the chord would function as the dominant of D minor. But the root A is absent, and playing that note as part of the chord would be wrong.

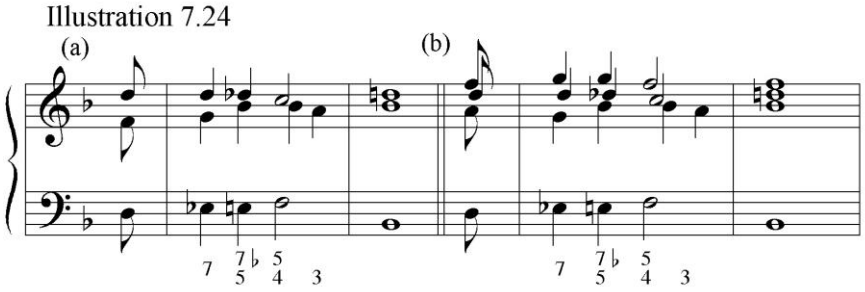
Illustration 7.23



7.23b. The result is a very dissonant chord, particularly in non-equal temperament. We are accustomed to the diminished-seventh chord through constant exposure to it in the music of Bach and later composers. Therefore we probably would not be startled by the realization in Illustration 7.23b. But the music of Corelli and other earlier composers rarely employs that level of dissonance. Moreover, the diminished fifth within the chord *(c#1/g1)* is also a dissonance. Yet that dissonance is neither prepared nor properly resolved—rather free use for such a striking dissonance in a work first published prior to the eighteenth century.

Exercise 7.3d. From Corelli, op. 3, no. 3, first movement. The final cadence of this Exercise does contain a fully diminished seventh-chord, at least when played in four parts. Yet the whole Exercise might be best played in just three voices (Illustration 7.24a).

Illustration 7.24



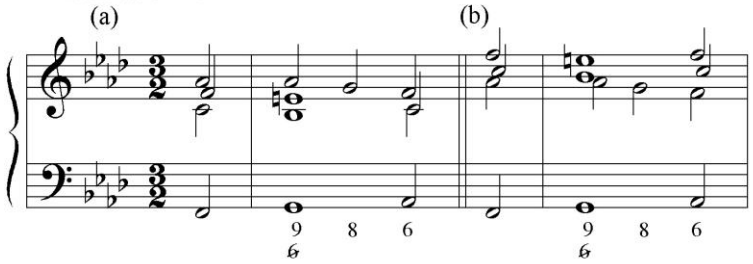
The 7/5-chord in the penultimate measure is the product of chromatic motion: the preparation (D) moves downward to D-flat. Chromatic motion of this sort does not affect the preparation of the dissonance (although the diminished *fifth* in the 7/5-chord remains unprepared). In four parts, this chord becomes a complete diminished-seventh chord (Illustration 7.24b).

The 9/6-Chord

The 9/6 is not, of course, a type of 7-chord. Yet it involves similar voice leading; like the 7/3, it normally resolves to a 6-chord (Illustration 7.25). More precisely, the resolution is to an 8/6-chord. Because the dissonance resolves to the octave, the latter is specified by including 8 among the figures.

The 9/6-chord also resembles the 7/5, inasmuch as both chords require four voices for complete realization. The full figuring would be 9/6/3. The chord sounds best when played in the position shown in Illustration 7.25a. Here the soprano and tenor are separated by a seventh. In

Illustration 7.25

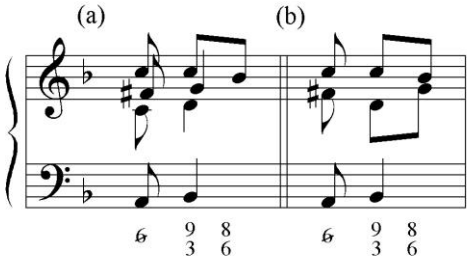


other dispositions, the chord contains a second between two of the upper voices (Illustration 7.25b). As a result, the chord, already fiercely dissonant, becomes quite harsh.

Exercise 7.4a. This very difficult exercise should first be attempted in three parts. This will leave the 9/6-chords incomplete. In each 9/6-chord one omits the third, playing only the notes indicated in the figures (the ninth and the sixth). The chord occurs so rarely that it is not necessary to practice this exercise in four parts.

Exercise 7.4b. From Corelli, trio-sonata op. 1, no. 10, third movement. The 9/6-chord is signified here by the figures 9/3. In the full score, however, the violin parts make it clear that a 9/6 is actually intended. Indeed, the resolution is indicated by the figures 8/6 (Illustration 7.26a). The continuo player was probably expected to play in just three parts, playing precisely those notes indicated by the figures. In that case the free voice must move as the dissonance resolves (Illustration 7.26b).

Illustration 7.26



Exercise 7.4c. From Corelli, trio sonata op. 1, no. 11, first movement. It is clear from the violin parts that the figuring in m. 4 is to be understood literally. Thus there is no 9/6-chord at all! The progression indicated by the figures 9/3–8/6 is actually the 9/5–8/6 progression called for in Exercise 6.2b.

8
MORE 7-CHORDS AND RELATED PROGRESSIONS

This chapter introduces passing sevenths as well as some important sequential progressions that use the 7-chord. If the Exercises for the previous chapter has been practiced carefully, those for the present chapter should be relatively simple.

Passing Chords

We have seen that a dissonance, whether prepared or passing, normally resolves by stepwise descent (Illustration 8.1). Thus the dissonance within a 7-chord—the seventh—should descend, whether or not it has been prepared. The greatest number of passing 7-chords function as dominant-seventh harmonies. These always contains a *minor* seventh but a *major* third. The two notes normally move in contrary motion by half step, yielding smooth and compelling voice leading (Illustration 8.2). Both can be considered leading tones, one rising, the other falling.

Illustration 8.1

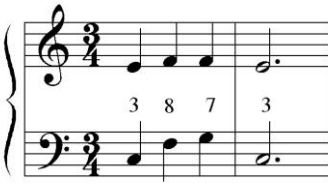


Illustration 8.2

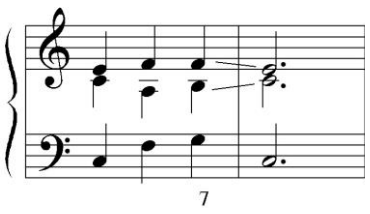
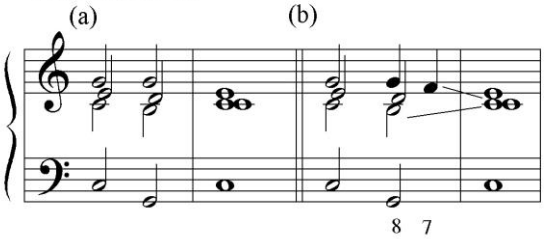


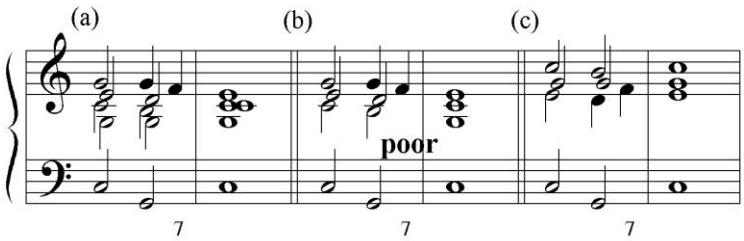
Illustration 8.3



In **Exercise 8.1a,** the dominant-seventh chord arises through an 8–7 progression, as demonstrated in Illustration 8.3. Illustration 8.3a shows the underlying consonant progression. Illustration 8.3b embellishes this progression by introducing a passing dissonance (the seventh) in the soprano. The octave is indicated by the figure 8, but the progression could have been indicated by the figure 7 alone, set to the right of the bass note.

The bass is doubled in the final chords of Illustrations 8.3a and 8.3b, resulting in an incomplete triad. The latter is unavoidable if both leading tones within the dominant-seventh chord are to move by half step. As in other progressions involving the dominant-seventh, the doubling could be avoided by adding a momentary fifth voice (Illustration 8.4a). Another solution is for the voice containing the upward leading tone *(b)* to leap downward (Illustration 8.4b). A more satisfactory solution is shown in Illustration 8.4c. This was recommended by C. P. E. Bach.[26] In this realization, no one part actually moves from 8 to 7 *(g1–f1),* but a listener can hardly hear the difference.

Illustration 8.4



[26] *Essay,* ii.13.2. Bach seems to approve this method only in certain cases where the right hand has gotten too low.

The underlying progression shown in Illustration 8.3a can be further embellished by **elision** of the passing motion. This is to substitute an unprepared 7-chord for the 8–7 progression (Illustration 8.5). The 7-chord is best played as shown, without the fifth. This avoids the voice-leading problems associated with 7/5-chords (see Chapter 7).

Illustration 8.5

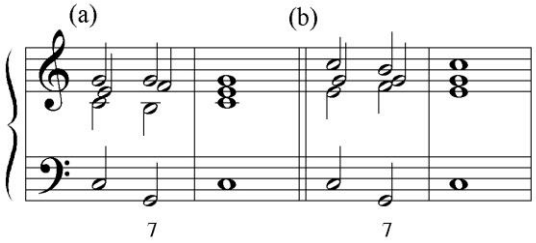
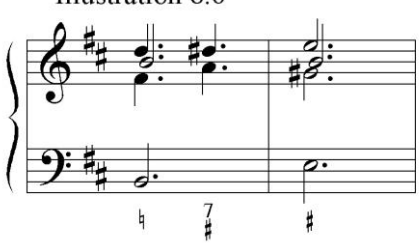


Illustration 8.6



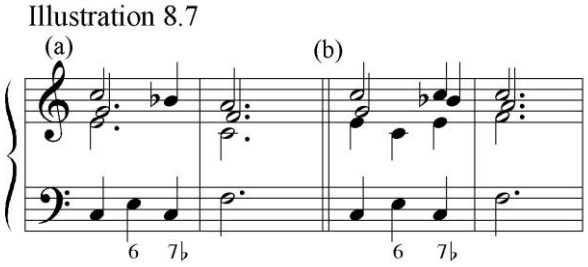
No separate Exercise is given for this progression. The passing motion called for in Exercise 8.1a can be readily elided. One ignores the figure 8 and places each 7 on the beat.

Exercise 8.1b. From Corelli, trio sonata op. 1, no. 6, fourth movement. Here the passing seventh is twice accompanied by chromatic motion in another voice (mm. 4, 5). This chromatic motion does not affect the other parts, and the passing seventh can be realized in the usual manner (Illustration 8.6).

Exercise 8.1c. From Corelli, violin sonata op. 5, no. 12 (variations on *La Follia*). The passing seventh in m. 4, on the third beat, is accompanied by motion in the bass. But the motion is more apparent than real, for the preceding figure 6 is the equivalent of a dash; the harmony does not actually change in the course of the measure.

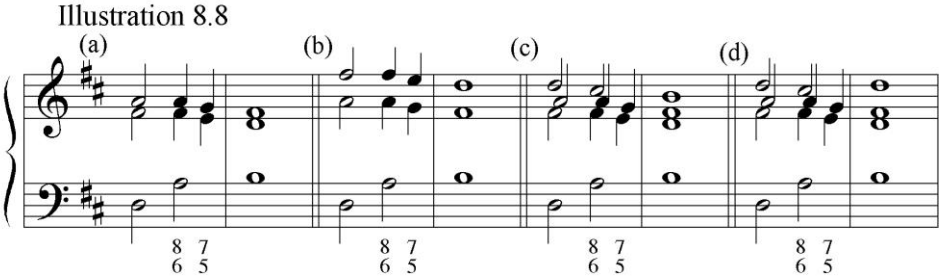
The simplest realization of m. 4 is one in which the passing seventh is the only moving note in the upper parts (Illustration 8.7a). Another possibility is in Illustration 8.7b. This allows the leading tone *e1* in the tenor to ascend. In addition, the bass of the 6-chord *(e)* is not doubled.

Illustration 8.7



Exercise 8.1d introduces a variation on the 8–7 progression. Now two of the upper parts of the 7-chord descend, in parallel motion. The result is a passing 7/5-chord (Illustrations 8.8a–b).

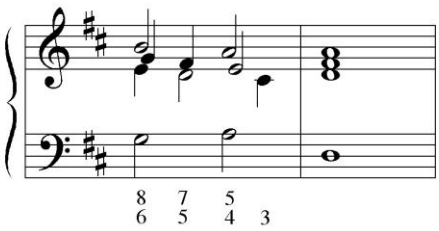
Illustration 8.8



This progression is easiest to play in three parts. But four-part realization is not difficult; the additional part plays the third (Illustration 8.8c). In this progression, the third is a leading tone that should ascend, even though doing so leaves the following chord in open spacing (Illustration 8.8d).

In Illustration 8.9, however, the third *(b1)* cannot rise to *c#2.* This is because the fifth of the 7/5-chord *(d1)* prepares a dissonance in the following chord. The dissonant note *d1* would clash with the soprano if the latter ascended to *c#2*. Instead the soprano must fall to *a1*.

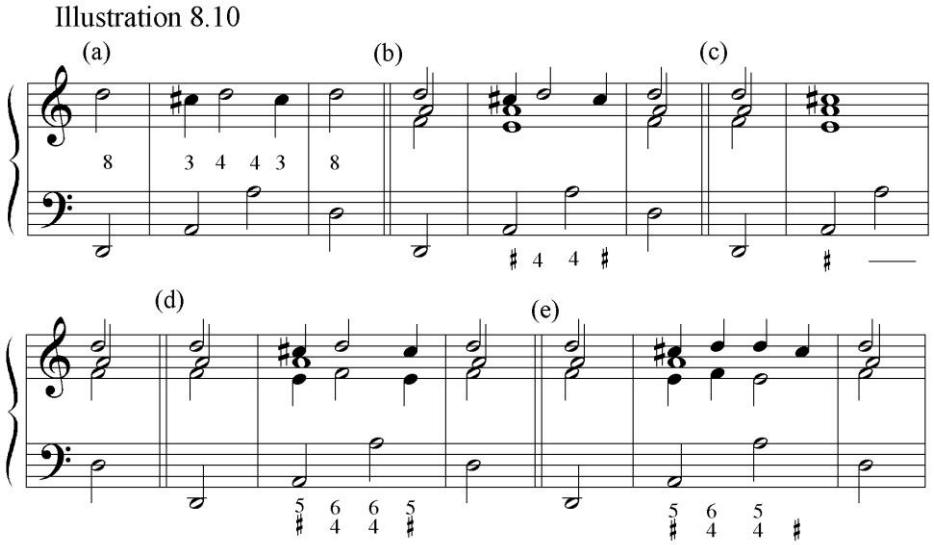
Illustration 8.9



Exercise 8.1e. From Corelli, trio sonata op. 2, no. 11, third movement.

Exercises 8.2a–e introduce further types of passing dissonance. The passing dissonances in Exercises 8.2a–b are common in early Baroque music. These involve fourths rather than sevenths. In Exercise 8.2a, the fourths in mm. 2, 4, 6, and 7 are **neighbor tones** to the adjacent thirds (Illustration 8.10a). Each neighbor tone is an ornament, and Illustration 8.10b can be reduced to the simpler progression in Illustration 8.10c.

Illustration 8.10



The conventions of figured basses were not completely settled in the early seventeenth century, when this progression was common. In some early Baroque works, the figure 4 alone, which later came to mean specifically the 5/4-chord, could also mean the 6/4-chord. Hence Exercise 8.2a might also be realized as in Illustrations 8.10d–e. In an actual composition, one would need to examine the score to determine which realization to use.

Exercise 8.2b comprises two excerpts from Caccini's solo madrigal *Dolcissimo sospiri*, a so-called monody for voice and continuo. Cadences with neighbor-tone ornamentation of the third are common in Caccini's monodies. Caccini, however, used the figures 10 and 11 in place of 3

and 4. These **compound figures** were probably understood literally, dictating realization in a specific octave register.

Caccini also uses ties in the bass to make it clear precisely when each figure is to be played. Thus, in m. 6, the figures 10 and 11 accompany tied quarter notes. Later composers would simply write a half note, with the second figure offset to the right. It was understood that each figure receives half the value of the bass note.

The final bar contains four tied quarter notes, the second of which is accompanied by the figure 9. This refers to the ornamented cadence formula shown in Illustration 8.11. This type of figuring, which dicates a specific melodic line in the accompaniment, is rare in later music, although J. S. Bach probably used it more frequently than other composers.

Illustration 8.11

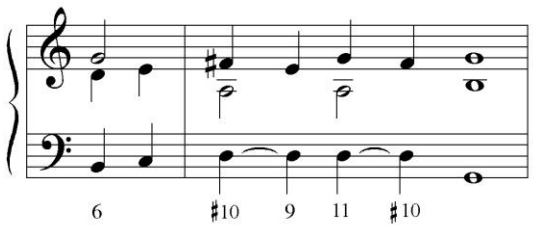
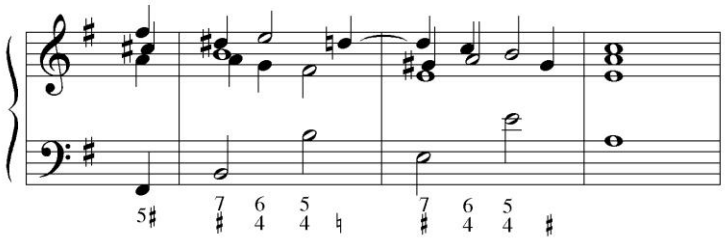


Illustration 8.12



Exercise 8.2c. From Corelli, trio sonata op. 3, no. 7, first movement. In music from the later Baroque, the passing fourth appears in the figures most often in conjunction with motion in another voice. Here, in mm. 3 and 4, the fourth accompanies the resolution of a 7-chord. The result is a passing 6/4-chord (Illustration 8.12).

Exercise 8.2d. Like the fourth, the seventh can arise through neighbor motion. When this happens, however, the other voices, even the bass, are also likely to contain neighbor notes, sometimes by contrary motion. In Illustration 8.13, the seventh is part of a 7/5-chord, and the progression is easiest to play in three parts. In four parts, the seventh must be in the alto or tenor to avoid parallel fifths (Illustration 8.14; compare Illustration 7.19c).

Illustration 8.13

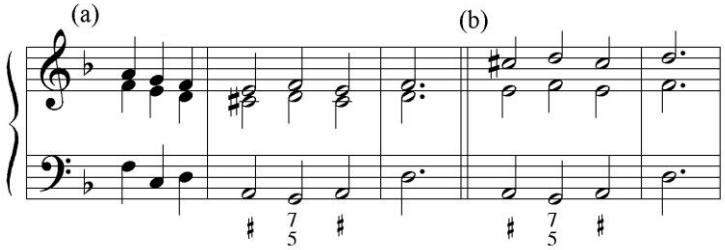
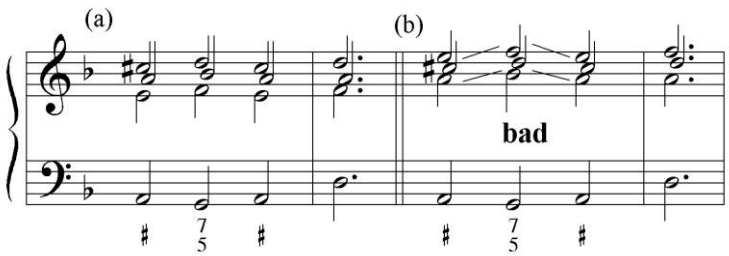


Illustration 8.14

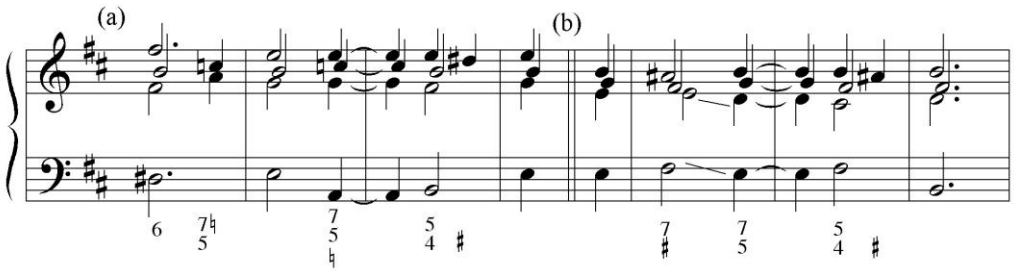


This progression is most common in Italian music from the later seventeenth century. In m. 7, the seventh is diminished, as is the fifth, producing a fully diminished seventh-chord. This has no effect on the voice leading.

Exercise 8.2e. From Corelli, trio sonata op. 2, no. 8, third movement. The progression seen in the previous Exercise is repeated here, initially in mm. 10–11. Now, however, it occurs within a **hemiola:** the two measures constitute, in effect, a single measure of 3/2-time.

Before that, in m. 9, is a rather different type of passing 7/5-chord. Here the 7/5 arises through neighbor motion from the preceding 6/3-chord (Illustration 8.15a). Again the fifth and seventh are both diminished, creating another fully diminished seventh-chord.

Illustration 8.15



Measures 18 and 22 repeat the hemiolic progression from mm. 10–11. Now, however, there is also a 7 on the downbeat. This stands for a regular seventh, that is, a prepared dissonance or suspension. As it resolves downward by step, however, the bass also descends by step, producing parallel sevenths (Illustration 8.15b). Corelli seems to have been fond of this progression, but it is rare in later music.[27]

A more common type of passing seventh occurs when the bass ascends by step against a stationary upper part (Illustration 8.16). Here the bass, not the soprano, contains passing motion. The alto moves with the bass in parallel thirds. The upper voices can be inverted, as in Illustration 8.16b. This progression works best in three voices, although four-part realization is possible (Illustration 8.17).

Illustration 8.16

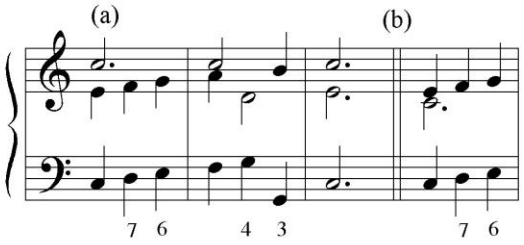
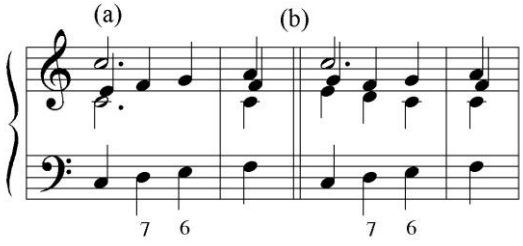


Illustration 8.17



Exercise 8.3a need be played in three parts only. **Exercise 8.3b** is from Corelli, trio sonata op. 1, no. 11, third movement. Passing 7-chords occur in mm. 2 and 6. The Exercise also contains several essential 7-chords. Those in mm. 4, 7, and 10 are prepared by the octave of the preceding 6-chord—which therefore must be played as an 8/6. Measures 6–7 are tricky, especially in four parts (Illustration 8.18).

[27] The passing dissonances in Illustration 8.15b, like the unprepared sevenths in Illustration 8.5, can be understood as the results of elision. The same is true of the passing dissonances in Exercise 8.4a below.

Illustration 8.18

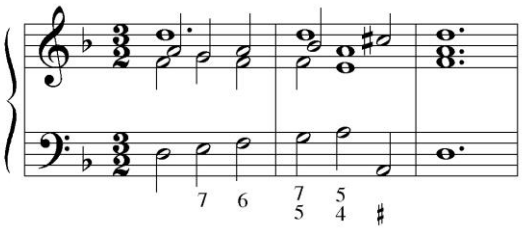
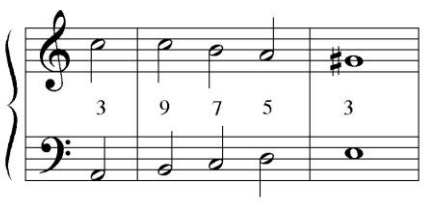


Illustration 8.19

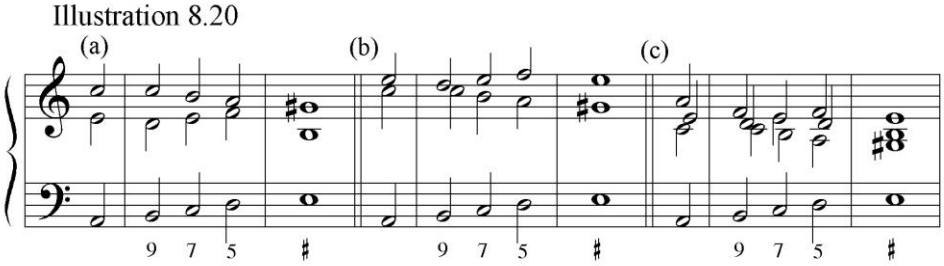


The 9–7 Progression

Up to now we have seen passing dissonances that arise through (1) descending motion in an upper part; (2) neighbor motion in an upper part; and (3) ascending motion in the bass. By combining types (1) and (3) we arrive at the type of passing seventh found in **Exercise 8.4a.** This arises when a 9-chord resolves against an ascending bass (Illustration 8.19).

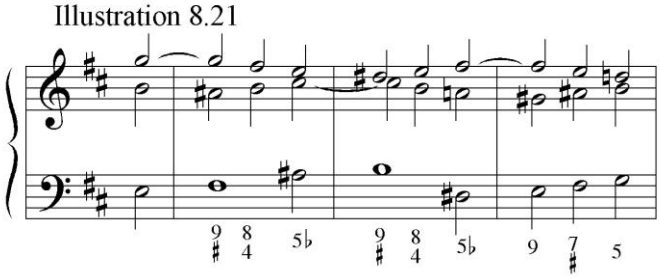
The 9–7 progession is difficult and rather rare, but it occurs with some frequency in the music of Corelli and Bach. Three-part realization is easier and more graceful; the upper parts move in contrary motion, one of them parallel to the bass (Illustration 8.20a). Even in just three parts, the progression is quite harsh when the 9-chord occurs in closed position (Illustration 8.20b). Realization in four parts is even harsher and far more difficult. Only the disposition shown in Illustration 8.20c avoids parallel fifths.[28]

Illustration 8.20



Exercise 8.4b. From Corelli, trio sonata op. 4, no. 6, second movement. This is best realized in three parts only. The 9–7 progression as such occurs only in m. 6. The two preceding measures, however, contain similar progressions. In both mm. 4 and 5, the bass remains stationary on the downbeat as the upper voices move. The result is an unusual type of passing fourth, figured as 8/4 (Illustration 8.21).

Illustration 8.21

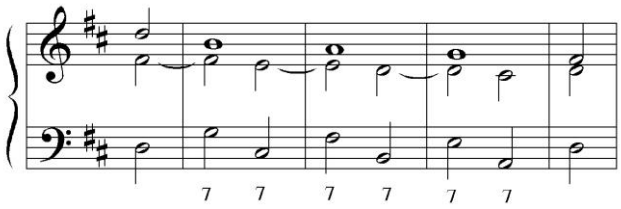


[28] Other realizations are possible if the tenor passes more than an octave beneath the soprano. On a keyboard instrument that requires the left hand to play the tenor as well as the bass, resulting in **divided accompaniment.** That is an advanced skill best avoided in playing these Exercises.

Sequences of Sevenths

This last group of Exercises differs considerably from the preceding ones in this chapter and is much more important. These Exercises involve sequences that consist of chains of 7-chords. As each seventh resolves, another voice forms a new seventh (Illustration 8.22).

Illustration 8.22



Realization is fairly easy, at least in three parts. In four parts one actually plays a 7/5-chord over alternate bass notes (Illustration 8.23). One could also play *every* chord of the progression as a complete 7/5—but only with the addition of a fifth part, as in Illustration 8.24.

Illustration 8.23

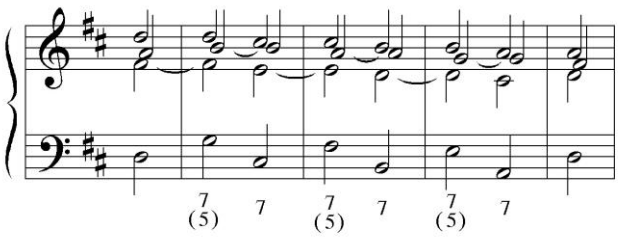
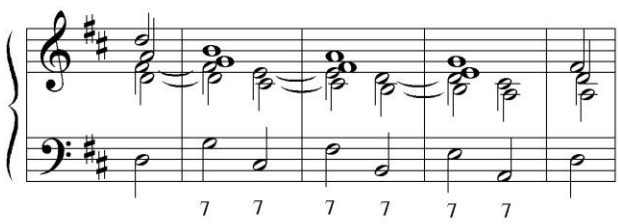


Illustration 8.24



Five-part realization is not out of the question in a heavily scored piece. Elsewhere, however, four or even three parts will suffice. Moreover, because this is a common progression, one must become comfortable with all possible realizations of **Exercises 8.5a–b,** in both three and four parts. Practice each exercise with the soprano initially in the highest possible position, repeating at least twice. This will lead one to play each possible disposition, so long as one avoids leaps when taking the repeats.

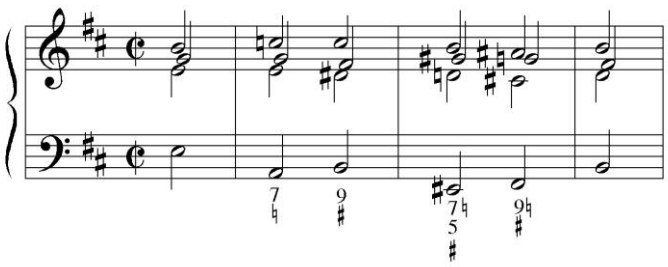
Exercise 8.5c. From Corelli, concerto grosso op. 6, no. 12, fifth movement. The ascending scales in mm. 6–9 are an ornamented version of the bass line from mm. 1–4.[29]

Exercise 8.5d. From Corelli, trio sonata op. 3, no. 6, fourth movement. Practice in both three and four parts. The 7–5 progressions in mm. 3 and 5 are hard to play in four parts; see the realization in the Appendix.

[29] This is curiously similar to a passage from the opening chorus of Bach's Saint Matthew Passion; see Exercise 11.7b, m. 6.

Exercise 8.5e. From Bach, *B-Minor Mass,* Qui tollis. This difficult passage contains a chain of suspensions in which the seventh resolves in a 9-chord. As realized in Illustration 8.25, both 7-chords include the fifth, although only the second 7-chord is actually figured as a 7/5.[30] Note too that the inner voices move chromatically (*d#1–d1* and *g#1–g*). In each case, the sharpened note prepares the dissonance that is subsequently formed by the natural note.

Illustration 8.25



[30] The fifth is also played in the 7-chords in mm. 6, 7, and 9 of Exercise 8.5e, but not in mm. 5 and 8. See the realization in the Appendix.

9
DISSONANCES IN THE BASS (2-CHORDS)

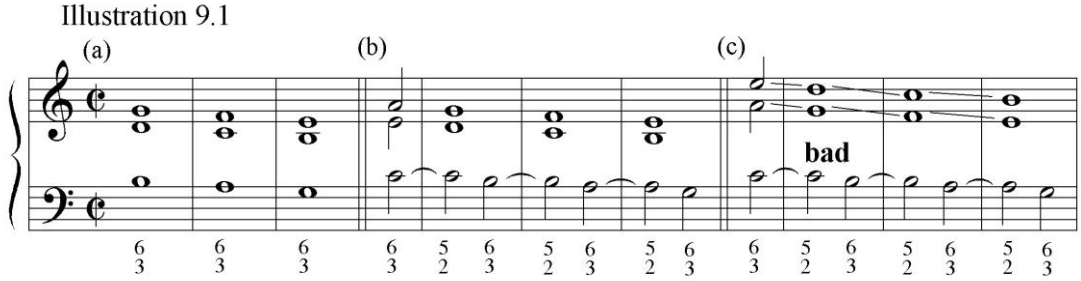
The dissonances discussed in Chapters 5–8 are prepared and resolved in the upper voices. But the bass can also prepare and resolve dissonances. Such dissonances take many forms, but usually the chord containing the dissonance includes the second. It is therefore some variety of 2-chord.

The 2-chord might seem to be equivalent to the 9-chord, but the figures 2 and 9 are used in very different ways. The figure 9 always refers to a dissonance resolved and prepared in one of the upper parts. A 2-chord is always resolved and prepared by the bass. The figure 9 alone stands for the 9/3-chord. The figure 2 by itself usually signifies the 4/2-chord. Occasionally it instead represents the 5/2-chord, but neither type of 2-chord contains the third.

The 5/2-Chord

Although less common than the 4/2-chord, the 5/2 is somewhat simpler and therefore is introduced first, in **Exercises 9.1a–b.** Each consists of a chain of suspensions derived from a descending series of 6-chords, as shown in Illustration 9.1. Note how this illustration differs from those used previously to introduce other dissonances (Illustrations 5.3–4, 5.10, 6.1, 7.1–2). There one or more of the upper voices was syncopated. Here the *bass* is syncopated, but the underlying principles are the same.

Illustration 9.1

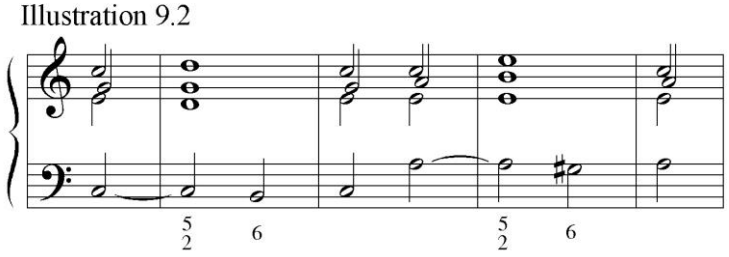


The progression shown in Illustration 9.1a—a series of 6/3-chords—is most conveniently played in three parts. The same is true for the progressions of 5/2-chords in Exercises 9.1a and 9.1b. To avoid parallel fifths, one must use the realization shown in Illustration 9.1b, not 9.1c. Thus there is only a single permissible realization. The fifth of the 5/2-chord is not always perfect. In Exercise 9.1a, m. 2 contains a diminished fifth, whereas the last fifth in Exercise 9.1b is augmented.

A series of 5/2-chords as in Exercises 9.1a-b is rare in real music, and four-part realization of such a progression is clumsy. Not so the individual 5/2-chords of **Exercise 9.1c.** These are readily played in four voices by doubling either of the upper notes (Illustration 9.2). One cannot double the bass, however; that is the voice that prepares and resolves the dissonance.

Exercise 9.1d is from Bach, B-Minor Mass, Gloria.

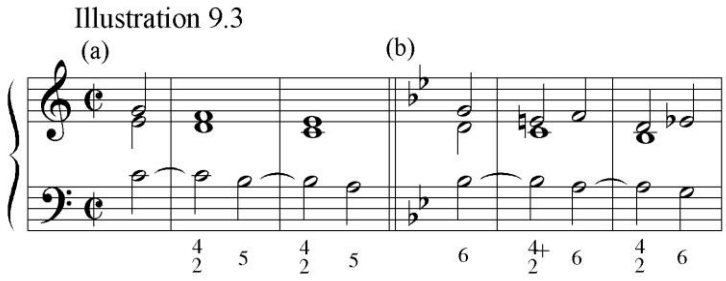
Illustration 9.2



The 4/2-Chord

Exercises 9.2a–b. More common than the 5/2-chord is the 4/2-chord. This chord can resolve to a triad, as in Illustration 9.3a. But as the bass resolves the dissonance, one of the upper voices can also move. This typically places the resolution within a 6-chord (Illustration 9.3b).

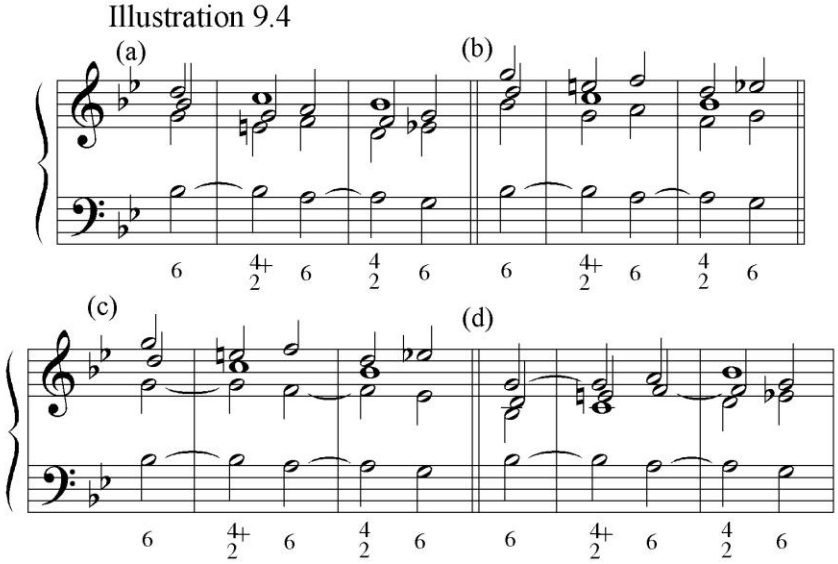
Illustration 9.3



For this very common progression, one needs to be comfortable with all possible realizations, in both three and four parts. In four parts one adds the sixth; thus the full figuring of the 4/2 is actually 6/4/2, although the 6 and even the 4 are often omitted from the figures. This chord has nothing to do with the 6-chords encountered previously—the 6/3 and the 6/4—which behave very differently.

As Illustration 9.4 shows, all three realizations of the 6/4/2-chord can be used. In this Illustration, both the preparation and the resolution are in 6-chords. These can be played with either the bass doubled (Illustrations 9.4a–b) or the sixth (Illustration 9.4c). Doubling the bass in the 6-chords may be somewhat less elegant, but it is not a problem so long as the dissonant bass note in the following chord is not also doubled.

Illustration 9.4



Exercises 9.2a and 9.2b are both sequences. Despite the smooth voice leading of the bass, the upper voices must contain some small leaps if one uses the sequential realizations shown in Illustrations 9.4a–c. It is possible to make the voice leading smoother, as in Illustration 9.4d. In this rather counter-intuitive realization, however, the upper parts no longer form a sequence.

A special symbol indicates the chromatically raised fourth in Illustrations 9.3b and 9.4. This

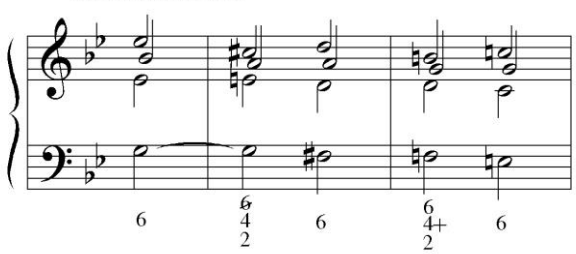
is a figure 4 cut with a slash, which may appear through either the tail or body of the figure (4). One also finds 4# and 4+. Any of these symbols can refer to any raised fourth. They are, however, particularly associated with the 4/2-chord. Often the latter is indicated by *only* the sign 4+ or its equivalent (without the 2).

The raised fourth is often a leading tone; in that case, it is also an *augmented* fourth. A chord containing this interval frequently functions as a third-inversion dominant-seventh chord. In figured bass realization, however, the 4+/2-chord is treated as a dissonance. A tie in the bass is often a sign that a 2-chord will be required on the second note of the tie. Typically, a tied bass note is a dissonance with its preparation, and the dissonant chord is most often a 4/2-chord.

Exercise 9.2c. From Corelli, trio sonata op. 4, no. 1, first movement. This should be practiced in both three and four parts.

Exercise 9.3a. Here, in place of ties, the bass moves chromatically in mm. 2, 3, and elsewhere (Illustration 9.5). The dissonances in these measures are properly prepared despite the fact that the bass descends into the 2-chord by a chromatic half step.

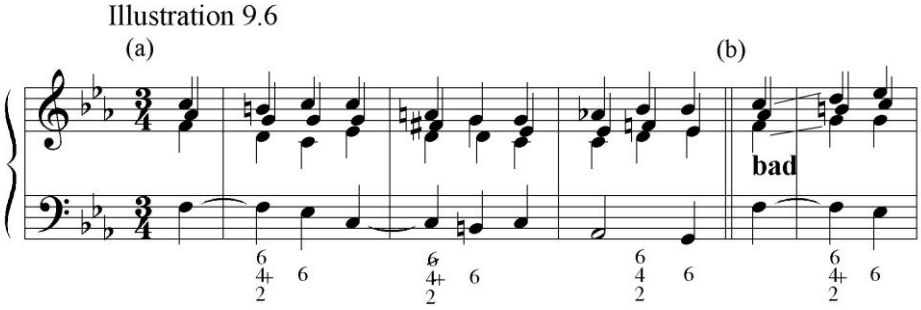
Illustration 9.5



As before, each 2-chord resolves in a 6-chord. In this Exercise, however, the bass of the 6-chord is often a leading tone. It therefore should not be doubled, even though this note—*f#* in m. 1—does not actually "lead" to the next higher note *(g).* These 6-chords should be played in open position, as in Illustration 9.5.

Exercise 9.3b differs from the preceding in that the 6/4/2-chords are prepared in triads (Illustration 9.6a). Play this Exercise in four parts, avoiding the parallel fifths seen in Illustration 9.6b. Those parallels can be avoided by having the upper parts descend into the 6/4/2-chord, although this is not always necessary (see Illustration 9.6a, m. 3).

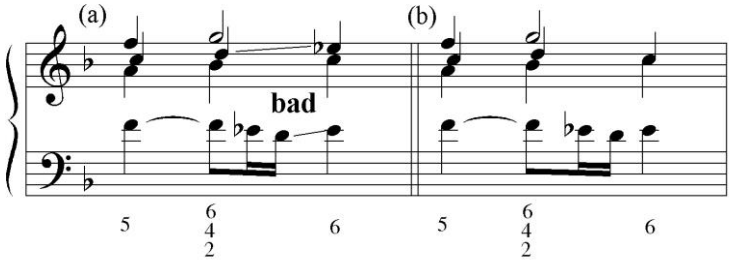
Illustration 9.6



Exercise 9.3c. From Corelli, violin sonata op. 5, no. 2, first movement. This Exercise contains a variety of progressions involving 2-chords. The bass is embellished melodically in m. 1 and again in mm. 11–12. In both passages, however, the underlying progression remains the chain of suspensions seen in Exercise 9.2a.

In m. 1, the first *f* is a consonant passing tone. The two sixteenths are likewise ornamental. Thus, in m. 1 chord changes occur only on the beats, and the realization can be as in previous Exercises. As in other progressions, however, adding passing tones to the bass can raise the possibility of forbidden parallels. Certain realizations must be avoided (Illustration 9.7).

Illustration 9.7



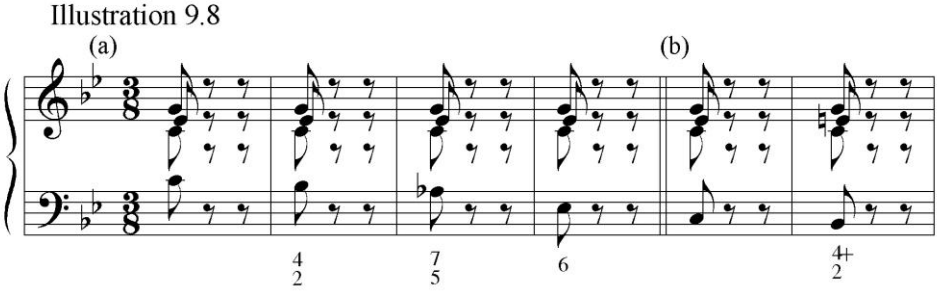
Up to m. 7, this Exercise is best realized in three parts. This is clear not only from the 5/2-chord in m. 1 but from the diminished triads—always awkward in four parts—in mm. 2 and 3. Also more idiomatic in three parts is the chain of 5–6 progressions in mm. 5 and 6. After that point, one might continue in either three or four parts.

Exercise 9.4. Passing tones in the bass are sometimes figured as 2-chords to indicate that they not receive chords of their own. None of the 4/2 chords in this Exercise is an essential dissonance. This is clear from the absence of ties in the bass line, as well as from the fact that the bass descends by step into the 2-chord. In Exercise 9.4a, each 4/2 signature is equivalent to a dash, and the same is true in Exercise 9.4b, with the exception of m. 8 (see below)

Exercise 9.4a. From Corelli, op. 4, no. 5, fourth movement.

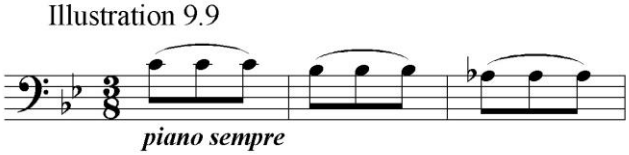
Exercise 9.4b. From Bach, *Ich habe genug* (Cantata 82). The 4/2 in m. 2 is a passing chord, as is the 7/5 in the following measure. Were it not for the rests, the upper parts would hold out a single C-minor chord through the first four measures (Illustration 9.8). Measure 8 is similar to m. 2, but the fourth of the chord is raised. This produces chromatic motion in one of the upper parts (Illustration 9.8b).

Illustration 9.8



As in Exercise 1.10c, this continuo part is a simplified version of the bass line played by other members of the continuo group (shown in Illustration 9.9). Bach's notation raises questions: Should the realization indeed consist of short eighth notes, like the bass, as shown in Illustration 9.8? Or should the continuo player in fact hold out the chords played by the right hand? Also, on what beat does one play the the second figure in m. 5, and again in m. 9? Does one even play it at all?

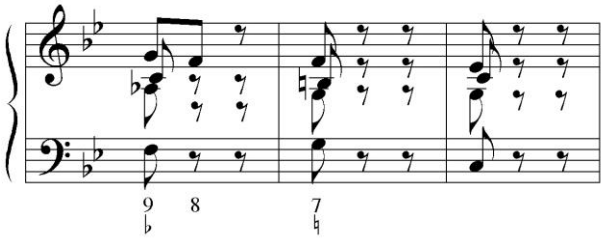
Illustration 9.9



Bach writes the second figure close to the first one, which might seem to imply that one should play both figures within the time of the bass note—that is, as sixteenth notes. A glance at the full score, however, shows that this would produce a clash with second violin part in both measures. Therefore the figure must actually apply to one of the rests in the bass part, probably the first one.

It is not unusual for the second of two figures to be realized after the bass note to which it belongs has ceased to sound, that is, during a rest. In this case, however, Bach evidently wanted the continuo to be quiet except on the downbeat of each measure. This might mean omitting the second chord entirely, even though it is represented by a figure. Illustration 9.10 shows a compromise solution, in which the resolution of the dissonance is played as a single note, omitting the remainder of the chord.

Illustration 9.10



10

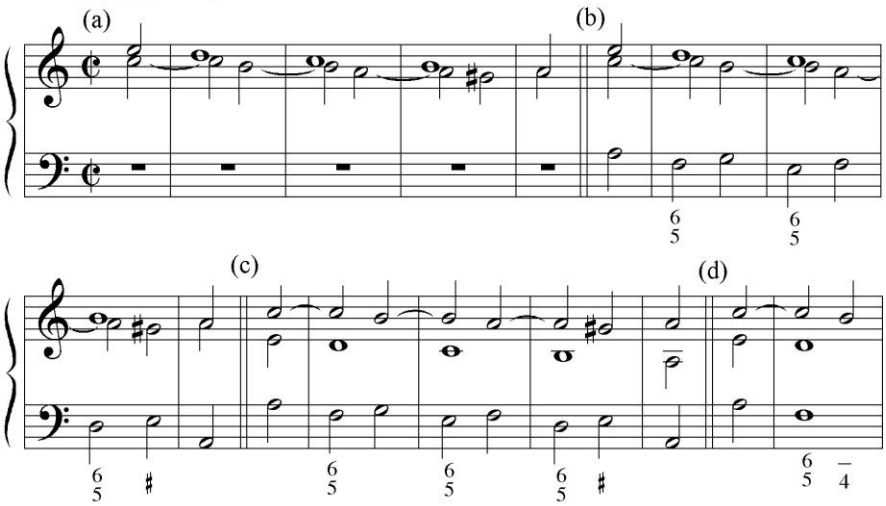
DISSONANCES BETWEEN THE UPPER PARTS (6/5- AND 4/3-CHORDS)

The 6/5-Chord

There remains one important group of chords encountered in figured bass. This group consists of chords in which a dissonance is formed between two of the upper parts. We have already seen instances of this in the "secondary" dissonances of a 5/4- or 9/3-chord (see Illustrations 5.8, 5.14, etc.). Secondary dissonances also occur in some realizations of the 7-chord and in certain types of 2-chord not yet encountered.[31] But until now our focus has been on those dissonances that are formed between the bass and one of the upper parts.

It is possible, however, for a chord to contain dissonances *only* between the upper parts. The most common chord of this type is the 6/5-chord. In its simplest form it is the product of a chain of suspensions, as shown in Illustration 10.1a. With the addition of a bass line, this becomes a series of 6/5-chords (Illustration 10.1b).

Illustration 10.1



In each 6/5-chord, the dissonant note is the fifth of the chord. A perfect fifth is a consonant interval. But the figured bass symbol 5 refers to the individual note that stands a fifth above the bass. Within a 6/5-chord, that note forms a dissonance with another note in an upper part. The dissonant interval can be a second—a whole or a half step—as it is in Illustrations 10.1a and 10.1b. Or it can be a major or minor seventh, as in Illustration 10.1c. The dissonant interval can also be augmented second or a diminished seventh.

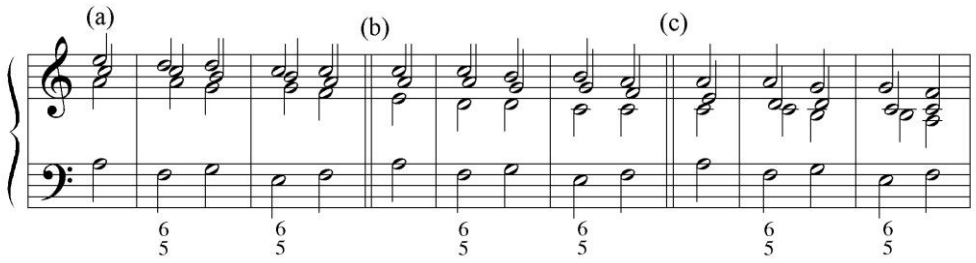
In Illustrations 10.1b and 10.1c, the bass ascends by step as the dissonance resolves. This is not absolutely necessary, but it is the most common way of resolving a 6/5-chord. Otherwise the resolution is to a 6/4-chord—another dissonance (Illustration 10.1d).

In four parts, the 6/5-chord normally includes the third (Illustration 10.2). The third is not usually indicated in the figures except where it is chromatically altered (as in Exercise 10.1b, mm. 10 and 11). Moreover, the third must be omitted when playing in three voices, as in

[31] E.g., the 5/4/2-chord, discussed below.

Illustration 10.1b. Otherwise the essential dissonance between the two upper parts disappears.

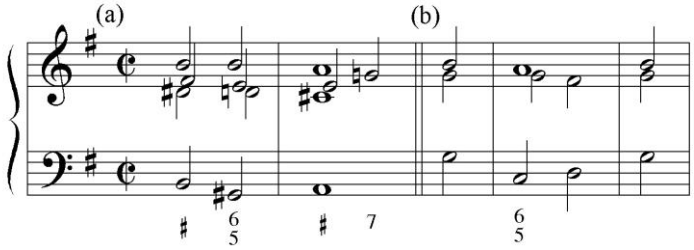
Illustration 10.2



In four parts, all three forms of the chord are usable, and it is important to become familiar with all of them. The 6/5-chord often functions as a first-inversion dominant-seventh chord. But to insure proper preparation and resolution of the dissonance, it is best to avoid thinking in terms of chord inversions.

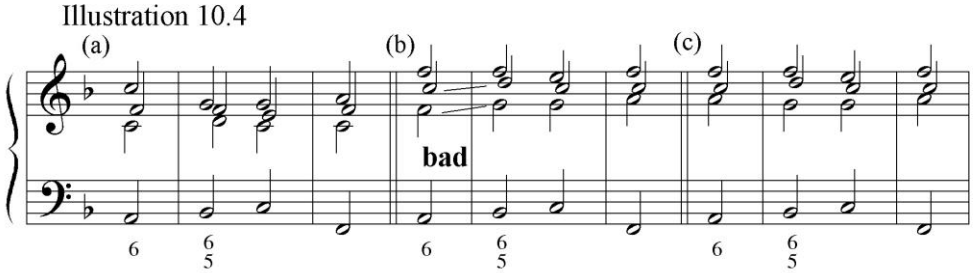
Exercises 10.1a–b. These should be practiced in both three and four voices. Exercise 10.1b contains some chromatic voice leading: In m. 6, the dissonant D-natural is prepared by D# (Illustration 10.3a). Three-part realization requires leaving not only the 6/5-chords but some of the triads incomplete. For example, to prepare the first 6/5-chord in Exercise 10.1b, the initial triad must be taken in incomplete form, with the bass doubled (Illustration 10.3b).

Illustration 10.3



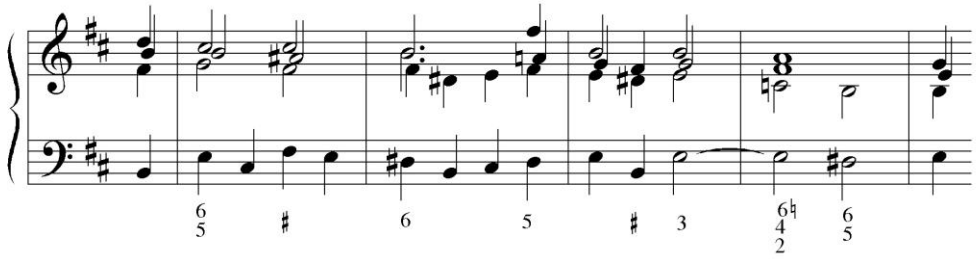
Exercise 10.1c. Here the dissonance is prepared in a 6-chord (Illustration 10.4a). This progression too should be practiced in both three and four parts. Be careful to avoid the parallel fifths that can arise when the progression is played as in Illustration 10.4b. Although it is preferable not to double the bass of a 6-chord, doing so in this progression avoids the forbidden parallels (Illustration 10.4c).

Illustration 10.4



Exercise 10.1d. From Handel, flute sonata HWV 367b.[32] Measures 3, 4, 6, and 10 contain typical examples of the 6/5-chord. In m. 3, the 6/5-chord is of the usual type, but the second note in the bass *(c#)* is a consonant passing tone; it does not need a chord of its own (Illustration 10.5, m. 1). Similar passing tones occur in mm. 8, 12, and 18–22. This last passage is a sequence—an embellished form of the sequence seen in Exercise 10.1a.

Illustration 10.5

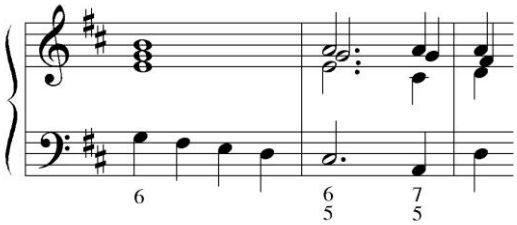


In m. 4, the figure 5 stands for a diminished triad. Realization of this chord as figured is awkward in four parts (Illustration 10.5, m. 2). Another possibility is to add the sixth to this chord, realizing it as a 6/5, as suggested below.

In m. 6, the 6/5-chord is prepared within a 6/4/2-chord. The result is a short chain of suspensions (Illustration 10.5, m. 4). The first suspension is the tied note in the bass; the second is the note *a1* in the soprano (the fifth of the 6/5-chord). One could play the same progression in m. 24 of the exercise, although there the second chord bears only the figure 6.

The 6/5-chord in m. 10 does not resolve until the downbeat of m. 11. The bass note *A* in m. 10 is a consonant passing tone, and the figures 7/5 on that note are the equivalent of a dash. The chord, however, is best realized as a 7/3 (Illustration 10.6).[33]

Illustration 10.6



Exercise 10.1e. From Corelli, trio sonata op. 1, no. 12, sixth movement. The bass note *e* in m. 1 is a passing tone. So too are the last three sixteenths in m. 3 and all the sixteenths in m. 4.

Beginning in m. 2, some quarter notes in the bass bear two figures; each figure receives the value of an eighth note. Each quarter note, moreover, is followed by an eighth at the same pitch (or pitch class). There is no figure on the latter note, but the 6 played over the previous bass note

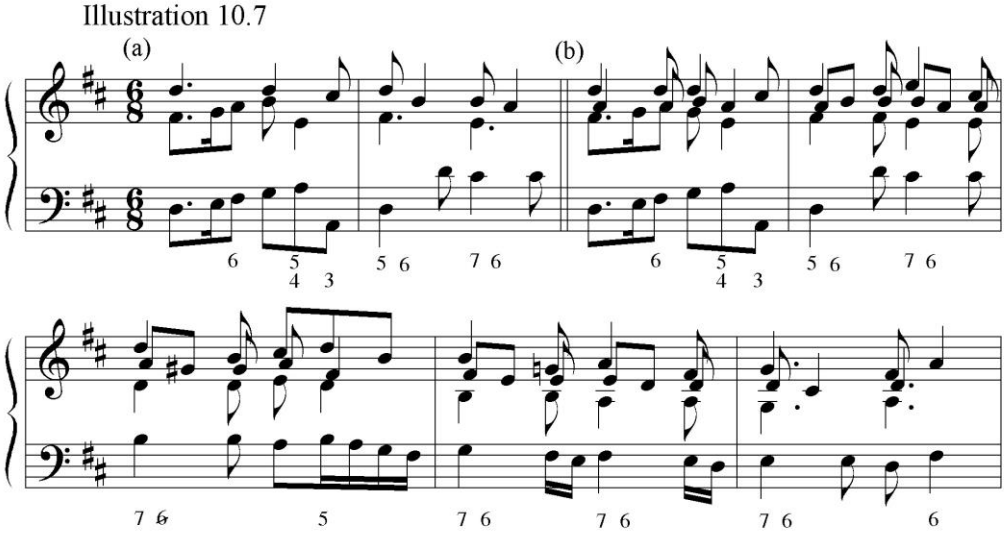
[32] This sonata was printed during Handel's lifetime as op. 1, no. 9, but the publisher probably altered the key; Handel's autograph manuscript gives another version in D minor (HWV 367a).

[33] One might momentarily add a fifth voice, realizing the chord as *c#1/e/1/g/1/a,* but that would produce an ungainly accent at the end of the measure. The 7/5 found in some editions on the *first* chord of this measure (m. 43 in the original sonata) is apparently an error.

continues to apply.

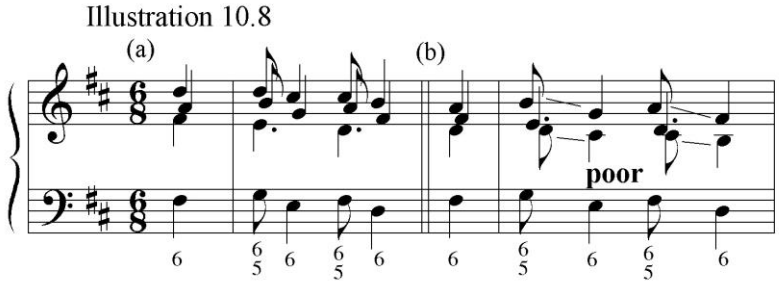
Three-part realization is easiest in mm. 1–5 (Illustration 10.7a). In four parts, to avoid parallels one must double the bass of certain 6-chords and strike chords over the passing tones in m. 4 (Illustration 10.7b).

Illustration 10.7



The 6/5 resolves to a 6-chord in m. 6 and in mm. 8–10. This somewhat unusual progression is best realized as in Illustration 10.8a. Otherwise direct fifths may result (Illustration 10.8b).

Illustration 10.8



Passing 6/5-Chords

Like the 7-chord, the 6/5 is often used as a passing chord, without preparation. One common type appears in Illustration 10.9a. Here the bass moves by neighbor motion between *c* and *B.* The alto likewise moves by neighbor motion, from *e1* to the dissonance *f1*. Like other unprepared dissonances, this can be explained as a product of elided passing motion (Illustration 10.9b).

The passing 6/5-chord is an alternative to the diminished triad in Exercise 10.1d, m. 4. The signs for the diminished fifth (5b, 5) were often used as shorthand for the 6/5. The latter is indeed be a possible realization here (Illustration 10.10).[34] Many diminished triads in previous exercises could be replaced by passing 6/5-chords. In particular, one might return to Chapter 4, substituting 6/5-chords for the diminished fifths in Exercises 4.6 and 4.7.

[34] In the version of this sonata in Handel's autograph manuscript (the D-minor flute sonata HWV 367a) there is indeed a 6/5 at this point.

Illustration 10.9

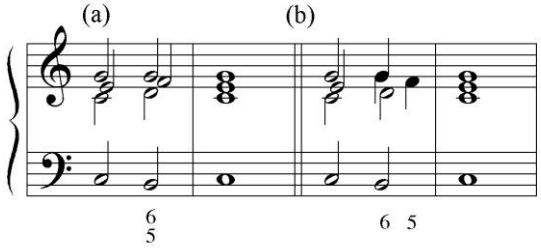
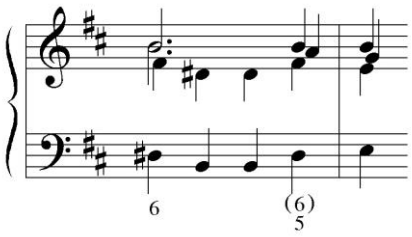


Illustration 10.10



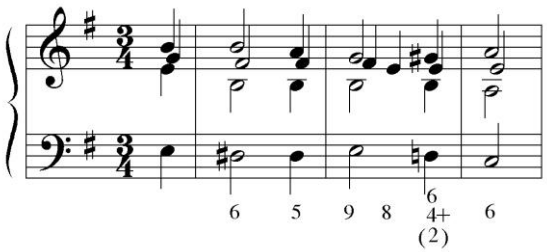
Not all diminished fifths, however, can be played as 6/5-chords. Especially when the bass moves by leap, or when the diminished triad occurs as part of a sequence that elsewhere contains major and minor triads, the diminished triad may need to stand alone. This is the case in Exercise 4.8. A few composers used a special sign in such passages to make it clear that they intended the plain diminished triad.[35]

Passing 6/5-chords are most effective in four parts. The remaining Exercises of this chapter are primarily for four-part realization, although some passages are easier in three voices (e.g., Exercise 10.2b, mm. 5–8).

Exercise 10.2a. Some of the 6/5-chords in this Exercise contain passing dissonances (as in m. 1). Others are prepared in the normal manner (m. 2)

Exercise 10.2b. From Corelli, trio sonata op. 2, no. 4, first movement. Here all the 6/5-chords are unprepared. They arise through the same type of passing motion seen in Illustration 10.10. In m. 1, the figure 5b stands for a diminished fifth, but in four parts it can be realized as a passing 6/5 (Illustration 10.11; compare Illustration 10.10).

Illustration 10.11



Measure 2 contains a chord figured as 6/4+. This can be realized as a plain 6/4-chord (with an augmented fourth, G#). In four voices, however, it is better realized as a passing 6/4/2-chord, including the note E. In functional terms, this chord is a third-inversion dominant-seventh in A minor. In terms of figured bass, it is the same as the passing 4/2-chord seen in Exercise 9.4.

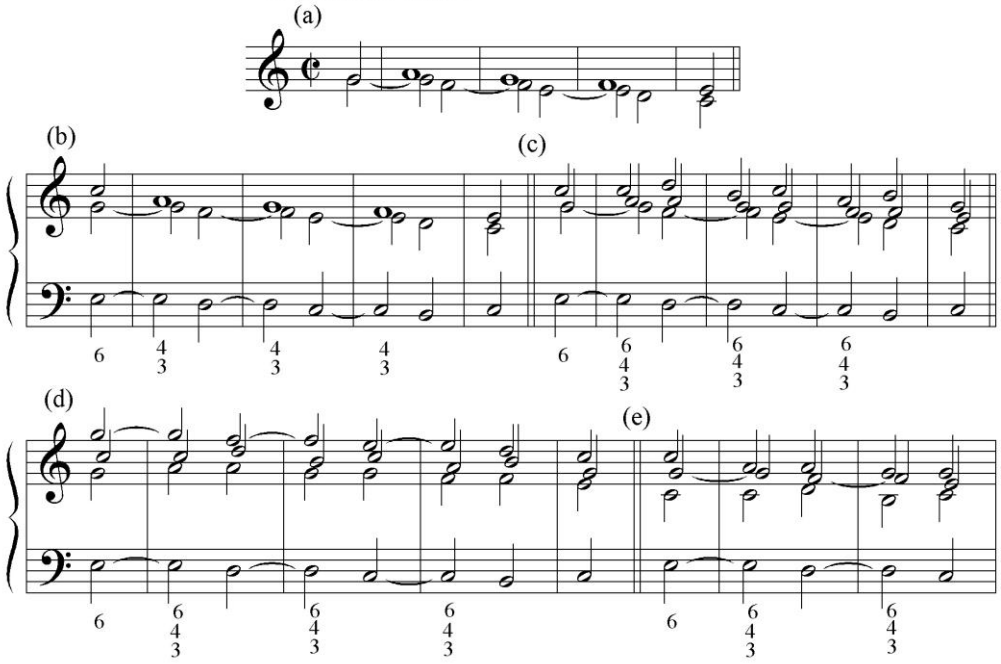
The 4/3-Chord

In theory the 4/3-chord is much like the 6/5. But in practice it occurs far less often and in different contexts. Like the 6/5, the 4/3 can arise as a chain of suspensions in two parts (Illustration 10.12a). To this a bass line is added (Illustration 10.12b).

In its complete form, the chord includes the third, and the full figuring is 6/4/3. In four parts, one has three choices for realizing the chord; all are usable (Illustrations 10.12c–e). Yet this chord is not encountered very often, and sequences of the sort shown are rare. Nevertheless one should attempt the introductory Exercises 10.3a–b before proceeding to the more typical

[35] See Chapter 4, note 2.

Illustration 10.12



examples of the 4/3-chord in Exercises 10.3c–e.

The 6/4/3-chord sometimes functions as a second-inversion dominant-seventh (e.g., in Illustration 10.12c, m. 2, on bass note *d*). From the point of view of figured bass, however, the 6/4/3 is just another dissonant chord. It differs from the 6/5 in that it contains a fourth. The 4/3-chord therefore contains two dissonant notes: the third, formed by two of the upper parts, and the fourth, formed by the bass and one of the upper parts. In Illustration 10.12, the bass as well as one of the upper voices is involved in the preparation and resolution of the chord. Hence ties appear in the bass as well as in one of the upper parts.

Exercise 10.3a is based on Illustration 10.12 without the ties. The bass moves chromatically in mm. 8–10, but this has no effect on the voice leading of the upper parts.

Exercise 10.3b differs in that each 4/3 resolves in a 6-chord, not in a triad (Illustration 10.13).

Illustration 10.13

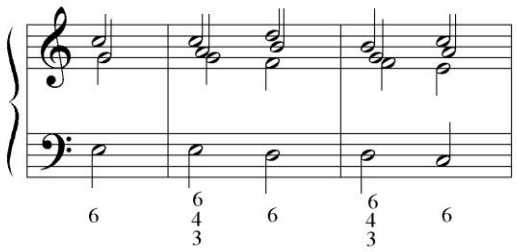
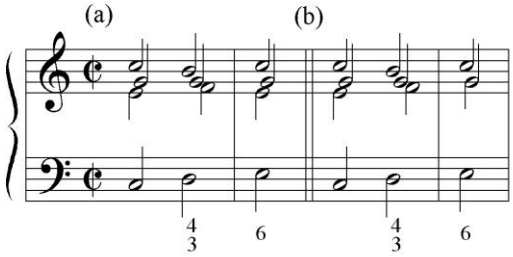


Illustration 10.14



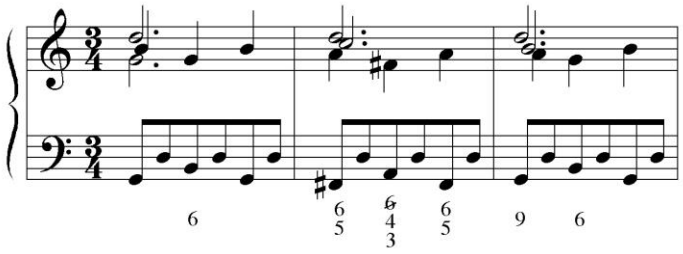
Exercise 10.3c contains both prepared and passing 4/3-chords, as well as chromatic voice leading in the upper parts (see the realization in the Appendix). Passing 4/3-chords occur in mm. 1, 3, 5, and 7—wherever the bass note bearing the chord is not a repeated note. Like the regular 4/3-chords in mm. 2, 4, and 6, the passing 4/3-chords can resolve in the usual manner. This leads, however, to doubling the bass in the following 6-chord (Illustration 10.14a). Otherwise the dissonance *(f1)* might ascend, the note *e* in the bass constituting a transferred resolution (Illustration 10.14b).

The progression shown in Illustration 10.14 is especially common in French eighteenth-century music. There the figured-bass symbol 6 was often realized as a 4/3 chord.[36] This accords with later approaches to harmony, in which the chord on the bass note d is regarded as a second-inversion dominant-seventh ($V^{6/4/3}$). This, however, was not how musicians elsewhere in Europe understood the progression, at least not until the nineteenth century. They might have explained the 6/4/3-chord in Illustration 10.14 as a product of passing motion: the fourth *(g1)* is held as a pedal tone while the other voices move, creating passing dissonances.

Nevertheless, each 4/3-chord in Exercise 10.3c would be analyzed today as a dominant-seventh. The sixth in each 4/3-chord is a leading tone, and the chord as a whole is a "leading-tone 6-chord" (see Chapter 3), to which a fourth has been added. It is unclear how often this chord was played, outside of French music by Leclair, Rameau, and their contemporaries. The free use of 4/3-chords implies a lossening of the traditional rules of dissonance treatment, although even C. P. E. Bach allowed its use to simplify the voice leading of certain passages.[37] It is possible that J. S. Bach, Handel, and others who rarely indicated the chord explicitly (in the figures) might have occasionally substituted it for the leading-tone 6-chord when realizing a continuo part.

Exercise 10.3d. From a flute sonata attributed to Bach as BWV 1033, second movement. In m. 2, the 6/4/3 arises as a result of arpeggiation (or consonant passing tones) in the bass. Except in mm. 3–5, the figures on the second and third beats are equivalent to a dash. In these measures, all the bass notes after the downbeat are consonant passing tones. Thus one need only hold out the chord struck on the downbeat. Alternatively, one could follow the more elegant model shown in Illustration 10.15.

Illustration 10.15



The 6/4/3-chord in m. 4 is of a different type. It is preceded by a 6/4/2-chord (on bass note *c*). This 6/4/2-chord contains the same notes as the chord on the downbeat, which need not be restruck. But the 6/4/3-chord on the third beat represents a real change of harmony. It is a passing 4/3-chord of the same type found in Exercise 10.3c, m. 5.

Exercise 10.3e. Corelli, concerto grosso op. 6, no. 10, Adagio (complete). Unprepared 6/4/3-chords occur in mm. 2 and 4. Each contains an augmented fourth (4+) together with a minor

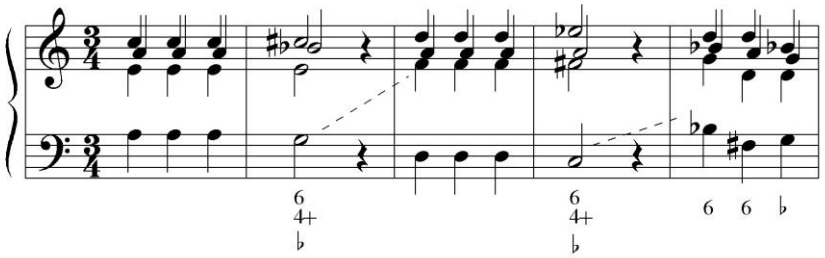
[36] The resulting 6/4/3-chord was known as the *petite sixte* (literally, "little sixth") and was sometimes symbolized by 6̸. The *grande sixte* ("big sixth") was symbolized by 5̸ and realized as 6/5/3. The *petite sixte* must also have been used in Italy; the German composer Georg Muffat called it the *welsch* (Italian) sixth.

[37] See his *Essay*, ii.7.2.1, showing various progressions in which the bass moves by step and the added fourth makes it possible for the other voices of the realization to move smoothly as well, or to avoid parallels.

third, the latter indicated by a flat. Today we would analyze these as diminished-seventh chords. The essential dissonance in each chord is the one formed in the upper voices between the third and the fourth. In Illustration 10.16, the notes in question form, first, an augmented second (*bb1/c#2* in m. 2), then a diminished seventh (*f#1/eb1* in m. 4).

Normally the bass would move by step after such chords—for the bass, strictly speaking, is also dissonant, due to the fourth in the 6/4/3-chord. But the resolution is transferred in m. 3 to one of the upper voices (tenor *f1* in Illustration 10.16, m. 3). The bass does have the resolution in m. 5, but it is transferred to a higher octave. Either Corelli did not regard the fourth in the 4/3-chord as a dissonance, or he felt that the rests in this passage ameliorated the irregular voice leading. Similar voice leading is common in recitative, where bass notes and chords are often separated by pauses (see Chapter 12).

Illustration 10.16



Delayed Resolution

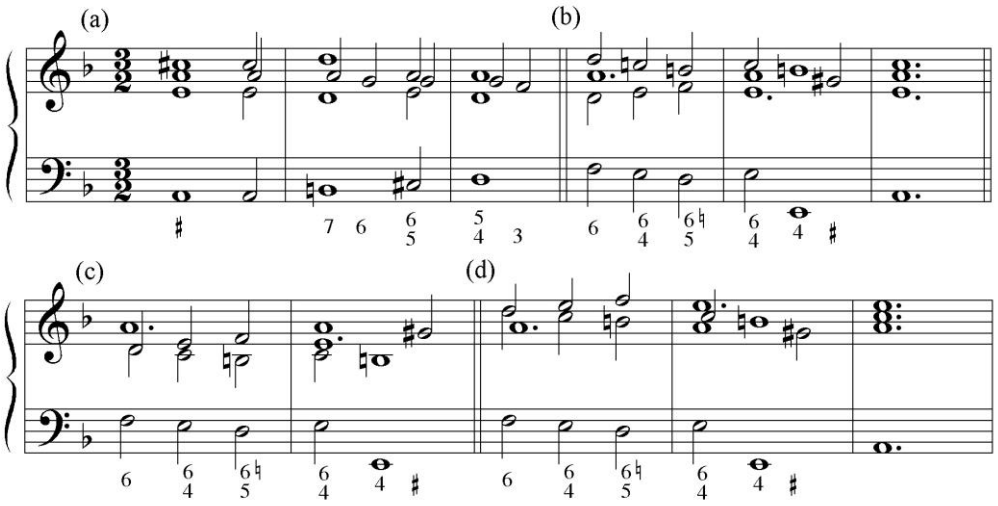
Sometimes a dissonance does not resolve at the expected moment but continues through several chord changes. We have already seen examples of this. For instance, in Exercise 10.3d, the 6/5-chord struck on the downbeat of m. 2 does not resolve until m. 3. There, however, the bass merely moves through several passing notes, while the chord tones in the upper voices remain stationary. It is possible, however, for more substantial voice leading to take place in one or two parts against a sustained dissonance in another. In such cases we can speak of **delayed resolution** of the dissonance.

Exercise 10.4a is from Corelli, trio sonata op. 1, no. 11, third movement. Measures 2, 4, and 10 each contain a chord of the diminished fifth. The fifth is treated as a dissonant suspension and can be supplemented with the sixth (shown in parentheses). But it does not resolve immediately; instead the 6/5-chord is followed by a 5/4 in the next measure. The fifth of the 6/5-chord becomes the fourth of the 5/4-chord, only then resolving to 3.

This is demonstrated in Illustration 10.17a. Here the alto, initially on the note *a1,* prepares and resolves the 7–6 progression in m. 2. This is a normal suspension and resolution. But then the note *g1* becomes the dissonant fifth of a 6/5-chord on the bass note *c#.* The resolution of this dissonance is delayed: the alto remains on *g1* as the bass moves up to *d,* forming the dissonant fourth of a 5/4-chord. Only then does the alto resolve the dissonance by moving down to *f1* or 3.

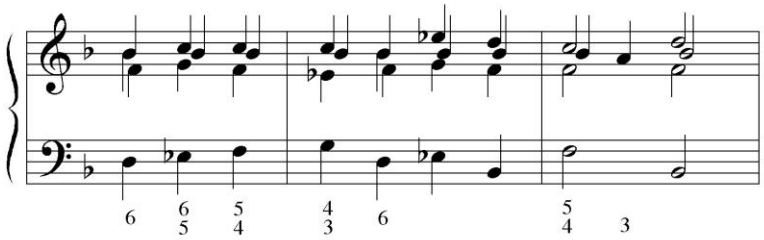
Delayed resolution of a more extended sort takes place in mm. 7–8 of the Exercise, realized in Illustration 10.17b. Here the soprano and tenor move in contrary motion while the alto rests on the sustained note *a1.* The sustained note becomes dissonant as the moving voices create 6/4-, 6/5-, and 5/4-chords, finally resolving go *g#1.* The dissonance can also be placed in the soprano or tenor (Illustrations 10.17c–d).

Illustration 10.17



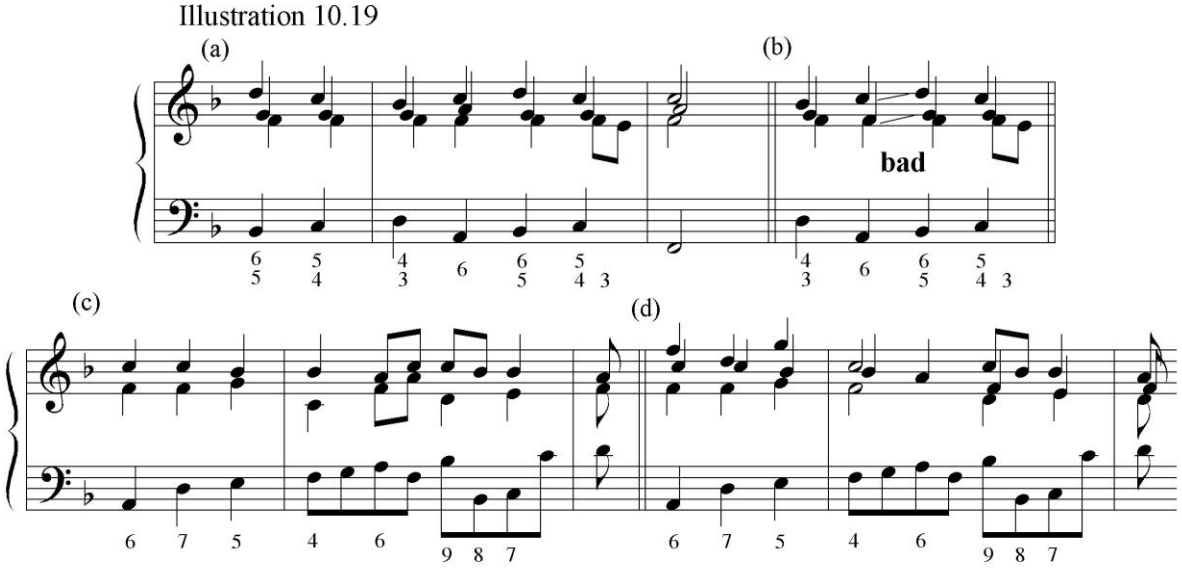
Exercise 10.4b. From Corelli, trio sonata op. 2, no. 5, first movement. Another version of delayed resolution occurs in mm. 3–5. As shown in Illustration 10.18, two of the upper parts get "stuck," on *bb1* and *c2*, respectively, as the bass ascends, creating a series of dissonant chords. The dissonance seems not to resolve properly, but in the last measure the alto finally move down to *a1*.

Illustration 10.18



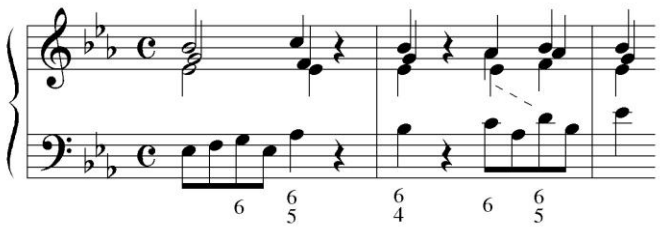
Exercise 10.4c. From Corelli, violin sonata op. 5, no. 10, first movement. The last three measures contain another example of delayed resolution (Illustration 10.19a). Here one must beware the parallel fifths that can arise as one prepares the final 6/5-chord (Illustration 10.19b). These can be avoided by doubling the bass of the 6-chord, but the progression remains tricky whether one plays in three or in four voices (Illustrations 10.19c–d).

Illustration 10.19



Exercise 10.4d. From Bach, Cantata 47, fourth movement. Measures 1–2, 3, and 5–6 contain further examples of delayed resolution. In mm. 1–2, the dissonance—the E-flat first sounded as the fifth of the 6/5-chord in m. 1—does not seem to resolve at all. Eventually, however, the note *eb1* leads to *d1* through transferred resolution in the bass, as shown by the dotted line in Illustration 10.20.

Illustration 10.20



It is harder to see any such resolution of the E-flat in m. 3 (see appendix). In both passages, the note can instead be understood as a pedal point against which the other parts move, creating passing dissonances.

Exercise 10.4e contains several examples of another type of 6/5-chord that resolves over a stationary bass. The resolution is to a 6/4-chord—another dissonance, followed in this example by a second 6/5 that does not resolve until the following measure (Illustration 10.21). The second 6/5 is a normal one. But the 6/5-chord on the downbeat of m. 1 cannot include the third. Doing so would produce a 4/3-chord as the 6/5-chord resolves (Illustration 10.22). Instead one must double the bass, and for this reason we might term this chord the "8/6/5." But that figuring is found rarely if ever.

Illustration 10.21

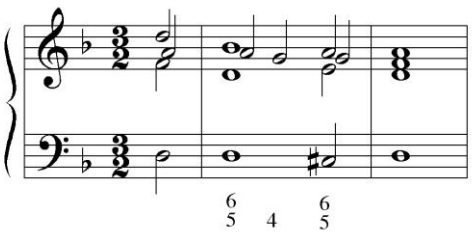
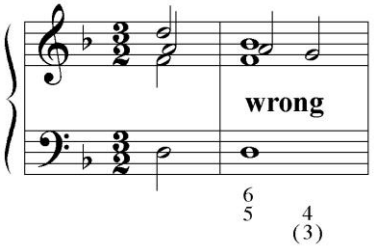


Illustration 10.22



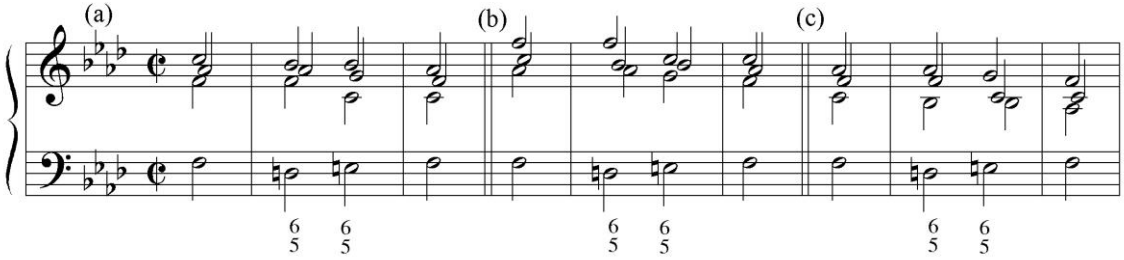
Exercise 10.4f. From Corelli, concerto gross op. 6, no. 4, second movement. This movement consists of an almost unbroken series of dissonances, which are prepared and resolved in varying voices. Realization is difficult without resorting to occasional voice-crossing; indeed, the figures in mm. 4–6 reflect actual voice-crossing in the violin parts. The "8/6/5"-chord occurs in m. 6.

Chains of 6/5-Chords

Exercise 10.5a. A further progression involving the 6/5-chord is common but difficult. Just as one 7-chord can prepare another, a 6/5-chord can resolve to another 6/5. The progression normally occurs over an ascending bass line. The trick is to avoid doubling the bass as each 6/5-chord resolves.

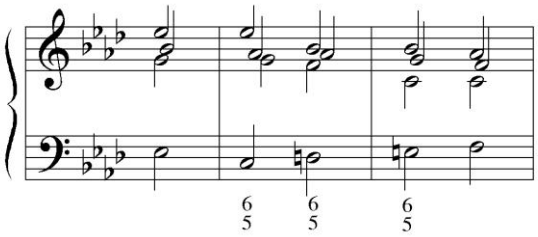
Although the progression can be played in three voices (omitting the third of each 6/5-chord), it is far better in four parts. It can be finessed with voice crossing, but the only satisfactory realizations are those shown in Illustration 10.23.

Illustration 10.23



It is rare to find more than two 6/5-chords in a row, but a series of three (as in Illustration 10.24) does not differ in principle. Like any chain of suspensions, this one tends to pull the right hand down toward the bass. Thus it is a good idea when playing Exercise 10.5a to leap upward wherever there are two consecutive consonant chords.

Illustration 10.24



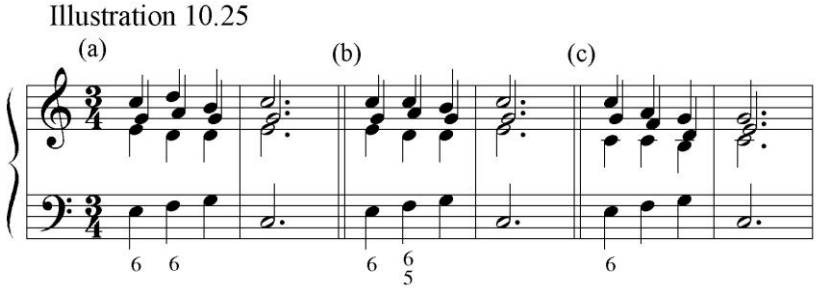
Exercise 10.5b. From Corelli, trio sonata op. 3, no. 5, first movement.

Exercise 10.5c. From Corelli, trio sonata op. 3, no. 6, second movement. The 7-chord in m. 1 must be played as a 7/5 to prepare the following ninth. Because of the nearly incessant dissonances and the occasional large upward leaps of the bass, this exercise is practically impossible to play without occasional voice crossings or sudden leaps in the upper parts.

Unfigured 6/5-Chords

Just as the sixth can be added to many diminished triads, the fifth can sometimes be added to an ordinary 6-chord. In place of the progression seen in Illustration 10.25a, one might substitute that of Illustration 10.25b, which incorporates a dissonance. The substitution is particularly idiomatic in eighteenth-century music; 6/5-chords are relatively rare in earlier music. Even music of Corelli and later composers often calls for nothing other than the purely consonant progressions of Illustrations 10.25a and 10.25c.

Illustration 10.25

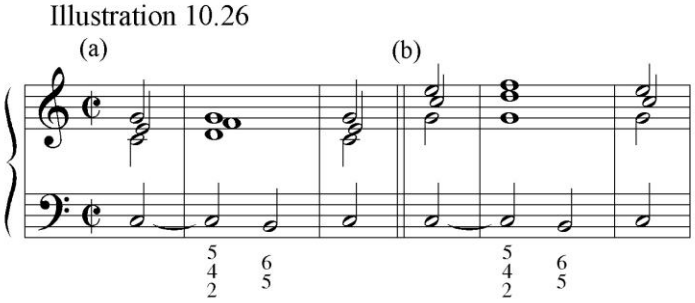


The 5/4/2-Chord

This chord is a variety of 2-chord, prepared and resolved in the bass. It has been postponed until now because of the dissonance that it also contains between two upper parts. Like two further chords treated below, it could be termed a "double dissonance," a type treated more fully in the next chapter. The voice leading of all three chords resembles that of the 6/5 and 4/3.

Exercise 10.6a is a variation of Exercise 9.1c with altered figuring. Only the dissonances prepared and resolved by the bass are essential. In Illustration 10.26, the major second between soprano *g1* and alto *f1* is the product of neighbor motion in the alto *(e1–f1–e1).* In Illustration 10.26b, the neighbor motion is in the soprano *(e2–f2–e2).*

Illustration 10.26



In either case, the essential dissonance—the one prepared by the syncopation of the bass—normally resolves in a 6/5-chord. Meanwhile, the resolution of the dissonance in one of the upper parts (F) is delayed.[38] Because it includes an unprepared dissonance, the 5/4/2-chord is rare in music from before the eighteenth century. Even in later music, it is often not explicitly indicated in the figures—or it might appear, misleadingly, only as 5/4.

Exercise 10.6b. From Bach, B-Minor Mass, Gloria. The 5/4/2-chord occurs most often in passages where either the 4/2 or the 5/2 would also be appropriate. Here it is a substitute for the 5/2. The same passage appeared in Exercise 9.1d in simplified form.

The 5/3/2-Chord

This is similar to the 5/4/2-chord, but it occurs so rarely that there is no need for an Exercise devoted to it. In theory the 5/3/2, or 3/2 as it is sometimes abbreviated, arises as in Illustration 10.27. In practice, however, the 5/3/2-chord is usually a passing dissonance, one of several discussed in the next chapter (see Illustration 11.18). This chord is notable for including two adjacent seconds: E/F/G in Illustration 10.27. Here, one second is an essential dissonance between bass and tenor *(f1);* the other is a passing dissonance (*f1/g1* in tenor and alto*).*

The 7/6-Chord

Even rarer is the 7/6-chord. There are two types, the 7/6/3, and the 7/6/4, of which only the first occurs with any frequency, and only in relatively late compositions.[39] As Illustration 10.28

[38] For an example in which the dissonance in the bass is also unprepared, see Exercise 11.5c, m. 67.

[39] The figures 7/6 can also occur over pedal points and in the progression demonstrated in

shows, the chord somewhat resembles the 6/5, inasmuch as it incorporates a dissonance between two of the upper parts. The essential dissonance here is the seventh between the soprano and the tenor *(f1/e2)*, prepared and resolved by the former. The tenor also forms a passing dissonance with the bass; this is the 7 indicated in the figures. The chord sounds good only in the form shown, that is, with the upper parts separated as widely as possible. In later harmonic theory this chord is sometimes described as a "dominant-thirteenth," but the thirteenth is really a dissonance, as demonstrated by this Illustration, and the sonority does not always have a dominant function.

Illustration 10.27

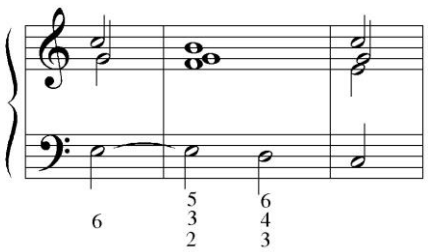
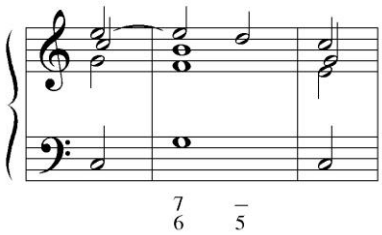


Illustration 10.28



Exercise 11.7c.

11
MULTIPLE DISSONANCES, PEDAL POINTS, AND OTHER PROGRESSIONS

With the completion of Chapter 10, we have examined most of the essential chords and progressions that occur in Baroque figured basses. This chapter presents a number of special problems that can confront the continuo player. All are variations of progressions already seen; most occur chiefly in music of the later Baroque, especially the works of J. S. Bach.

Almost every imaginable combination of two, three, and even four figured-bass numerals occurs in some piece or is discussed by some theorist. It is impossible to learn every progression by heart. The more unusual must be worked out note-by-note wherever they arise; some of the stranger chords are fully comprehensible only by reference to the score. By considering the Illustrations and Exercises in this chapter, the reader will gain ideas for how to approach any unusual progression.

Double Dissonances

The most common chords considered in this chapter are those containing multiple dissonances. As early as Chapter 5, we have confronted chords containing both "primary" and "secondary" dissonances. Here we examine chords in which two of the upper parts form essential or primary dissonances with the bass. These can be termed **double dissonances.**

Exercise 11.1a introduces the **9/7-chord.** Both the ninth and the seventh are essential dissonances, prepared and resolved as shown in Illustration 11.1. The resolution is to a 6-chord— figured as 8/6, because the octave must be played as the resolution of one of the dissonances. In four parts, the complete 9/7-chord also includes the third, as in Illustration 11.2.

Illustration 11.1

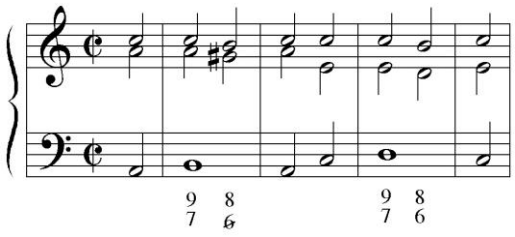
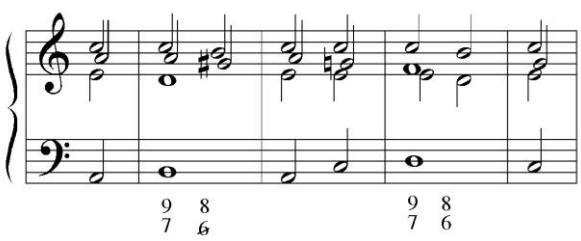


Illustration 11.2



This Exercise should be played in both three and four parts. Three-part realization is preferable in the lightly scored *galant* pieces in which this dissonance is particularly common. In four voices, the chord sounds best when the upper voices move in parallel thirds, as in m. 1 of Illustration 11.2—not in parallel sixths, as in m. 3 of the same Illustration. For practice, however, the Exercise requires one to use all forms of the chord.

The 9/7 should not be confused with the ninth-chord of functional harmony. The 9/7 does not normally contain the fifth (nor does the ordinary 9-chord). The 9/7-chord is a suspension, normally resolving to a 6-chord; the chord of the ninth is functionally equivalent to a simple triad built upon the same bass note.

As is often the case with dissonances, the hardest thing about realizing the 9/7 is its preparation. Both essential notes should be properly prepared. One should play each exercise slowly, looking ahead to see which notes must be present in the chord preceding the dissonance.

Exercise 11.1b must be played in four voices to prepare the 7-chords in mm. 2, 3, 4, etc. (Illustration 11.3).

Illustration 11.3

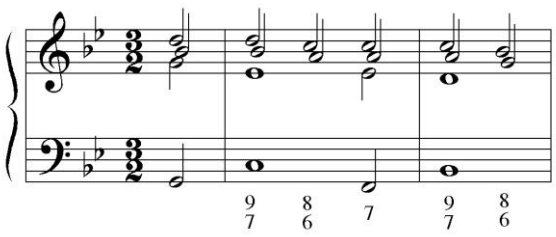
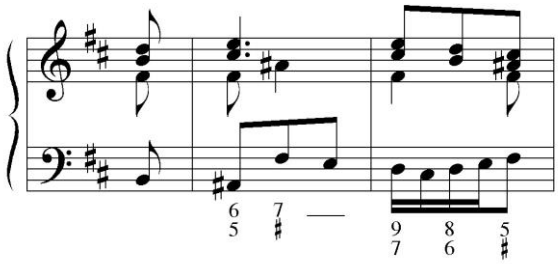


Illustration 11.4

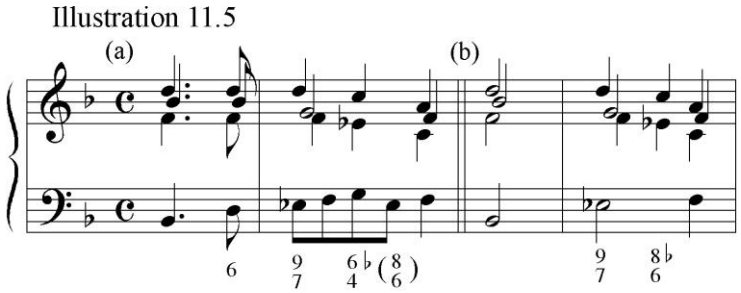


Exercise 11.1c. From Bach, B-Minor Mass, Gloria. Each 9/7-chord is prepared in the preceding 7-chord, which is in turn the prolongation of a 6/5-chord (Illustration 11.4). In other words, one of the two dissonances making up the 9/7 (the ninth) is held over from the chord on the preceding downbeat. The resolution of that note (*e2* in Illustration 11.4) is delayed until the 8/6-chord finally arrives.

The passage barely avoids parallel octaves between soprano and bass *(e/e2–d/d2).* Bach must have tolerated this because the overall motion of the bass in m. 2 of the Illustration is upward while the upper parts descend.

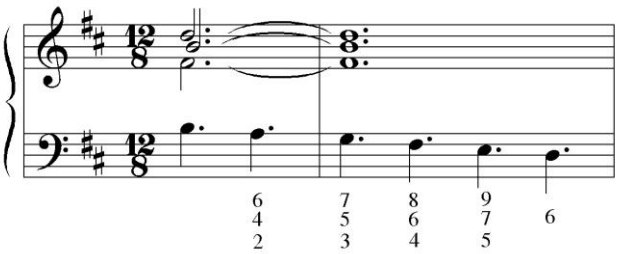
Exercise 11.1d. From Corelli, trio sonata op. 2, no. 5. The 5–6 progressions in the first three measures are most easily realized in three parts. The 9/7-chord appears in mm. 4 and 5 over a moving bass. Its resolution is therefore to a 6/4-chord, as in Illustration 11.5a. This 6/4-chord occurs over a consonant passing tone in the bass; the underlying voice-leading is that of a normal 9/7–8/6 progression, as shown in Illustration 11.5b. For three-part realization, one would omit the third of the chord (alto *g1* in the Illustration).

Illustration 11.5



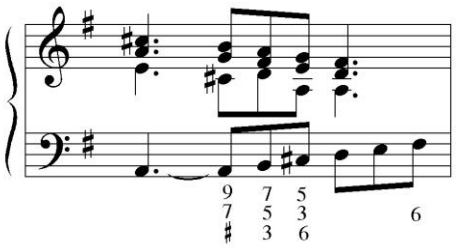
Exercise 11.1e. From Corelli, concerto grosso op. 6, no. 2, fourth movement. Here the figures 9/7 represent a different progression from that described above. The sole 9/7-chord in this Exercise includes the fifth (9/7/5)—a sign that it is not a normal 9/7-chord. This chord is the last of four that are each signified by three figures. All those figures could be replaced by a single horizontal line, for they indicate the prolongation of the B-minor triad struck on the first note (Illustration 11.6).

Illustration 11.6



Exercise 11.1f consists of two passages from Bach, Cantata 167, first movement. In each passage, the first complete measure includes a series of 6-chords that are best played in three parts. But the following measure contains a frightening series of chords designated by stacks of three figures. This notation clearly calls for realization in four parts. The first of those three-figure chords is a 9/7; it is unprepared, the product of passing motion over a sustained bass note (Illustration 11.7).

Illustration 11.7



It is hard to make sense of all the passing dissonances in this Exercise—including the unprepared 6/4/3-chord in m. 3—without looking at Bach's full score. The latter makes it clear that the figures closely reflect the free voice leading of the upper string parts. It is hard to imagine playing this figured bass at sight, as Bach's organist seems to have been expected to do.[40]

Not only must the player read the dense series of unfamiliar figures; it is also necessary to look ahead and recognize that the progression works well in only one of the three theoretically possible realizations (the one shown in Illustration 11.7). Bach provides a clue to this by the unusual arrangement of the figures over the bass note *c#* (in m. 2): 5/3/6. The placement of the figure 6 at the bottom helps to clarify the voice leading: the top figure is best placed in the top voice.

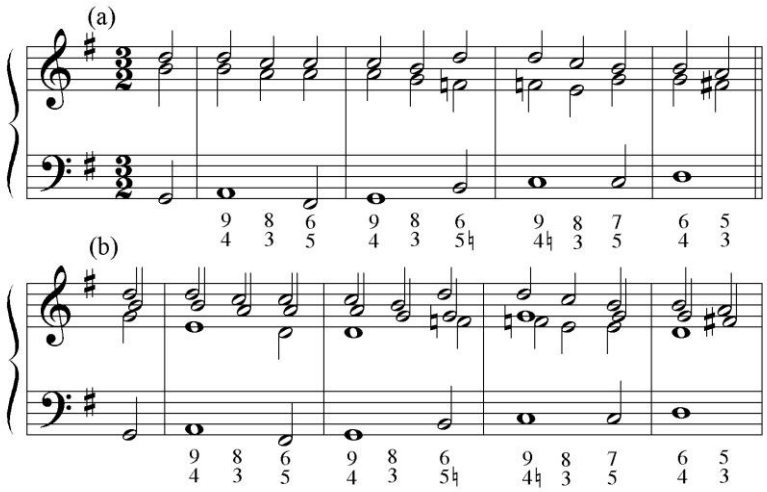
"Inverted" figuring, as we might term it, occurs occasionally in music by other composers as well.[41] But one cannot depend on it as a guide to realization. Composers and copyists sometimes produced inverted figuring while correcting or revising an existing continuo part, adding additional figures to existing ones wherever space permitted. Sometimes this led to a greater figure such as 6 being written beneath a lesser one such as 5.

Exercise 11.2a introduces another double dissonance, the 9/4-chord. Like the 9/7, it is more easily played in three parts, and this is preferable in lightly scored pieces (Illustration 11.8a). In four parts one adds the fifth (Illustration 11.8b)—not the third, as in the 9/7-chord. Note that in three voices, the 6/5-chords remain incomplete, as both upper parts must prepare dissonances.

[40] Bach himself is unlikely to have played the figured organ part for this and other sacred cantatas dating from his Leipzig years (1723 and later). His position as *director musices* (director of church music) was distinct from that of organist.

[41] Bach used the same principle in his autograph copy of a cantata by the Venetian composer Antonio Biffi. The same practice is seen in some figured bass treatises (see, e.g., the work by Dandrieu listed in the bibliography). In these sources, the voice leading of the realization is indicated by the arrangement of the figures within each chord signature, not by writing out the realization in notes.

Illustration 11.8



Exercise 11.2b. From Corelli, trio sonata op. 2, no. 9, first movement. This little excerpt illustrates the close relationship between the 9/4- and the 6/4-chords, which arise here in the course of a sequence. Both chords resolve through parallel motion in the upper voices. This exercise might be realized in three parts except for the last three chords, which require four voices for good voice leading.

Exercise 11.2c. From Corelli, trio sonata op. 2, no. 12. This sonata consists of a single long movement: a *ciacona* (chaconne) constructed over an eight-measure bass line. This Exercise consists of one statement of that *ostinato* bass.

Illustration 11.9 shows two notable details. First, the 7-chord on bass note *e* resolves by transfer of C# to the bass. Meanwhile the seventh, in the tenor *(d1)*, moves upward. In addition, the 9/4-chord in m. 4 is the product of delayed resolution. The dissonances *(e1/g1)* are prepared by the soprano and alto on the downbeat of the previous measure, then held as the bass moves to *A* and then *d.*

Illustration 11.9

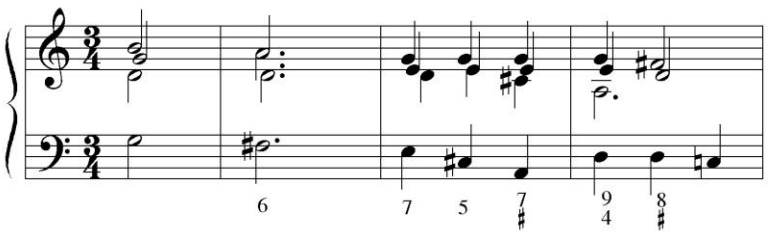
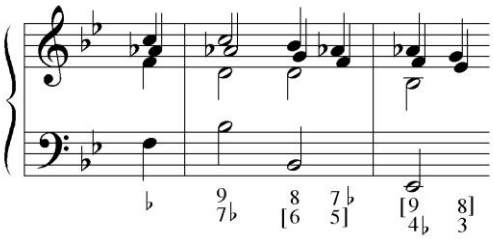


Illustration 11.10

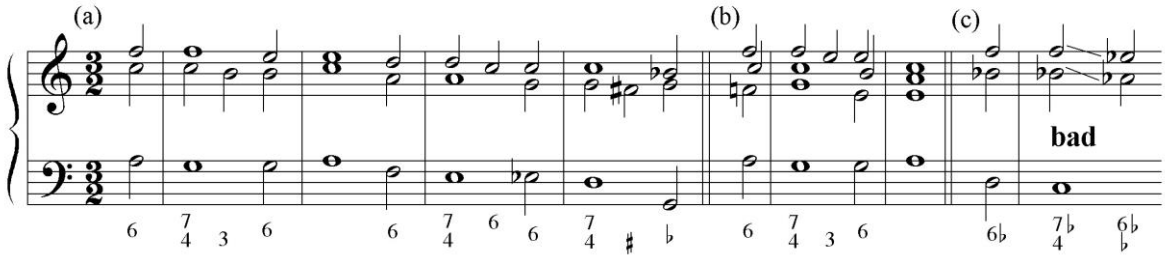


Exercise 11.2d. From Bach, Cantata 47, first movement. Measures 1–4 contain typical examples of the 9/7- and 9/4-chords. But the next four measures are somewhat irregular. The 9/7-chords in mm. 5 and 7 do not seem to resolve properly. Perhaps one should add the figures shown in Illustration 11.10. But a more literal realization is possible, although this requires the seventh to resolve by leap instead of by step (see Appendix).[42]

[42] Bach did not fully figure these measures. Some of the figures shown in Exercise 11.2d are editorial, and, as Illustration 11.10 shows, further figures might be added. Doing so, however, would create a momentary passing dissonance with a Bb that is held through the entire measure by the second violin.

Exercise 11.3a illustrates the 7/4-chord. Three-part realization is easier here and should be tried first (Illustration 11.11a). In four parts the additional voice must double the bass (Illustration 11.11b).

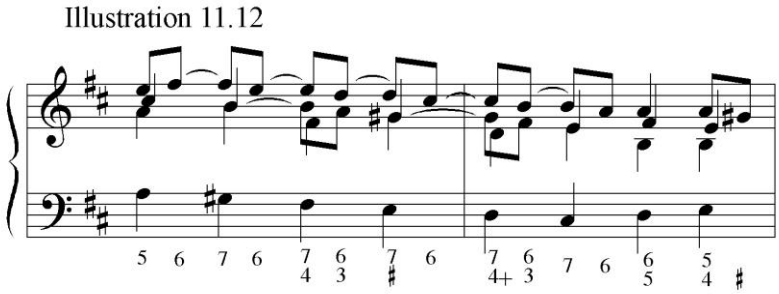
Illustration 11.11



The 7/4-chord is less common than the 9/7 or 9/4, and it involves more difficult voice leading. This is because the fourth between the upper parts becomes a fifth upon inversion, and the resolution of the double dissonance can lead to parallel fifths (Illustration 11.11c). Fortunately, the two dissonances do not always resolve together. In Exercise 11.3a, they resolve separately except in the last four measures. There one must keep the seventh above the fourth.

Exercise 11.3b. From Corelli, trio sonata op. 4, no. 3, first movement. This is easier in three parts. Four-part realization requires awkward leaps in the additional voice, which must negotiate an augmented fourth *(g#1–d1)* in Illustration 11.12. Because of the simultaneous resolutions of seventh and fourth (mm. 3–4, 6–7), the seventh must be placed above the fourth whether playing in three or in four parts.

Illustration 11.12



Appoggiaturas

An **appoggiatura** is an accented passing tone, usually but not always dissonant. Thus it is a type of ornament or embellishment. It is particularly common in later Baroque music, where appoggiaturas can appear as both regular and small ("cue-sized") notes. In either case the appoggiatura is usually slurred to the following note.

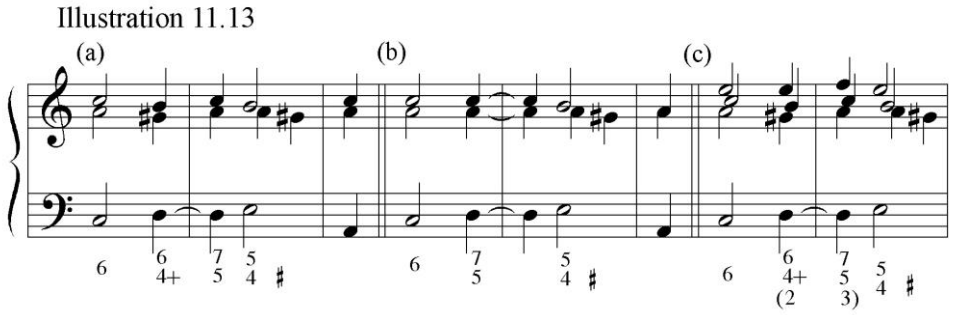
Appoggiaturas are not usually indicated in a figured bass, which typically represents essential harmonies, not melodic embellishments. Yet some appoggiaturas are so prominent that omitting them from the figures would create disturbing clashes. This is especially true in the *galant* music of the mid-eighteenth century, but instances occur as well in earlier compositions.[43]

[43] C. P. E. Bach and other writers of the mid-eighteenth century gave detailed instructions for the accompaniment of appoggiaturas in the *galant* style; see the present author's article "'Toward the Most Elegant Taste'" (listed in the bibliography).

We have already seen one instance of such an appoggiatura, the augmented fifth (5+), which usually leads to a 6-chord. Any note of any chord can be embellished by an appoggiatura, sometimes producing strange figures. The following two Exercises provide only a sample; a few appoggiaturas also occur in subsequent Exercises.

Exercise 11.4a. From Corelli, trio sonata op. 2, no. 12. This passage contains one of the few examples of an appoggiatura indicated in the figured bass for one of Corelli's works. It occurs in m. 7, where the 6/4-chord actually contains two simultaneous appoggiaturas. Both upper parts move by half step to the following chord, which is an unprepared 7/5 (Illustration 11.13a). Shorn of the appoggiaturas, the passage would read as in Illustration 11.13b.

Illustration 11.13



Four-part realization is difficult and requires adding either 2 (E) or 3 (F) to the 6/4-chord. With 2, all three notes of the realization are appoggiaturas (Illustration 11.13c).

Exercise 11.4b. From Bach, B-Minor Mass, Domine Deus. This passage opens over a **pedal point:** a sustained bass note held through a series of changing harmonies.[44] The pedal point is embellished after m. 1, but one can imagine a single low D sustained through the first seven measures.

The abbreviation *t. s.* in m. 1 stands for *tasto solo* ("one key"). This is a common indication that the bass note is to be held alone, without adding any upper voices.[45] One resumes realization at the first figure, in this case the 7 in m. 3. This 7-chord, incidentally, resolves to a 6/4 that could be played over the eighth rest, before the actual bass note that follows.

The remainder of this Exercise is notable for its appoggiaturas. Among these is a *consonant* appoggiatura, the triad (5/3) in m. 6 that moves to a 6/4-chord. The other appoggiaturas are dissonant, including several that function as leading tones. These can be recognized by the sign for the major seventh: the figure 7 followed by a sharp (7#) or, in as in mm. 4 and 12, cut by a slash (7̸). The passage is very difficult, raising more issues than can be discussed here (see the full realization in the Appendix).

Passing Tones in the Bass

Unaccented passing tones in the bass do not normally carry figures. Yet we have already seen

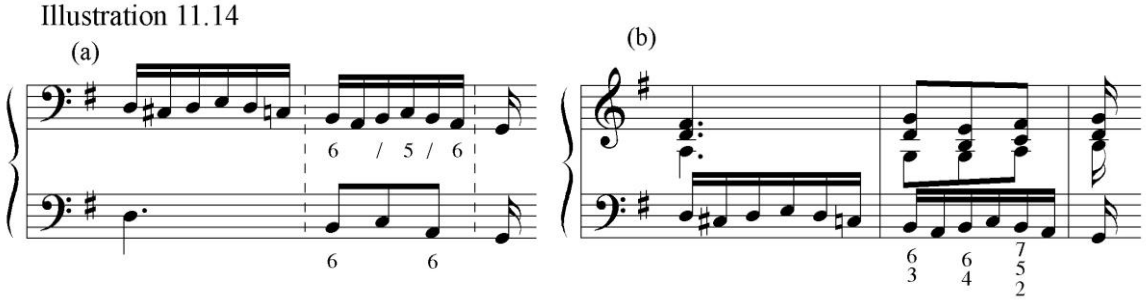
[44] The expression *pedal point* refers to the possibility of playing the bass note by pressing down a key on the pedalboard of an organ.

[45] *Tasto solo* is distinct in meaning from *unisono,* used by C. P. E. Bach for passages in which the entire ensemble plays in unison and the continuo player was expected to double the bass with the right hand.

instances where the figures dictate the prolongation or the repetition of a chord over a passing tone. The dash is a simpler way of indicating this, but many composers nevertheless used figures, producing unexpected chord signatures, as in Exercise 11.1e.

Particularly surprising combinations of figures occur when figures are set over *accented* passing tones, that is, appoggiaturas. The latter, like all passing tones, arise through the embellishment of simpler lines. In Illustration 11.14a, the top staff shows a moving bass line; a simpler form of the same line appears on the lower staff. There are no figures in m. 1, and the realization in either case would be the simple triad shown in Illustration 11.14b.

Illustration 11.14



In m. 2, on the other hand, the embellished version of the bass contains accented passing tones on the second and third beats. The difficulty for the continuo player is that the chord played on each appoggiatura belongs to the following bass note, not to the appoggiatura itself. A few eighteenth-century composers indicated this by diagonal lines as shown in the top staff of Illustration 11.14a. The diagonal lines mean that one should play the chord signified by the figure on the next note.

More often one finds figures placed directly on the appoggiaturas, as in Illustration 11.14b. The simpler version of the bass line (Illustration 11.14a, lower staff) shows that the chords required are ordinary triads and 6-chords. Yet these are indicated in Illustration 11.14b by figures normally associated with dissonances (6/4, 7/5/2).

Those figures look complicated, yet the voice leading is relatively simple. Illustration 11.15 shows the four most common types of appoggiatura that may occur in a figured bass line, together with their figures and realizations.[46] Played out of context, each chord in this Illustration seems terribly harsh, and such voice leading is rare. But it is not unusual in Bach's music, which sometimes places appoggiaturas on the bass notes of dissonant chords, even in conjunction with appoggiaturas in the upper parts. Hence the range of possible figures for passing tones in the bass is much broader than shown in Illustration 11.15.

Exercise 11.5a provides practice with the 7/5/2-chord. This is probably the most common of the chords shown in Illustration 11.15. The trick is to look ahead, playing the 6-chord that belongs to the next bass note. In three parts one omits the seventh of the 7/5/2-chord; this makes it possible to play a complete 6-chord after the appoggiatura resolves (Illustration 11.16a). The progression is more satisfactory in four voices, however. The dissonances created by the appoggiaturas seem less harsh when the upper parts provide fuller harmony, although starting in the wrong position can lead to parallel fifths (Illustration 11.16b).

[46] In each case, the figures 2 and 9 are interchangeable; 2 is more correct when the bass descends, but the rule distinguishing the two numerals (see Chapter 5) was often ignored in this context.

Illustration 11.15

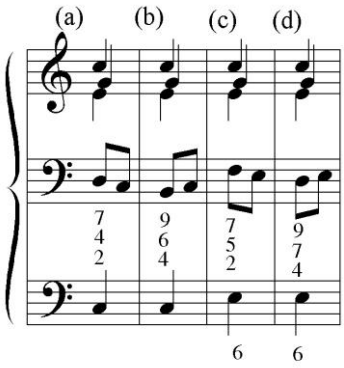
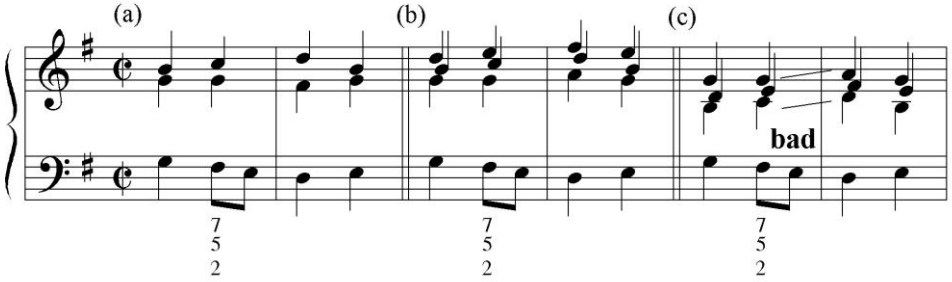
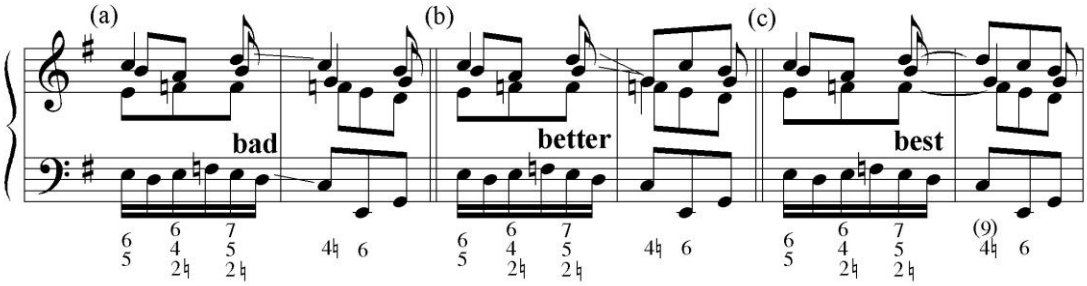


Illustration 11.16



Exercise 11.5b consists of three selections from a trio sonata attributed to Bach.[47] In addition to puzzling out the difficult figures, one must, as in any bass involving passing tones, take care to avoid parallel octaves and fifths. This is a particular problem in m. 10, which is repeated in transposed form in m. 18 (Illustration 11.17a). Parallels can be avoided as in Illustration 11.17b; another solution is to add a ninth to Bach's original figuring (Illustration 11.17c).

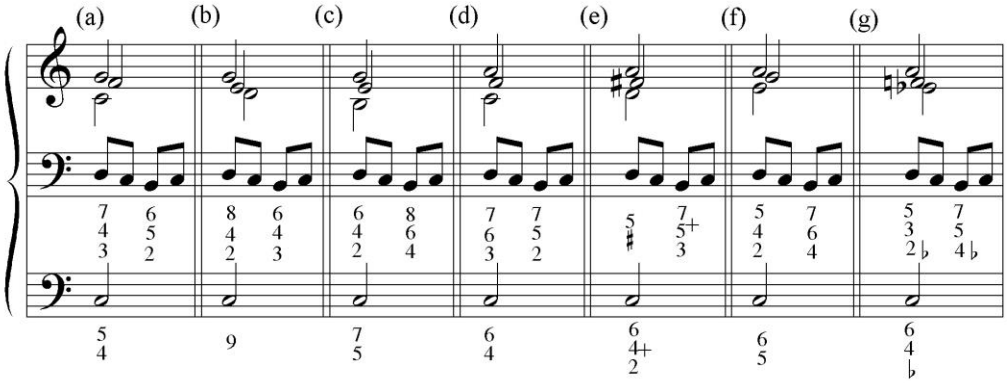
Illustration 11.17



On the downbeat of m. 32, Bach's original figures leave no way to avoid parallel octaves or fifths with the bass, short of inserting a rest or voice crossing into the upper parts. Hence the addition of an editorial 9 at that point (for realization, see Appendix).

Exercise 11.5c. Three passages from Bach, B-Minor Mass, Christe eleison. The B-Minor Mass contains some of the most difficult figured basses ever written, as these excerpts make clear. Each contains at least one dissonant chord placed over an appoggiatura or some other passing note in the bass. This produces some very strange combinations of figures, summarized in Illustration 11.18.

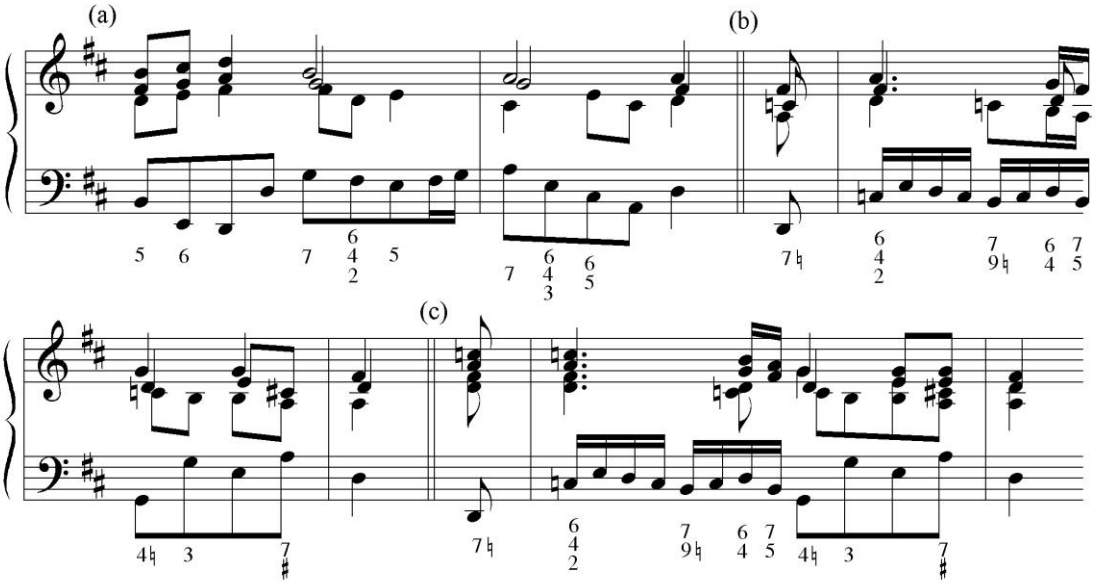
Illustration 11.18



[47] From BWV 1038, third movement. This work, which may have been a joint effort of J. S. and C. P. E. Bach, has virtually the same bass line as the violin sonata BWV 1021. The figures are certainly by J. S. Bach, whose manuscript parts for BWV 1038 are its only known source.

Some of the chords in this Exercise correspond to familiar dissonances, now used without preparation as substitutes for other chords. For example, the 6/4/2-chord on *g* in the first measure of the Exercise (m. 44) is actually a 7-chord belonging to the following *f#*. Other chord signatures stand for more complex voice leading. The 6/4/2 in m. 60 is a passing sonority in which the dissonance of the previous chord—the seventh, F#—is transferred to the bass (Illustration 11.19a). The 7/5 in m. 64 is the resolution of the preceding 6/4, set over an unusual leaping passing tone in the bass (Illustration 11.19b). The 4-chord on the third beat of m. 64 must be treated as an appoggiatura; it cannot be properly prepared without supplementing Bach's figures and playing in five parts, as shown in Illustration 11.19c.

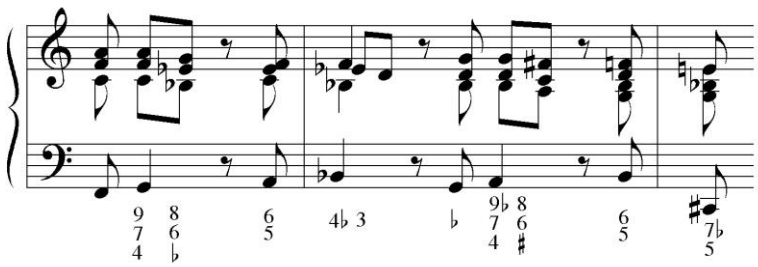
Illustration 11.19



Continuo parts of this complexity require as much practice as any virtuoso solo piece. Even then it will probably be necessary to write occasional chords into one's part and to vary the number of voices; to introduce occasional unprepared dissonances and voice crossings; or to permit other liberties of voice leading.

Exercise 11.6, from Bach, Cantata 167, third movement. This includes two examples of a true triple dissonance: a 9/7/4-chord, which resolves to a 6-chord.[48] Each of the three upper voices prepares and resolves a dissonance (Illustration 11.20).

Illustration 11.20



[48] A 9/6/4-chord resolving to a triad is also possible but equally rare.

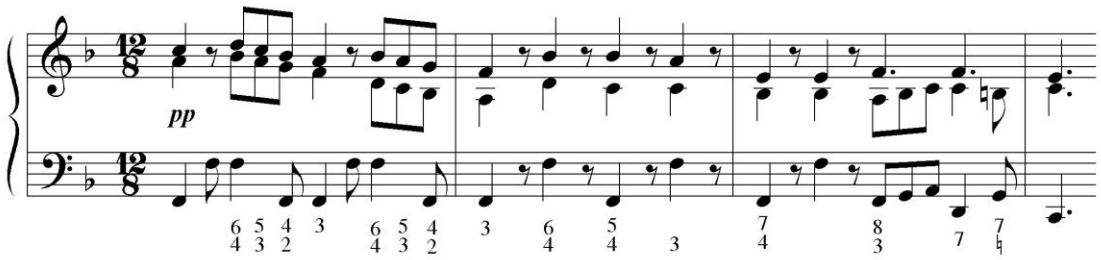
Realization is not difficult, although one must avoid placing the fourth in the top voice; doing so produces parallel fifths. The penultimate chord in Illustration 11.20, the 6/5 on *Bb,* is taken in five parts. This is to prepare the following dissonance.

Pedal Points

Probably the strangest figures of all are those occurring over pedal points. Pedal points are often marked *tasto solo,* as in Exercise 11.4b. Where figures are present, they may seem unlike those used anywhere else.[49] Progressions over a pedal point are no different from others, but the true bass during a pedal point is the tenor (or whichever part is next above the bass). Once one recognizes the progressions for what they are, realization is usually straightforward.

Exercise 11.7a. From Bach, Concerto for two violins BWV 1043, second movement. This passage has no pedal point in the literal sense, yet the bass has nothing but octave Fs through the first two and a half measures. The pairs of figures on most of the quarter notes are typical of this sort of pedal point, in which two upper voices move in parallel thirds or sixths. The dynamic marking ***pp*** probably applies only in the first measure, yet one might play the entire exercise in three voices, as shown in Illustration 11.21.

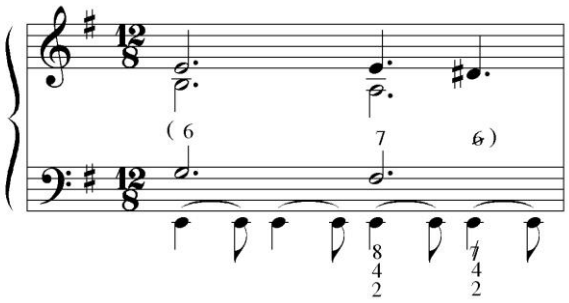
Illustration 11.21



Exercise 11.7b. From Bach, Saint Matthew Passion, opening chorus. Again the pedal point comprises many repeated notes. The ties are actually slurs indicating the string technique known as **bow vibrato** or **slurred tremolo:** the repeated note is articulated only by a slight additional pressure on the string by the bow. This effect is not something easily imitated on a keyboard instrument. Therefore one might observe the ties unless no string instrument is doubling the bass.

Except for a lone 8/4/2-chord (previously seen in Illustration 11.18b), the figures here are familiar ones. The 8/4/2 is an essential dissonance, the real bass note being tenor *f#,* over which Bach sets a 7–6 progression (Illustration 11.22).

Illustration 11.22



[49] Even where figures are marked over a pedal point, it is sometimes better not to play chords, especially in quiet passages.

Exercise 11.7c. From Bach, Saint John Passion, opening chorus. Both of Bach's extant passion oratorios open with extended pedal points. The one in the Saint John Passion is the more intricate, with chords indicated by as many as four figures. A full realization, naturally, requires five parts, although it would be possible to leave out some of the notes indicated in the figures. Yet the realization works out better in five parts, even after the bass begins to move in m. 10 (see Appendix).

Measures 16–18 contain a chromatic version of the cadential formula (with delayed resolution) seen previously in Exercise 10.4a (mm. 18–20). In mm. 7 and 10–15, the figures include indications for passing notes in the upper parts (5–4, #–2, etc.). Similar passing tones also occur in other figured basses by Bach, suggesting that he expected the realization to be as thoroughly contrapuntal as if it were a self-contained composition.

12
ADDITIONAL ELEMENTS OF CONTINUO PLAYING

With Chapter 11 we have completed our survey of figured bass realization as such. Knowledge of the progressions and their realization is, however, only one aspect of continuo playing. A number of historical treatises on the subject also explain what one author called "certain niceties of accompaniment"—techniques whereby a correct figured bass realization becomes a stylish continuo accompaniment. It would be inappropriate to attempt here a comprehensive discussion of style in continuo playing. That would require coverage of diverse approaches from different regions and times, for different instruments and repertories. The Bibliography offers an annotated selection of writings on idiomatic accompaniment.

A well-played continuo part in three or four elegantly realized voices may reveal as much art and be as expressive and effective as one that is fancier but less well thought-out. Nevertheless, this chapter considers several techniques which, although perhaps elements of "style," can also be viewed as extensions of the basic skill of realizing a figured bass. Among these are so-called filled-in harmony and the insertion of passing notes into the upper parts of a realization. Further extensions of the latter include the addition of independent melodic parts above otherwise unaccompanied bass lines, and ultimately the improvisation of self-sufficient compositions in the form of *partimenti.*

A more essential skill for continuo players is the realization of unfigured basses, a sometimes difficult task for which some guidelines are provided below. Also requiring discussion before this book can be set down are approaches to figured bass notation and realization that depart from the central Italian Baroque tradition of continuo playing, which has been the focus of the first eleven chapters. Every continuo player needs to be aware, at least, of the distinct approaches taken to figured bass realization in French music of the early eighteenth century and in the somewhat later *galant* music of Italy and Germany.

Filled-in Harmony

By "filled-in" is meant a chord containing not only the three or four parts of a correct realization but also additional doublings of the chord tones, played by either hand. Filled-in harmony inevitably produces parallel fifths and octaves, but it is necessary when playing in a large ensemble; otherwise the continuo part may be inaudible. This type of playing applies chiefly to the harpsichord; on the organ, a better way of strengthening a realization is simplly to add one or two stops to the usual soft registration.[50]

It was this type of accompaniment that Kittel, a student of Bach, must have had in mind when he described the "masses of harmony" that Bach would add if a student played too "meager" a realization in the harpsichord accompaniment to a church cantata.[51] Even Bach

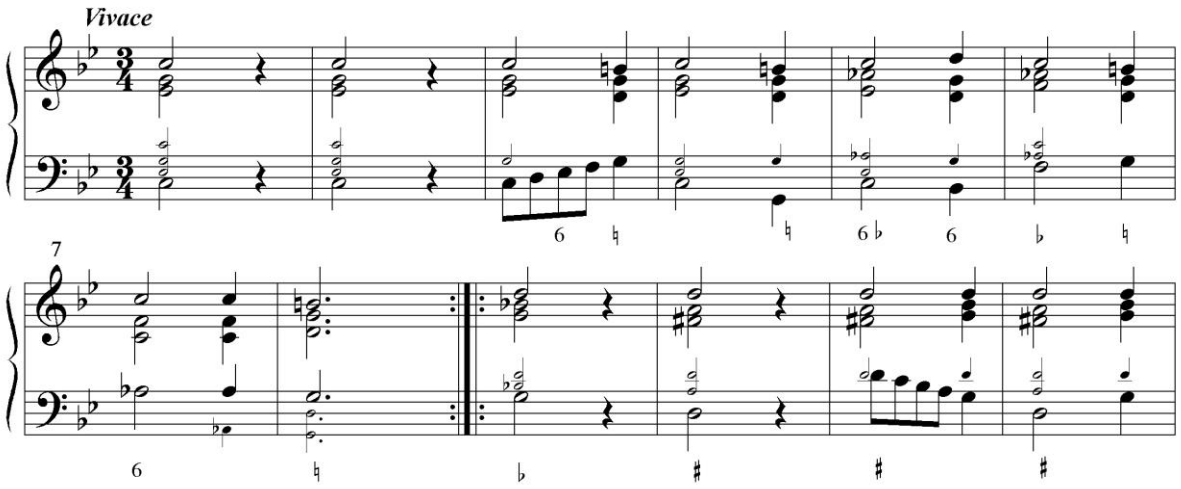
[50] Organists most often use a single 8-foot flute stop for continuo playing, perhaps occasionally adding an equally soft octave (4-foot) stop; anything stronger than this should be reserved for exceptionally large ensembles.

[51] *Der angehende praktische Organist*, 3 vols. (Erfurt, 1801–8), 3:33; quoted in *The Bach Reader*, 266. Kittel writes that one of Bach's most capable students *always (allemal)* accompanied performances of his church cantatas on harpsichord *(Flügel)*—which seems to

evidently tolerated “forbidden” parallels when accompanying a large ensemble. Nevertheless, the basis for such a realization remains good four-part harmony. The outer voices, at the very least, should no doubt avoid parallel fifths and octaves; this can be assured by maintaining contrary motion between the hands.

This type of playing is easiest in music whose harmony consists mainly of simple consonant chords, as in the Exercises of Chapters 1–4. Illustration 12.1 (from Exercise 3.13) shows the use of extra doublings to accentuate certain chords. Note the varying number of parts in each chord, and the avoidance of very full chords on weak beats.

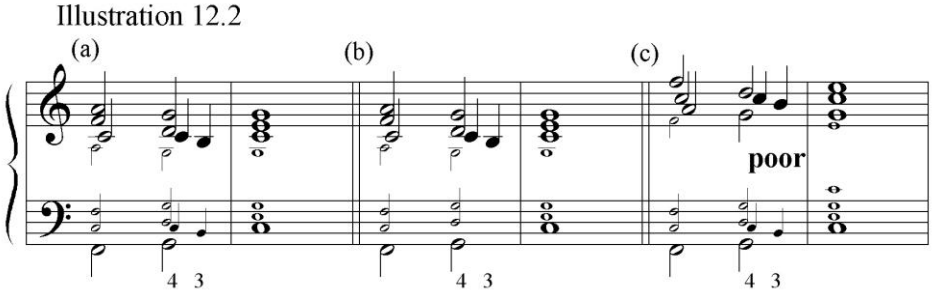
Illustration 12.1



In the two chords prior to the double bar (mm. 7–8), the bass is doubled at the octave. It is sometimes thought that the keyboard continuo should double the bass in octaves throughout a work. But this is not desirable except in a large ensemble that includes a double-bass instrument (violone or contrabassoon). Even then, octave doubling is not a good idea if the bass contains many moving notes.

Even dissonances might be doubled, as in Illustration 12.2a. Another possibility, however, is to double only consonant notes (Illustration 12.2b). One’s ear must be the judge; consecutives are more noticeable when the hands are farther apart (Illustration 12.2c). At least with ninths, instead of doubling the dissonance one can anticipate the resolution—that is, the octave above the bass (Illustration 12.3). Even the resolution of the fourth might sometimes be anticipated (Illustration 12.4a). But if the resolution of the fourth is accompanied by motion in another voice, then it is probably best to double also the other moving voice (Illustration 12.4b).

Illustration 12.2



contradict the present-day preference for organ in these works.

Illustration 12.3

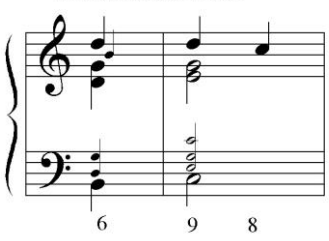
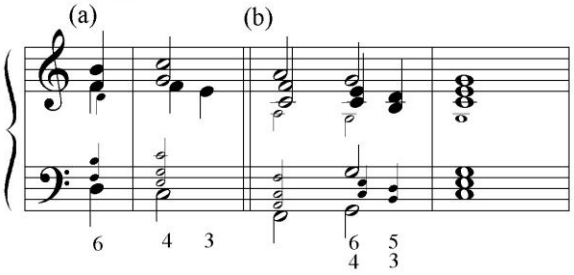


Illustration 12.4



Filled-in accompaniment is useful not only in heavily scored works but in simple ("secco") recitative, where singers are likely to appreciate the extra support provided by full chords. Each chord can be shaded not only by varying the number of voices but by arpeggiating the chord in various ways. Of course, this is true in other music as well; learning to do this is one of the most important elements in stylistic continuo realization on the harpsichord.[52]

Passing Tones in the Realization

A realization can be made more elegant through passing tones that fill in leaps in the upper voices. In Illustration 12.5a, the first measure can be ornamented by introducing quarter notes in the soprano. This produces an 8–7 progression, as shown in Illustration 12.5b. Passing tones are most effective when used sparingly, and one must be careful that in adding them one does not change permissible hidden octaves into direct ones. For example, adding passing tones in m. 2 would produce the parallel fifths shown in Illustration 12.6.

Illustration 12.5

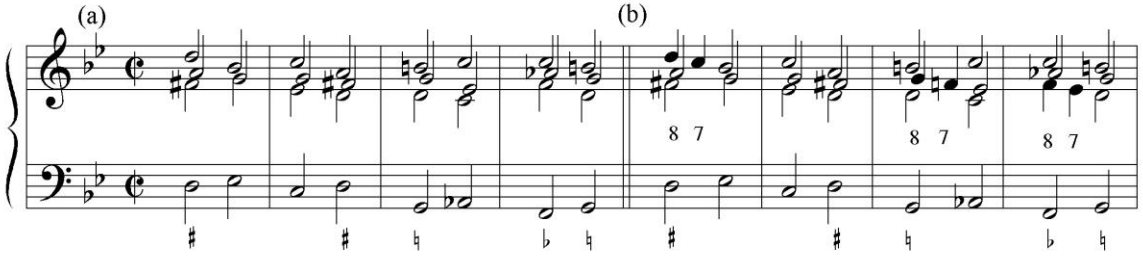
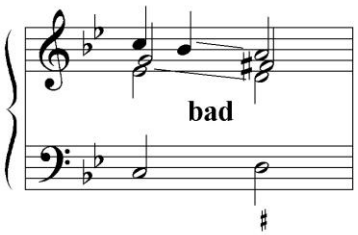


Illustration 12.6

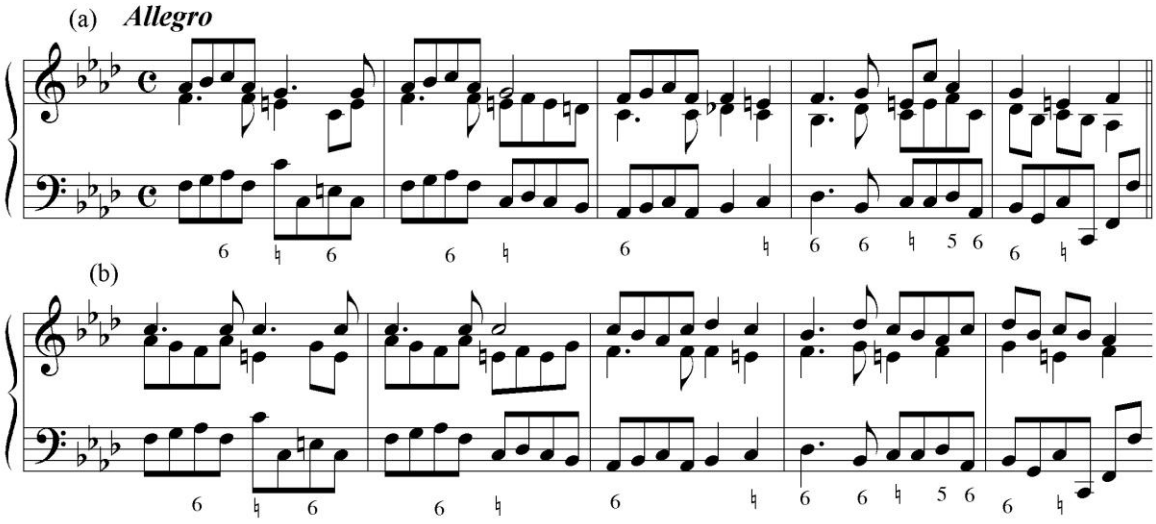


Another variety of passing tones consists of parallel thirds or sixths added to a bass moving in eighth or sixteenth notes. This is easier to do when playing in three parts, since then the

[52] Advice can be found in the treatises by Gasparini and Pasquali listed in the Appendix, as well as the modern writings of Arnold and Williams. How long to hold the chords and bass tones in recitative is a vexed question; short chords may have prevailed in German sacred music of the eighteenth century, including Bach's cantatas, but elaborate, sustained arpeggiation may have been the rule in Italian opera, to judge from examples given by Gasparini and Pasquali.

moving voice has more freedom. “Walking” basses such as that of Exercise 4.12 are particularly suitable for this treatment, as shown in Illustration 12.7a. The moving part can also employ contrary motion, as in Illustration 12.7b.

Ilustration 12.7



In adding parallel (or contrary) motion to such a bass line, one adds an additional real voice to the composition. Hence one must be careful that the moving voice in the accompaniment does not duplicate one of the obbligato parts or, worse, create forbidden parallels or harsh clashes with it. Clearly this is a device to be used with restraint, and only after checking the full score.

Unfigured Basses

Sooner or later a player will be asked to realize a bass line that has been left unfigured by either the composer or the modern editor. Eighteenth-century writers frequently lamented the difficulties caused by composers who failed to provide figures for the continuo part, or who did so spottily. With mediocre composers this may have been due to sheer inability to indicate the harmony properly. Yet even Bach and Handel usually left out figures from their composing scores, adding them only when preparing a part for another player or for publication. Figures also are often absent in works from the early Baroque, when the idea of figured bass was new and many composers did not regard the figures as an essential element of composition.

Many treatises provide instructions for playing from an unfigured bass, but these are at best general guidelines, useful chiefly in simple music. Fortunately, modern continuo players—unlike their Baroque counterparts—usually have access to full scores. Indeed, in modern editions the continuo part often *is* the score. Moreover, players today often have more time to practice and rehearse than seems to have been the case in the seventeenth and eighteenth centuries. Thus there is nothing to prevent a player from writing in figures wherever the composer has failed to do so, and this is the only sensible thing to do except in the simplest pieces. Naturally, then, the problem is to decide what figures to write.

First, however, it is worth considering why figures might be absent; it could be because a continuo part was not expected to be realized. For example, the five-part instrumental music in Lully's ballets and operas was for an ensemble without harpsichord, and the same may be true of

other types of thickly-scored ensemble pieces, especially from the early Baroque. Duos, trios, and other small ensembles for strings or winds without continuo were also in use throughout the Baroque and into the Classical period. Among the better-known examples are the cello sonatas attributed to Boccherini, which are often heard in romanticized arrangements for cello and piano but seem to have been meant for two cellos (or cello and string bass). A harpsichordist asked to accompany such a piece could add a realization, but it will be largely superfluous, especially if another instrument is doubling the bass line.

Another, very large, category of works without figured bass are those in which the keyboard was expected to double rather than add an accompaniment to the written parts. Seventeenth-century authors sometimes wrote as if improvising an accompaniment from a figured bass was a stop-gap measure, to be used only when time did not permit the copying out of a complete score that would allow the keyboard player to double the other parts. Modern players rarely follow this practice, yet in certain repertories, such as polyphonic English church music, doubling was evidently preferred, at least through the seventeenth century. In other repertories, including the polychoral motets of Giovanni Gabrieli, figured basses are rare. Yet organists were often provided with a short score consisting of the highest and lowest sounding parts, implying some sort of simplified doubling. In these repertories, keyboard players probably avoided the type of improvised realization described in the present book. One can find modern editions that add figures to these scores, but players might do well to study the score carefully, doubling the top one or two parts along with the bass, filling in additional notes where possible while skipping over written-out melodic embellishment in small note values.

This advice applies chiefly to the organ, the only accompanying instrument likely to have been used in many performances of seventeenth-century sacred music.[53] In other repertories, however, it often is helpful to write figures into a part that lacks them. In doing so, one should avoid writing figures that correspond only to passing tones in the upper parts; not every note in the score needs to be represented in the continuo realization. The goal is to produce something that looks like a figured bass by the same or a contemporary composer. In a richly scored work, this may mean ignoring many notes present in the score: fifths, octaves, and other intervals that by convention are not indicated in the figures, as well as all passing notes. On the other hand, in a recitative, solo sonata, or other sparsely scored piece, it may be necessary to write figures that are implied but not actually present in the score itself—for example, the fourth of a 6/4- or 5/4-chord in a final cadence.

In adding figures it helps to identify cadences, sequences, and other routine progressions. Many of these are recognizable from the bass alone. But not every falling fifth in the bass represents a cadence, and in every cadence one must determine from the score whether the progression indeed calls for a 5/4-chord, a 6/4-chord, or any dissonance at all. The majority of cadences do involve a suspension, which forms a 4–3 progression. But most passing dissonances in the obbligato parts can be disregarded by the continuo player.

Fortunately, early Baroque scores rarely involve the sophisticated voice leading that required the types of continuo figuration discussed in the last few chapters. Even 6/5- and 4/2-chords, which had become routine by the time of Corelli, are relatively scarce in early Baroque works. Bass lines often consist of long successions of half or whole notes moving by step, none of them

[53] For further discussion, see Rebecca Herissone, *"To Fill, Forbear, or Adorne": The Organ Accompaniment of Restoration Sacred Music* (Aldershot: Ashgate, 2006).

bearing figures; each bass note seems to call for a diatonic triad. Thus, in Illustration 12.8, from Marini's sonata *La variata* for violin—a work published in 1626—every bass note apparently should bear a triad. The one exception might be the note *B,* which perhaps requires a 6-chord, although even there a (diminished) triad is not inconceivable.[54]

Ilustration 12.8

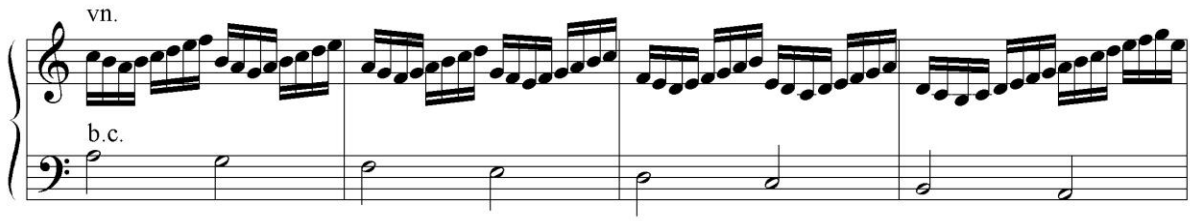


Illustration 12.9 is from one of the four-part motets in Viadana's *Centi concerti ecclesiastici,* published in 1602. As usual in such a piece, the *bassus continuatus* is essentially a doubling of the vocal bass part. The figuring in the Illustration is entirely editorial and is based on the upper voices, which most often form triads or 6-chords.[55]

Occasionally, however, the vocal parts contain passing tones; sometimes they fail to form complete triads or 6-chords. Both situations raise questions for the continuo player. The only passing note in the bass line is the *f* in m. 12. It is recognizable as such because the *cantus* (soprano) holds out the note *g2* at that point. Clearly the eighth note in the bass does not need a chord of its own.

Within the same measure, however, the alto moves from *eb1* to *d1*. The latter note, moreover, becomes a suspension on the third beat, forming a dissonance with the bass *(eb/d1)* that resolves on the fourth beat. The suspension—including its preparation on beat 2—should certainly be included in the continuo part. Therefore the figures indicate the progression 6–5–7–6. On the other hand, the eighth note *d1* in the alto is an anticipation of the same note on the second beat. It is therefore a passing note that requires no doubling by the continuo. Similar anticipations occur in mm. 4 (beat 3) and 18.

Occasionally the four voices fail to form a complete chord. In m. 17, the harmony on the third beat includes only two pitch classes, A and C. The continuo player could interpret this as either a 5- or a 6-chord, adding either E or F, respectively. We might be inclined to favor the latter, understanding the chord in functional terms as part of an alternation between I^6 and ii in F major. Yet at a time when compositions such as this were not fully tonal, the progression I–ii–iii–I^6 would be at least equally idiomatic. Indeed, in m. 14 the same ascending bass line underlies a full triad on beat 3, suggesting that the same is best in m. 17.

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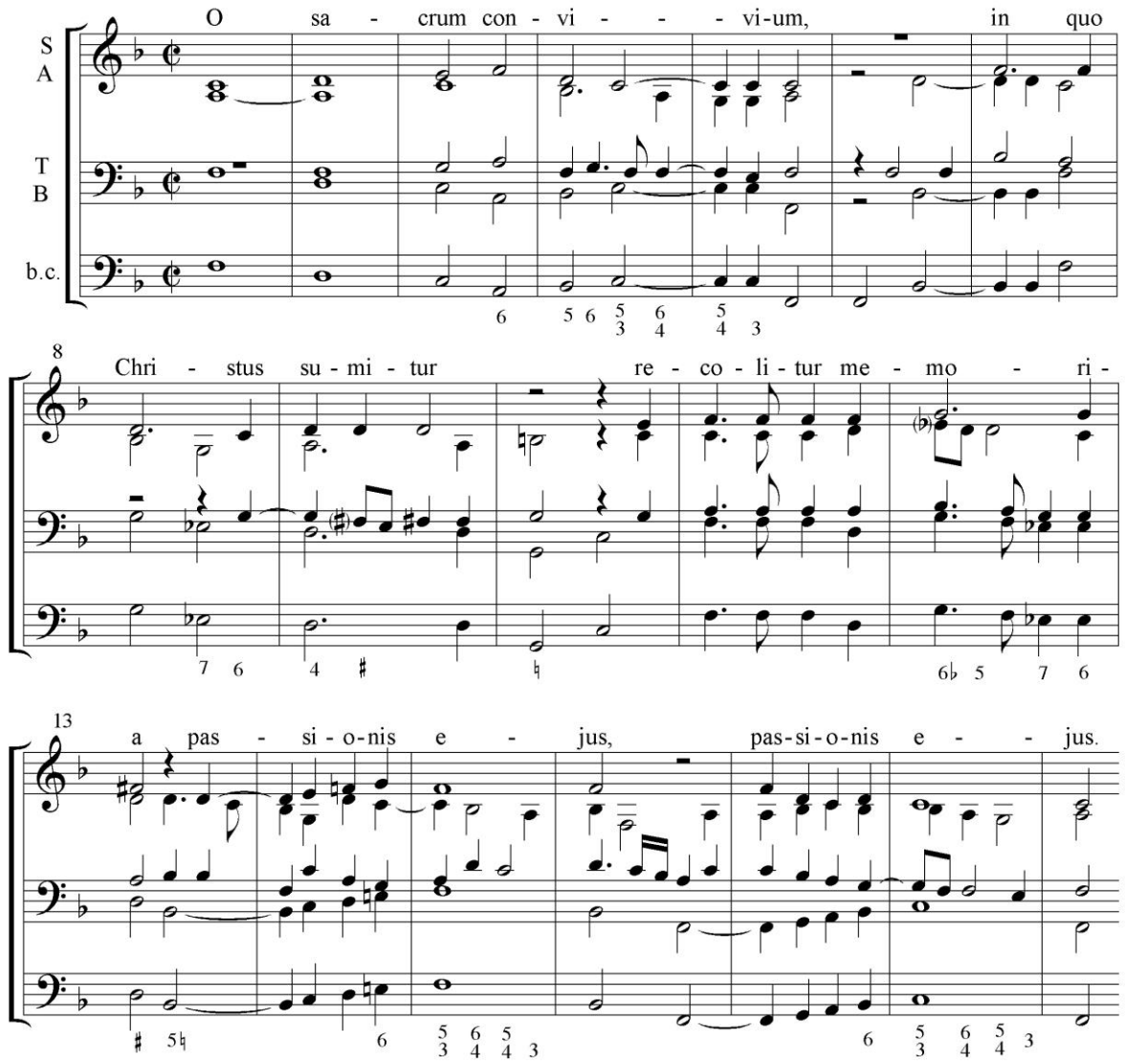
[54] More complex figuring is also possible. For example, one might play a 5–6 progression over the first bass note, 7–6 progressions on the following notes. Yet anything more elaborate than that is likely to sound fussy in music of this early-Baroque period.

[55] Illustration 12.9 is based on the extract in Arnold, *The Art of Accompaniment;* note values have been halved and figures added. Arnold shows the sharp in m. 9 as an original figure, set on the staff line above the note, but as he worked from a German reprint of 1613. The original edition of 1602 was unavailable to the present author, leaving it unclear whether Viadana originally gave any figures in this piece; there are none in a 1605 reprint.

Illustration 12.9



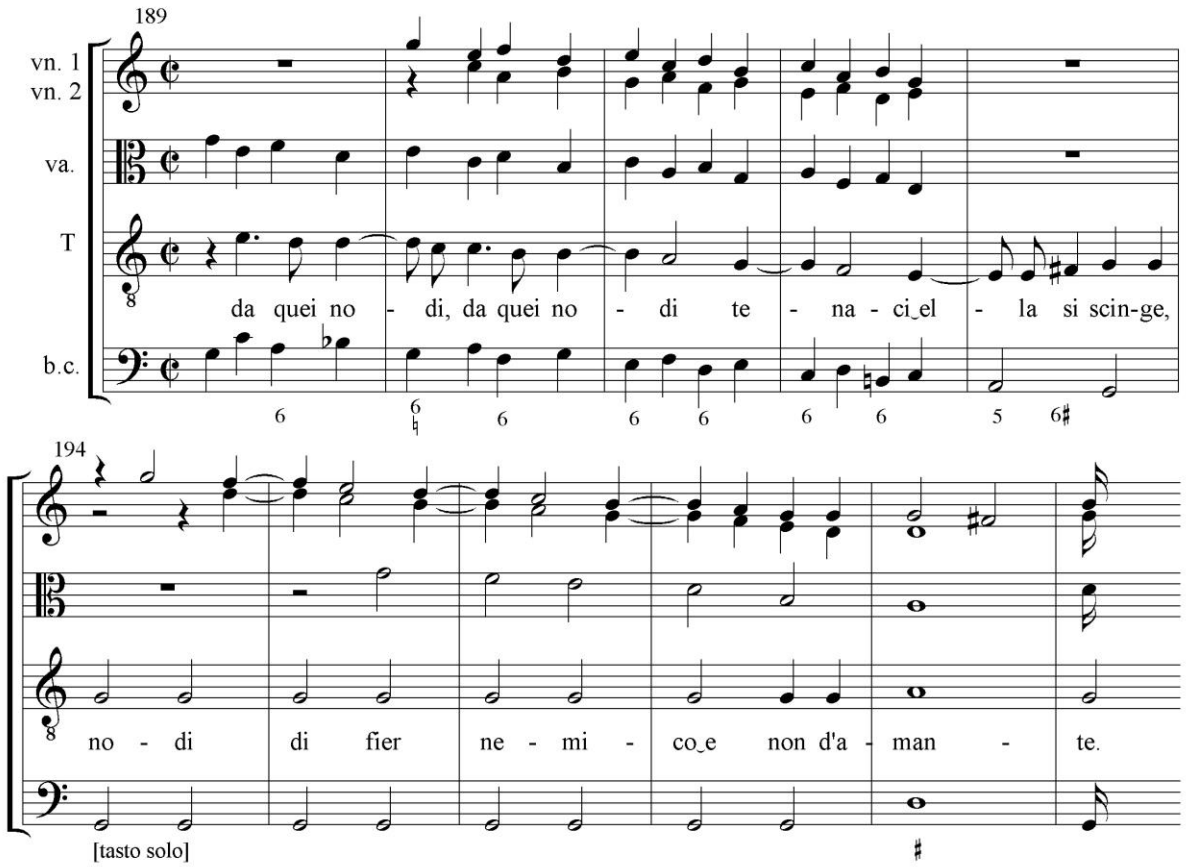
The suggested figuring in Illustration 12.9 takes note of most but not all of the suspensions in the obbligato parts, including all cadential 4–3 progressions (mm. 4–5, 9, 15, and 18) and 7–6 progressions (mm. 8, 12). One might also double the seventh *(bb)* of the alto in mm. 4 and 18, which in each case note forms part of what we would call a V^7 chord. But in both measures this seems less essential than playing the 4–3 progression.

Similar principles can be applied in other early Baroque works. Illustrations 12.10–12 are from Monteverdi's famous *Combattimento di Tancredi e Clorinda* (The Battle of Tancred and Clorinda). The figures in Illustration 12.10 are editorial. Here we see, first, a sequence in which the strings and continuo form alternating triads and 6-chords. These accompany multiple brief suspensions in the tenor voice, yet the continuo player can probably ignore the momentary dissonances, which would be hard to double without getting in the way of the singer. On the other hand, in the second part of the Illustration, it would be unproblematical to double the chain of suspensions in the violin parts. Yet it would also be possible to omit a realization in mm. 194–

97, playing only the pedal point in the bass, even if the expression *tasto solo* was probably not in use until long after Monteverdi published this work in 1638.[56]

Illustration 12.11 shows the final cadence of the work. This takes an unusual form, with the voice singing a dissonant fourth *(d2)* that never resolves. The original edition nevertheless gives figures here that include a sign for the resolution of the dissonance (C#). Exactly where within the measure one should play that note is unclear, however. Monteverdi's tolerance for expressive dissonance was quite high, and wherever one plays the C#, it will clash with the voice—but that was evidently the intended effect. Sometimes a glance at the score can settle this type of question, but in this case the violins and viola have only the fifth and the octave of the chord. Perhaps the continuo player should settle for playing only those notes, despite the sharp at this point in the original edition.[57]

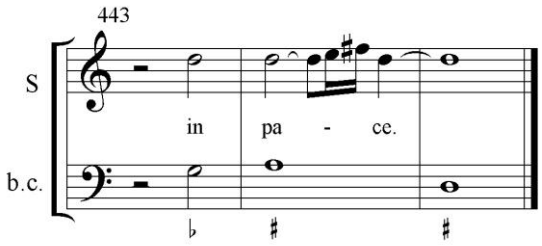
Illustration 12.10



[56] It had been composed by 1626, as Monteverdi indicates in a preface to the original basso continuo part—which took the form of a full score, allowing player to see the voice and string parts as well.

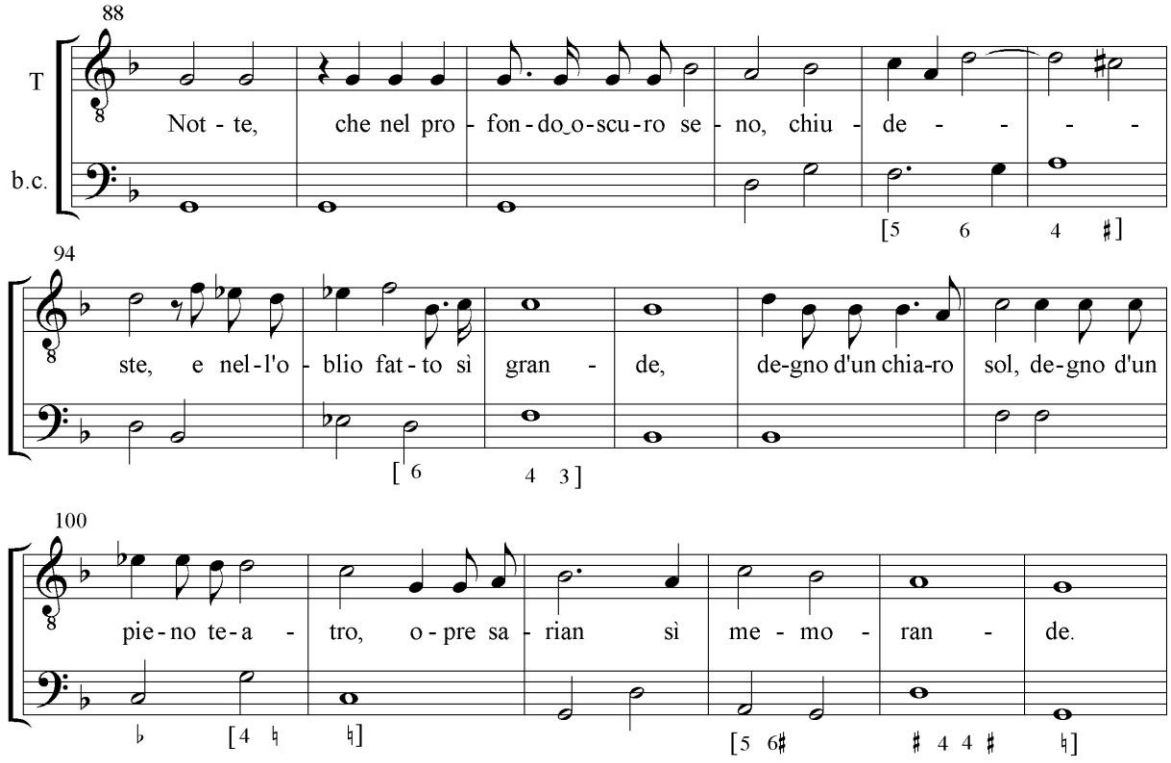
[57] The figures take the form of accidentals set on the actual lines or spaces of the staff to which they apply—not below the staff, as in the Illustration. Malipierio's edition omits the sharp on the penultimate bass note.

Illustration 12.11



As ambiguous as these passages are, there is can be even greater uncertainty when the score shows only the bass and one other part. Earlier in the *Combattimento*, Monteverdi writes an aria for the tenor soloist and continuo without strings. This is not an aria in the modern sense; indeed, the style is closer to what we would call recitative. Its text consists of two half-stanzas of four lines of poetry each; each half-stanza is sung over a version of the same bass line. Illustration 12.12 shows the first half-stanza.

Illustration 12.12



The sole original figure in this passage is the flat on the downbeat of m. 100. This leaves open the question whether the triads on the downbeats of mm. 91, 94, 101, and 105 should be major or minor. In this style, cadences often end in major triads, even in places like m. 94, where F# in the chord on the downbeat would be immediately followed F-natural in the voice. It is less clear what to do in m. 91, where either a major or a minor triad could stand on the downbeat. In the absence of any indication from the composer, it is perhaps best to leave the third minor.

Monteverdi's recitative often employs unusual anticipations, like the syncopated *f1* in m. 95,

as well as apparent suspensions, as when *bb* is held into the second half of m. 102. As in Illustration 12.10, the momentary dissonances are best left out of the continuo part, giving the singer the freedom to interpret the rhythm freely. Even the 5–6 progression suggested in the first half of m. 103 might be better replaced by either the 5 or the 6 alone, avoiding all unnecessary motion in the upper parts of the realization. The chief exception to this principle is at cadences, as in m. 104, where the suggested figuration duplicates that found at such points in many early Baroque works (as in Exercise 8.2b). One might be tempted to add a trill or other embellishment, but such things are better left to the soloist.

Later recitative, even when unfigured, usually leaves fewer ambiguities regarding the harmony, which is more clearly functional. The chief decisions belong more to the category of style than realization—for example, whether and on which notes to employ filled-in or "full-voiced" harmony, precisely how to arpeggiate chords, and whether to decorate them with acciaccaturas and other ornaments.[58] Issues of performance style in the accompaniment of recitative, including the forementioned matters as well as so-called delayed and "telescoped" cadences and the relationship of the realization to the vocal part, were subjects of several eighteenth-century treatises and have also been taken up by modern authors.[59] The present discussion is limited to certain problems of realization.

Illustration 12.13, from Handel's opera *Rinaldo,* opens with a long pedal point (mm. 1–5). It is uncertain whether the sustained bass note was meant to be held as written, played once and then released, or restruck with each chord change. Handel left no figures, but the vocal part implies harmonies by leaping between chord tones. In the first measure and a half these are the notes *b1* and *d2,* which together with the bass note form a triad (5/3). From the second half of m. 2 through the first half of m. 4, however, the voice has either *a1* or *c2* on each strong beat. This could imply a 4/2-chord, a dissonance. The bass, however, continues to hold *G*, rather than resolving the dissonance by moving down to *F#.* Thus the complete chord starting in the middle of m. 2 is not 6/4/2 but 7/4/2—that is, a passing or neighbor chord whose seventh (F#) moves it is uncertain whether the sustained bass note in to the octave (G) as the voice lands on *b1*.

It is easier to identify subsequent changes of harmony, since voice and bass move together for the rest of the Illustration. The 6-chords in mm. 5, 7, and 8 are easy to spot, as is the 7-chord in m. 10, as in each case the voice has the sixth or seventh, respectively. On the third beat of m. 10, the bass and voice form a tritone—which in recitative almost always signals a 4/2-chord, with the augmented fourth acting as a leading tone (in this case to E minor). Another possibility, however, would be a 4/3-chord, substituting C for B—in functional terms, a diminished-seventh instead of a dominant-seventh chord. But a fully diminished seventh chord arrives four beats later, and its impact will be greater if it is not preceded by the same harmony on the previous bass note.

The passage includes two cadences, recognizable in mm. 9 and 12 by the quarter-note motion by fifth in the bass and the line-endings in the vocal part. Here Handel almost certainly

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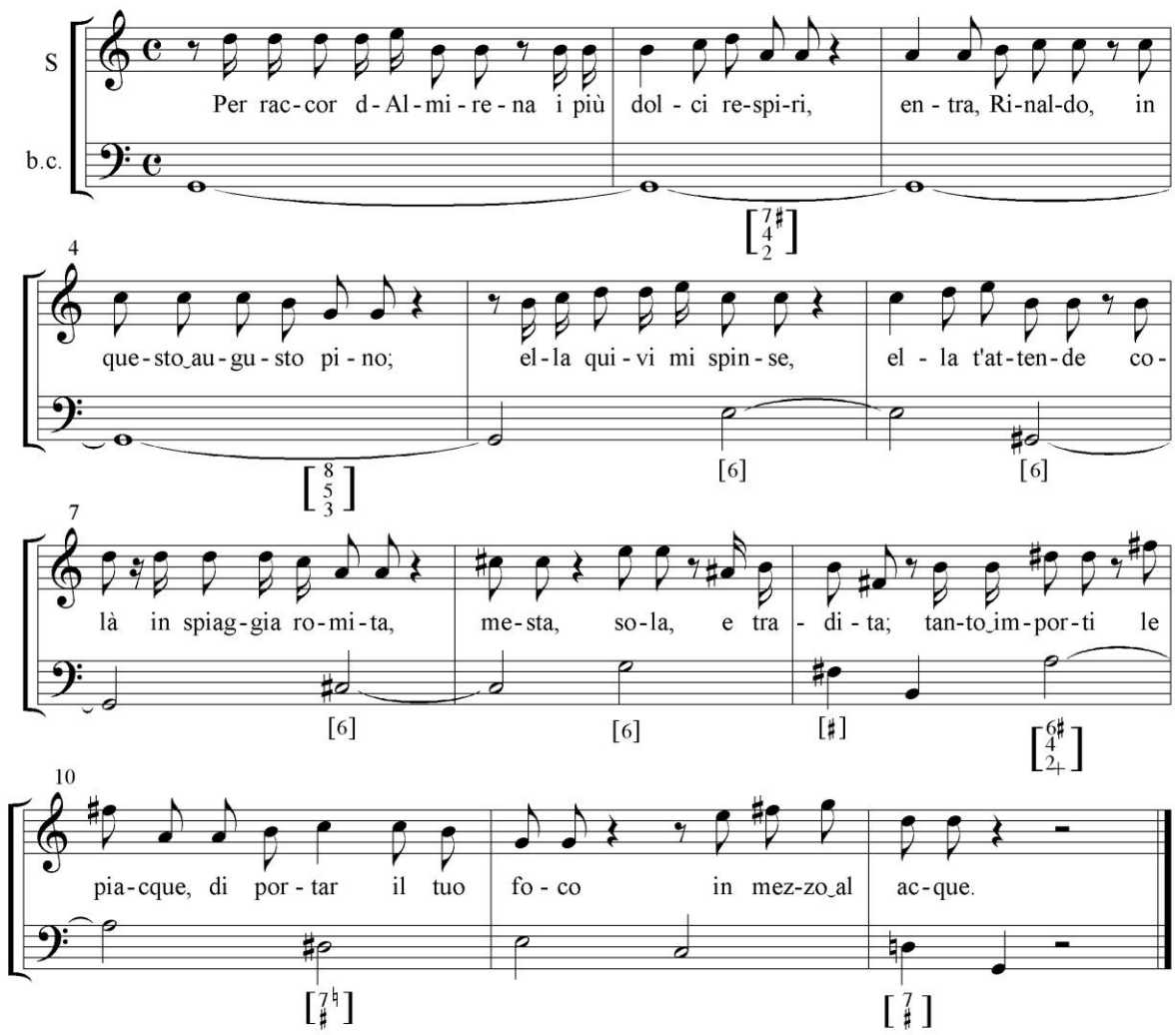
[58] An *acciaccatura* (French *coulé*) is a passing tone played as part of an arpeggio but not held with the notes of the chord—at least in the French and German traditions. Italian continuo players evidently struck and held acciaccaturas together with chord tones. This could produce striking effects, as written out in sonatas by Domenico Scarlatti (e.g., K. 120).

[59] See, e.g., Gasparini, *L'armonico pratico;* Pasquali, *Thorough-Bass Made Easy;* as well as Arnold and Williams.

Illustration 12.13



expected the performers to follow conventions that were only partly understood through most of the nineteenth and twentieth centuries. One of these conventions affects the voice, which in the final measure sings not *d2–d2* but rather *g2–d2*. The result, a falling fourth in the vocal part, is a familiar melodic formula in recitative. But the first note now forms a dissonance—a fourth—with the bass *(d/g2).* The same dissonance of a fourth is notated explicitly in m. 9 *(f#/b1).*

To avoid this dissonance, the practice arose of delaying the bass note until the singer finished the phrase. In nineteenth-century editions of Handel's music, the cadential bass notes *(f#–B, d–G)* were actually printed to the right of the corresponding vocal notes, leaving a gap in the bass line. Early eighteenth-century practice, however, was to play such passages as written—meaning that on the downbeat of m. 9, the continuo player strikes 5 and 3 (C# and A#) against 4 in the voice (B). In m. 12, the voice sings *g2* on the downbeat against a 5/3- or 7-chord that includes F# and A.

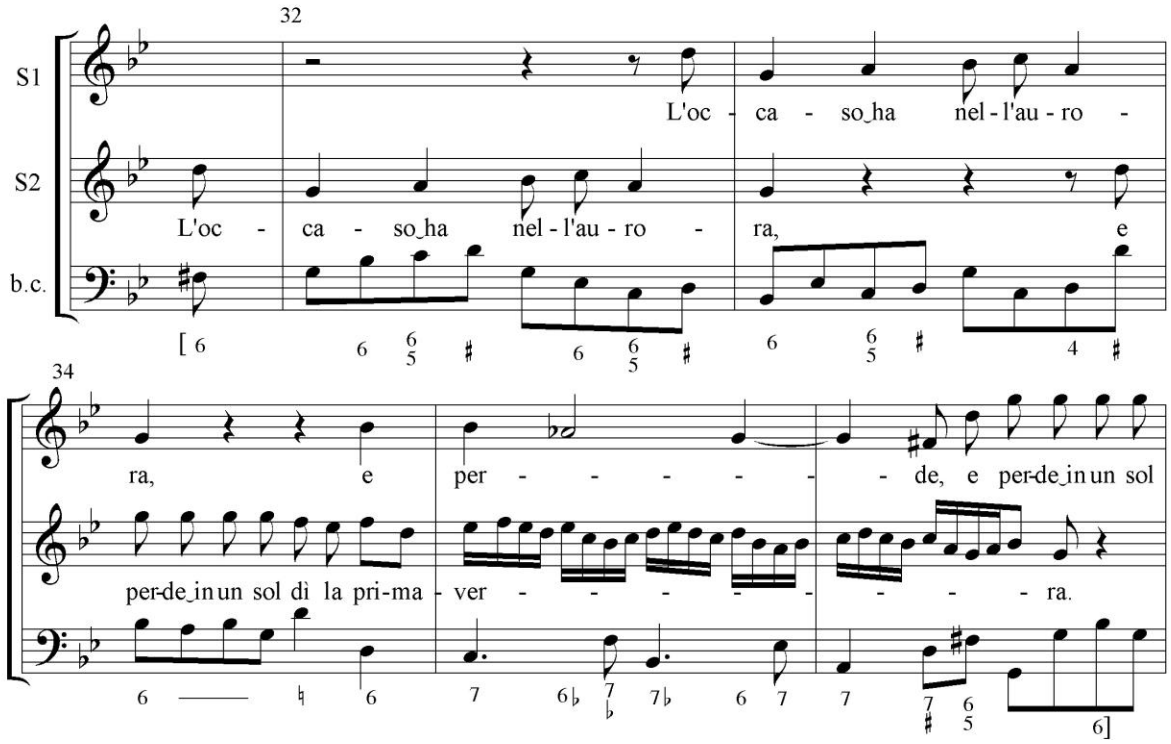
This discussion has focused on finding the notes of the realization. But in an operatic passage such as this, the continuo player must also reflect the words and the dramatic situation. Here Almirena expresses anger and grief; she is "sad, alone, and betrayed," as she says in mm. 8–9, the three expressive adjectives separated by rests *(mesta, sola, e tradita).* Especially in such a

passage, the continuo player must follow the voice not only rhythm but dynamically and expressively. If the singer takes a long pause before the word *mesta,* it may be necessary to restrike the chord at that point. If she becomes quiet on *mesta,* the 6-chord at that point needs to be subdued, perhaps taken only in three parts, with no arpeggiation. On the other hand, if she grows forceful or passionate on *tradita,* a heavy, rapidly broken chord with filled-in harmony may be appropriate on the bass note *f#,* without flinching from the dissonance that this creates with the voice.

The slow harmonic motion of most recitatives from the later Baroque, together with their reliance on melodic formulas based on arpeggiation, usually makes it fairly easy to identify the required chords. Other compositions, with more active bass lines, also tend to repeat familiar formulas, but it is always necessary to check the score to be sure that nothing unexpected happens in the upper parts.

Illustration 12.14 is from a vocal duet by Handel better known in the choral version used in *Messiah* ("But he shall purify").[60] In the first two measures, the bass consists of nothing but repeated cadential formulas of four notes each. Then, in the fourth measure of the example, Handel writes a sequence of 7-chords over a bass moving by fifths and fourths. Here the second vocal part has passagework in sixteenths, but these decorate a plain succession of half notes *eb2–d2),* forming a Corellian chain of suspensions with the first part.

Illustration 12.14



[60] Brahms wrote continuo realizations for this and several related works. Brahms's realizations, intended for the piano but of the highest musicality, were included in the nineteenth-century collected edition of Handel's works.

The walking bass leaps somewhat more often and thus contains fewer passing tones than do comparable basses by Corelli. A practiced continuo player will immediately reocognize the cadential formulas in mm. 32–33, which present no problems. In m. 34, the note *d1* on the third beat offers a small surprise, for one might expect it to bear a major third (F#), like the Ds in the previous two measures. Yet the second voice has an F-natural here—part of a decorated descending scale that begins on the first beat of the measure and leads into the chain of suspensions in the following measure. There is no way that even a good continuo player could anticipate that, or the A-flat in the next measure, without seeing a figured bass part or full score.

The most difficult unfigured basses are those found in many of Bach's vocal works. Bach normally wrote figures into manuscript continuo parts that were copied from his composing scores. For many works, however, Bach's original performing parts are lost; only his manuscript scores survive. In those cases, modern editions leave the basses unfigured. Bach's counterpoint is so complex, every part containing dissonances and passing notes of various types, that it is often difficult to decide which bass notes should bear chords and which notes in the obbligato parts should be included in the continuo part.

Illustration 12.15 shows two excerpts from the Benedictus of the B-Minor Mass.[61] The initial tie in the bass strongly implies a 2-chord on the first downbeat. This is confirmed by the *c#3* in the upper part—apparently for flute, although Bach's score does not specify the solo instrument. Nor is it immediately evident what type of 2-chord is best here. If one plays a 6/4+/2 chord on the downbeat of m. 1, the sixth (G) creates a a cross-relation with bass *g#.* As Illustration 12.15b shows, the tenor sings *f#* in the parallel passage in m. 13; thus the best chord in both passages is a 5/4/2, as shown.

In studying this excerpt, it helps to bear in mind that Bach's melody, as in so much Baroque music, often consists of broken chords. In the second full measure of Illustration 12.15a, the flute has arpeggios in sixteenths on beats 1 and 3. The triplets on the second beat are also derived from arpeggiation; each group of three triplets consists of two chord tones with a passing tone in the middle. The bass in this measure also incorporates arpeggiation: the first three bass notes constitute a single B-minor triad. The flute part shows that the harmony does not change when the bass reaches *f#* on the second beat.

The downbeat of m. 3 presents another suspension, as in m. 1. But now the chord is a 4/2, not a 5/4/2. This is clear from the flute part, which contains 2 (c#3) and 4+ *(e#2).* The sixth in this chord (G#) is understood. This 6/4/2-chord does not resolve immediately. The bass moves down to *a#,* but only after adding its own decorated arpeggiation of the chord tones *b* and *d1.* Slurs are rare in continuo parts; Bach's slur helps one reocognize the ornamental character of the three sixteenth notes. Even after the bass reaches *a#,* the upper parts remain stuck on the previous chord, which is suspended until the flute moves from *e#2* and *g#2* to *f#2.*

Measure 4 introduces chromaticism into the bass, and therefore into the figures. The most pressing issue in this measure, however, arises on the second beat. There flute has *a#1,* sustained above an *f#* in the bass. That clearly implies an F-sharp-major triad (5/3), with bass *e* a passing tone. On beat 3, the flute has a decorated arpeggiation of the same F-sharp-major triad—indicating that *d* and *c#* in the bass are also passing tones, as the harmony struck on the second beat continues to be sustained. (The realization adds a passing note *e1* on beat 3, making the chord, in functional terms, a dominant seventh.)

[61] For the B-Minor Mass we possess Bach's figures only for the Kyrie and Gloria.

Illustration 12.15a

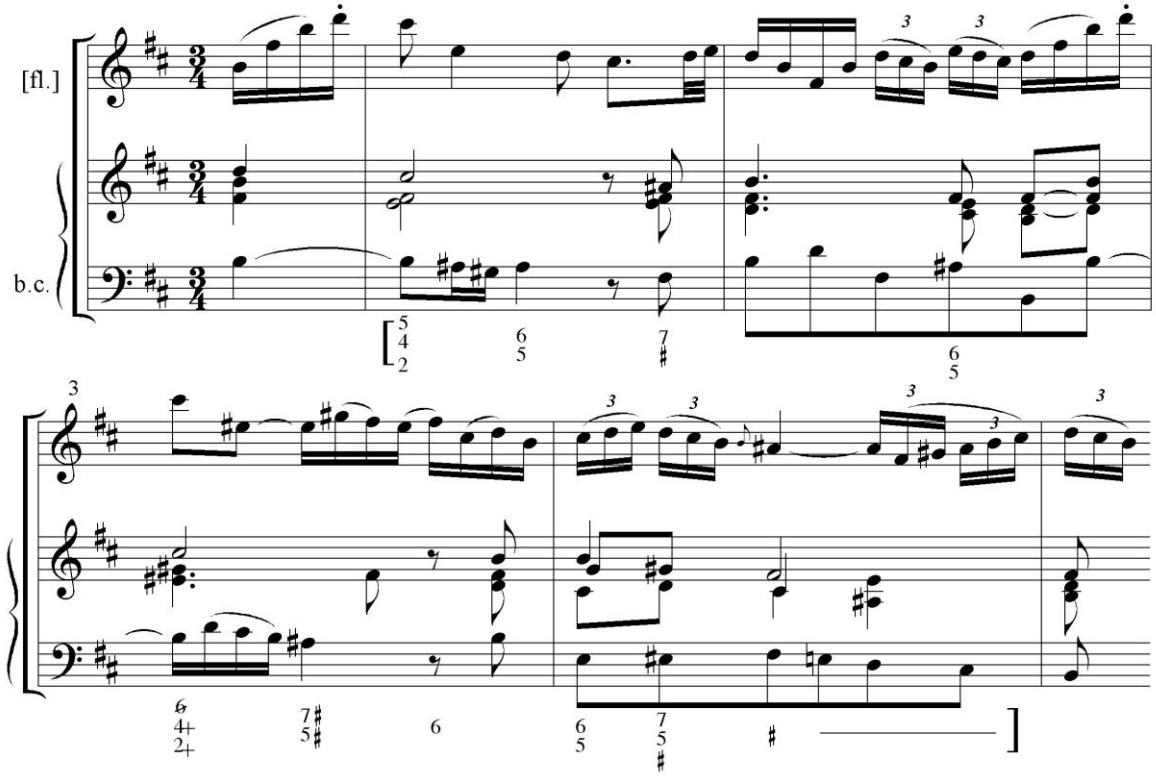
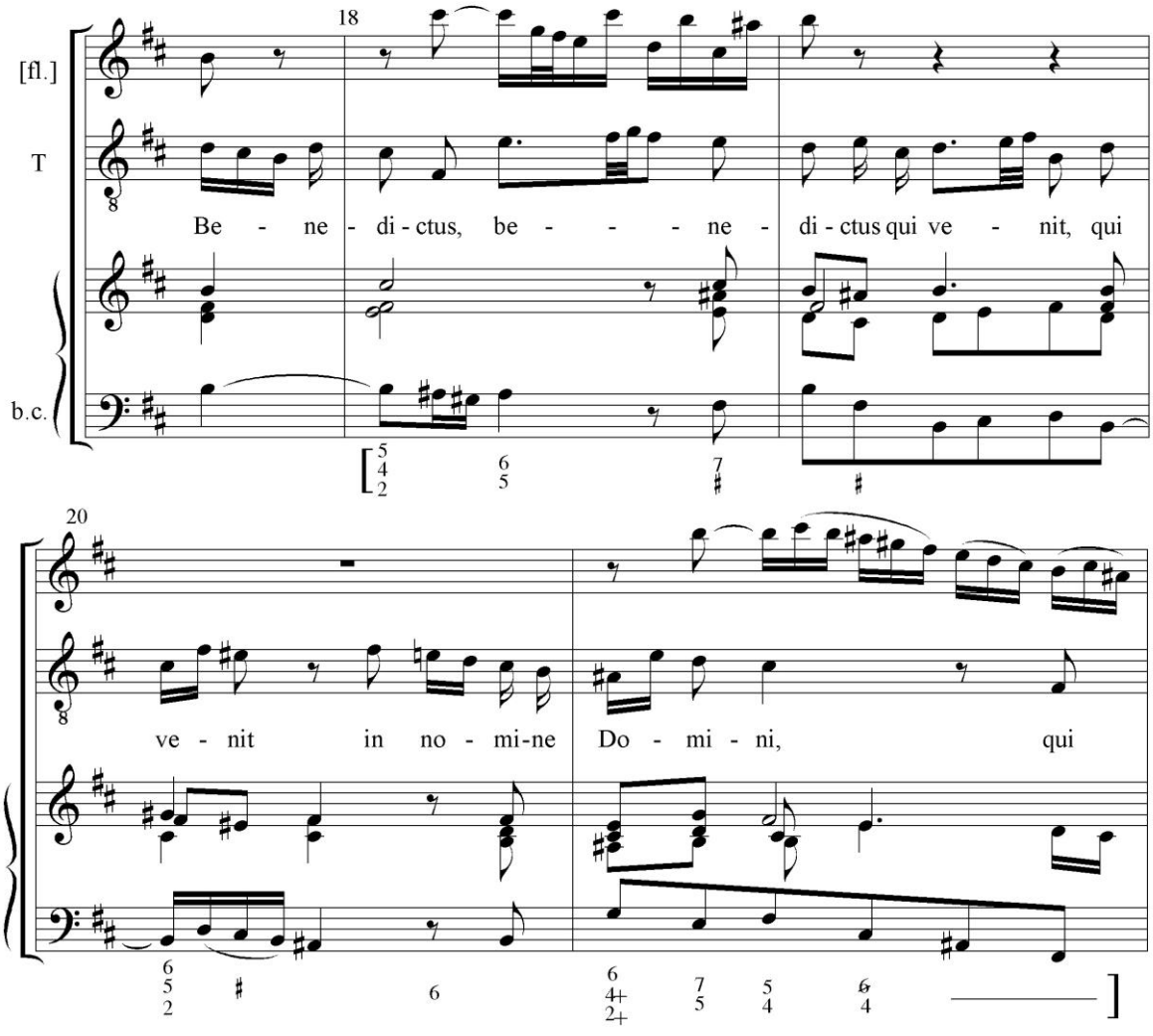


Illustration 12.15b



There is another problem in m. 4. On beat 2, the flute does not immediately play *a#1;* the note is preceded by an appoggiatura *b1*. Played on the beat, as it no doubt should be, this appoggiatura would clash with the F-sharp-major chord implied by the bass line. J. S. Bach might have tolerated this passing dissonance. Yet by the time he wrote this movement, in the late 1740s, his son Carl Philipp Emanuel, working as harpsichordist at the royal Prussian court, was expected to avoid clashes of this type. C. P. E. Bach probably would have left out the third of the chord (A#), as shown in the Illustration. Not only would this allow the flute to play the appoggiatura without clashing with the continuo. It also avoided a tuning problem that would have arisen when a tempered keyboard instrument accompanied a properly played transverse flute. On the latter, a "sharp" note such as the present A# is audibly lower in pitch than the same note played on a tempered keyboard. Quantz and other musicians of the time were fully aware of this and expected harpsichordists and organists to play accordingly.[62]

The same issue arises in Illustration 12.15b, m. 21. There the suspended *b2* on the second beat, part of a 5/4 chord, resolves to *a#2* on the next half of the beat. Again, a good keyboard player might have avoid a verbatim realization of the figures. That would lead to a doubling of the flute's A-sharp here and on the last eighth note of the measure. The irregular realization shown in the illustration leaves the harmony incomplete within the keyboard part. J. S. Bach might not have played in this manner. Yet such a realization was becoming the norm, at least in the accompaniment of *galant* chamber music, as the middle of the eighteenth century approached.

Doubling the Obbligato Parts

The questions raised by the appoggiaturas in Illustrations 12.15a–b are part of a larger problem: how to relate the continuo realization to the written parts in the score, especially when the realization contains close doublings (at the octave or unison) of one of the obbligato parts. Such doublings are not always cause for concern, especially if the realization remains beneath the highest obbligato part. But it is necessary to give the matter some thought when playing in lightly scored passages, or when accompanying a low-lying solo part.

Most problems can be avoided by keeping the top voice of the realization lower than the highest obbligato part—a common-sense solution that is, however, often disregarded in the editorial realizations included in many modern printed editions. In any case, it is difficult or impossible to follow this rule when accompanying a solo cello or any voice deeper than an alto. Even then, however, one can endeavor to keep the realization in a relatively low register. As we have seen, during the early Baroque some composers may have expected their continuo parts to consist of more or less verbatim doublings of the obbligato voices, especially when realized on organ. Yet by the eighteenth century the opposite seems to have become the preferred practice, at least when accompanying secular music on the harpsichord. In such playing, therefore, it is

[62] C. P. E. Bach discusses the accompaniment of appoggiaturas in several chapters of his *Essay* (ii.25–34). Working for King Frederick "the Great" at Berlin, he would have followed the instructions given by Quantz, the king's flute teacher and composer, to avoid doubling notes such as A-sharp that could be tuned more purely on the flute than on a tempered keyboard instrument (see Quantz's *Versuch einer Anweisung die Flöte traversiere zu spielen*, Berlin, 1752, 17.6.22; further discussion in the present author's "'Toward the Most Elegant Taste'").

usually best to avoid duplicating the disposition of the voices seen in the score. If, for example, the first violin has the third of a triad (5/3-chord), one should aim at placing the fifth or the octave in the top part of the realization, and keeping this note below that of the violin.

This principle is especially important at cadences, above all when accompanying a soloist, as in an aria or concerto. Thus, in realizing Illustration 12.16 (from Handel's *Messiah*), one looks ahead to the soloist's cadential trill in the penultimate measure. The trill is on the note *a1*—the third of the triad on the bass note *F*— and therefore the figured bass is realized with the fifth *(c1)* on top. Handel, incidentally, left this passage unfigured. The editorial figures take into account the fact that the trill—which Handel also failed to notate, although it was understood by convention—begins on the upper note. In an eighteenth-century work such as this, the first note of a trill is likely to be somewhat elongated, especially the type of final cadence seen here. Therefore the first beat of the trill is accompanied by a 6/4-chord, despite the written *a1* in the vocal part.[63]

Illustration 12.17, also from *Messiah*, follows the same principle. Here, however, the vocal part is for tenor and sounds an octave lower than written. The realization therefore lies above the voice, but the top part of the realization is again chosen so as not to double the soloist.

Further issues related to the doubling of the obbligato parts are considered below in the section on figured bass in the *galant* style.

Illustration 12.16

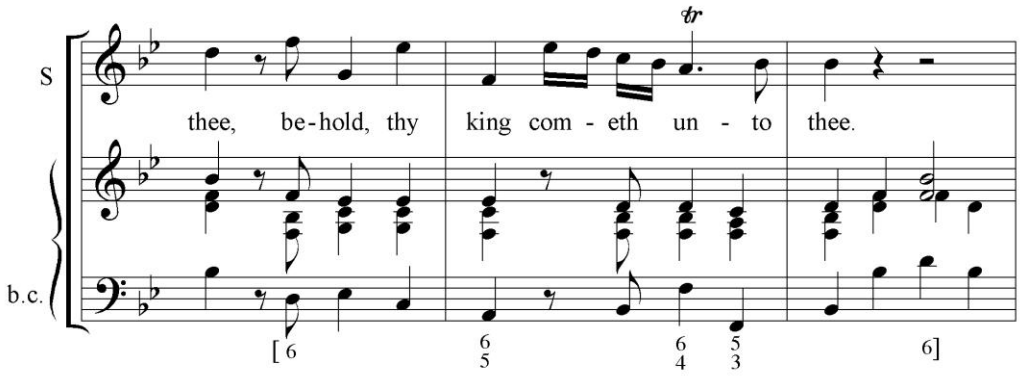
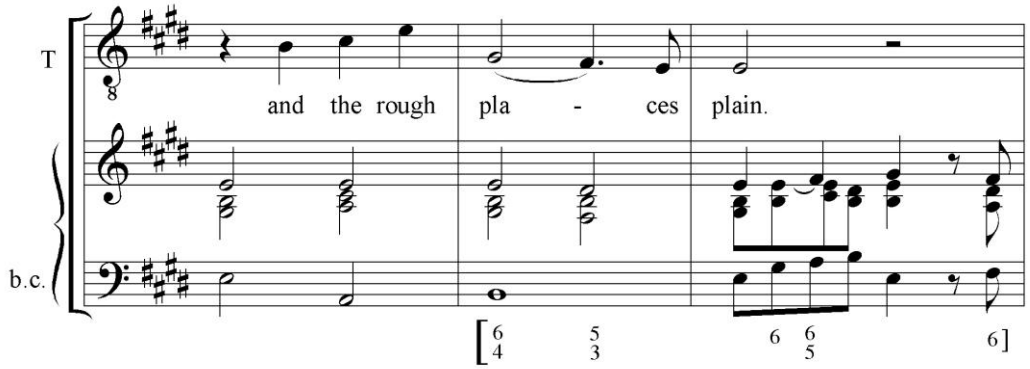


Illustration 12.17



[63] Discrepancies like this between the obbligato parts and the figured bass are common at cadences in eighteenth-century music, reflecting the holding out of the first note of the trill.

Bass Solos

Some of the greatest challenges for a continuo player arise in so-called **continuo arias:** arias scored for voice and continuo alone. This was the normal scoring for arias through most of the seventeenth century; Illustration 12.12 shows an early example. The more elaborate arias of the later Baroque generally include ritornellos—introductory passages and interludes for the instruments alone. In a continuo aria these are notated solely as a figured bass, as in Illustration 12.18 below. In such a passage, the realization is completely exposed, and the continuo player is necessarily a soloist—or at least may feel like one.

When the bass line is the sole written part, it might seem that the continuo player must come up with a distinctive melody for the upper part of the realization. Yet in eighteenth-century continuo arias the composer's bass line usually remains the true melody. To this the upper parts of the realization remain an accompaniment. That is, the continuo player's function is to accompany the cello or other low-pitched melody instrument assigned to the bass line. If there is no such instrument, then, if the figured bass is being realized on a keyboard, the player's left hand becomes the "soloist." To make this clear to any audience, it help to play the bass on a louder manual than the upper voices.

Naturally, in such playing it is necessary to pay close attention to the counterpoint between bass and the top part. In most cases the counterpoint is best kept simple, but even a plain accompaniment for a bass solo needs to have an elegant upper part that avoids unmotivated leaps and other rough spots that could divert attention from the real leading line, which is in the bottom part. Even rests in the bass line need not be filled in by a melody in the upper voice of the realization; eloquent silence may say more than improvised filler.

Of course there may be times when a more elaborate realization is appropriate, and we can be sure that Bach and other expert musicians sometimes turned the ritornello of a continuo aria and other bass solos into improvisational *tours de force.*[64] Rarely, however, is this likely to be necessary, especially in music by good composers. Bach, who after all composed entire suites for cello alone, wrote continuo arias whose bass lines are melodically and harmonically self-sufficient, requiring only a straightforward realization. In general, therefore, it is best not be too clever; many published realizations, especially in older editions are more elaborate than necessary, obscuring the real melody in the bass. In a well-composed piece with a carefully figured bass, the plain but elegant voice leading described in the preceding chapters will usually yield a fully adequate upper line. A few passing notes and cadential trills may provide all the additional refinement that is needed.

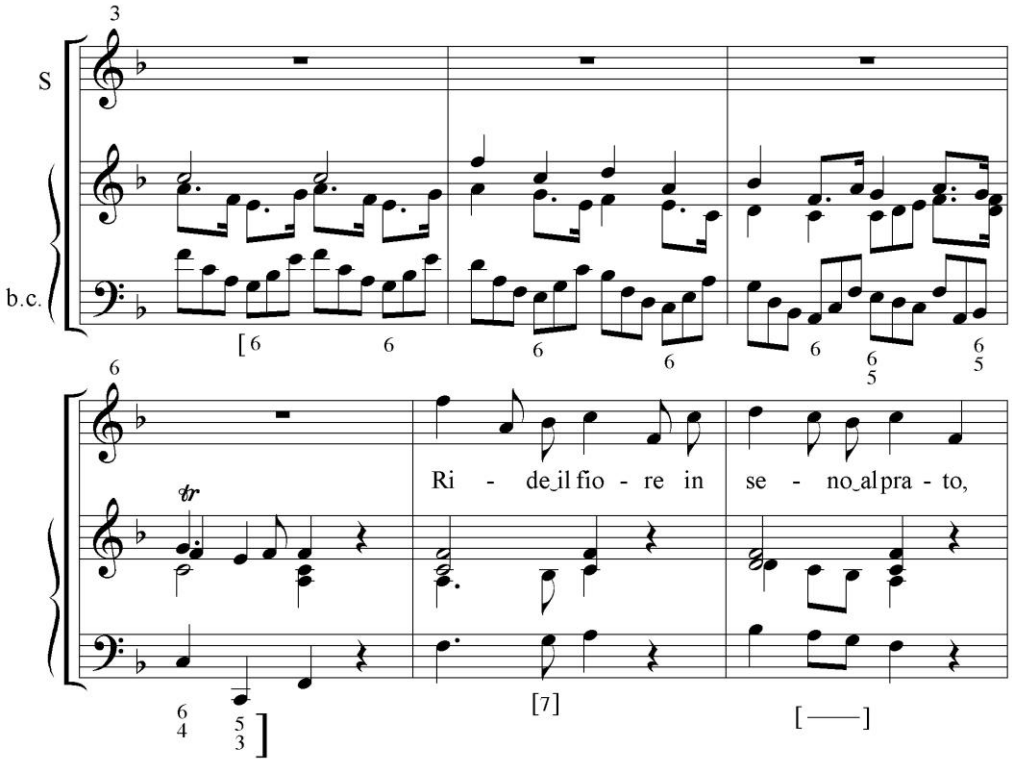
Cadences can present exceptions to what has just been stated. At cadences, the bass is likely to abandon any melodic character that it may have elsewhere in a bass solo, reverting to what we would call motion between the roots of the last two or three chords (e.g., IV–V–I). Especially in final cadences, it is a good idea to work out the realization ahead of time, even if this seems unnecessary elsewhere.

Usually the bass of an eighteenth-century continuo aria is more self-sufficient harmonically than the average bass line; to some degree it provides its own realization. In addition, the

[64] Heinichen (1728, 548ff.) illustrated an elaborate example of a realized continuo aria (transcribed in Arnold 1931, 455), but the bass of his example is far simpler than one would find in a work by Handel or Bach.

ritornellos in such an aria are usually shorter than those in arias with other instrumental parts. Thus the bass line in Illustration 12.18 (taken from Handel's cantata *Nella stagion*) arpeggiates a series of 5/3- and 6-chords. The light, pastoral quality of the aria and the fact that the bass line would be doubled by no more than a single cello imply three-part realization, perhaps broadening out to four parts at the cadence.

Illustration 12.18

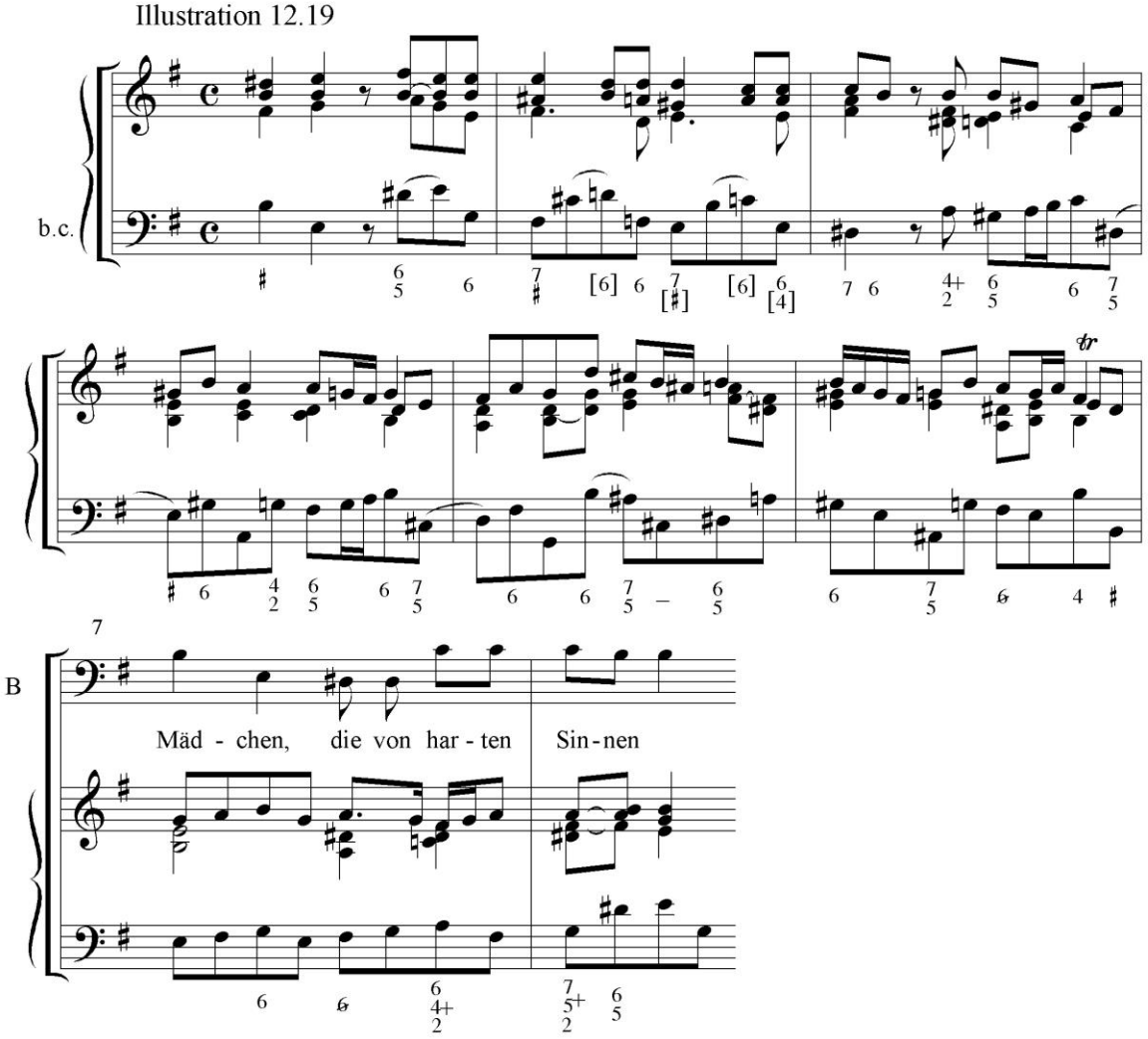


The chief problems in realizing this bass are due to its melodic motion. To assure fullharmony while avoiding parallel octaves or unisons, the upper parts must often leap between chord tones, just as the bass does. The suggested realization is relatively elaborate, and most of the moving notes in the upper staff—everything but the notes on the beats—could have been omitted. Doing so in the second measure, however, will lead to parallel fifths (*c1/g1–bb/f1).*

Bach wrote more complicated continuo arias, and that of Illustration 12.19, from the Coffee Cantata, alternates between broken chords and melodic motion by half step, forming an idiomatic cello line.[65] Even the initial descending fifth *(b–e),* which may look like a purely harmonic gesture (V–I), becomes part of the vocal line in m. 7. There the two leaping quarter notes are sung to the word *Mädchen* ("girls" or "maidens"), a word that might suggest gentleness but which here is part of a harsh, accusatory speech whose character is represented by the complex chromatic harmony. The two quarter notes are thus a rhetorical gesture, underlining the initial word, and there is no reason to obscure them (or the unusual melodic intervals that follow) with an overly elaborate accompaniment.

[65] The two-note slurs from an unaccented to an accented note are rare in Baroque music, used here as a special effect.

Illustration 12.19



Bach's intricate, precise continuo figuration nevertheless requires a fairly complex realization. Complications arise not only from the pervasive chromaticism and the leaps in the bass line but from the irregular treatment of certain dissonances. For instance, on the second beat of m. 6, the 7/5-chord is resolved in the bass on the next beat *(f#)*. This means that the diminished seventh of the 7/5-chord (realized here as *g1* in the alto) cannot also move down to *f#1*. Instead the alto drops to *d#1*, a downward leap of a diminished fourth.

Virtuoso Realization

Although the upper parts remain accompanimental in Illustrations 12.18 and 12.19, sometimes the continuo player must provide something closer to full-fledged composition or improvisation. We might refer to this practice as virtuoso realization, supposing that it corresponds with what someone such as Frescobaldi or Bach did when inspired (or challenged) to turn a continuo accompaniment into a keyboard solo. One type of passage in which such playing might be appropriate occurs in brief transition passages that connect sections of some seventeenth-century works. Such passages may consist of nothing more than a few bass notes, as in Illustration 12.20a, from one of Frescobaldi's *canzoni* for solo bass instrument and continuo. The type of

playing evidently called for might be judged from comparable transition passages in Frescobaldi's *canzoni* for solo keyboard (Illustration 12.20b).

Illustration 12.20a

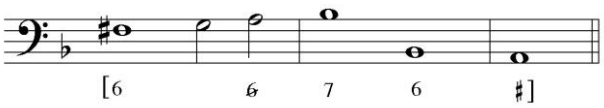
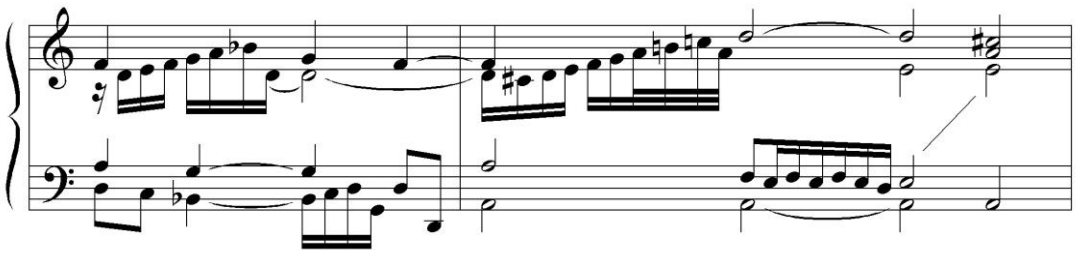
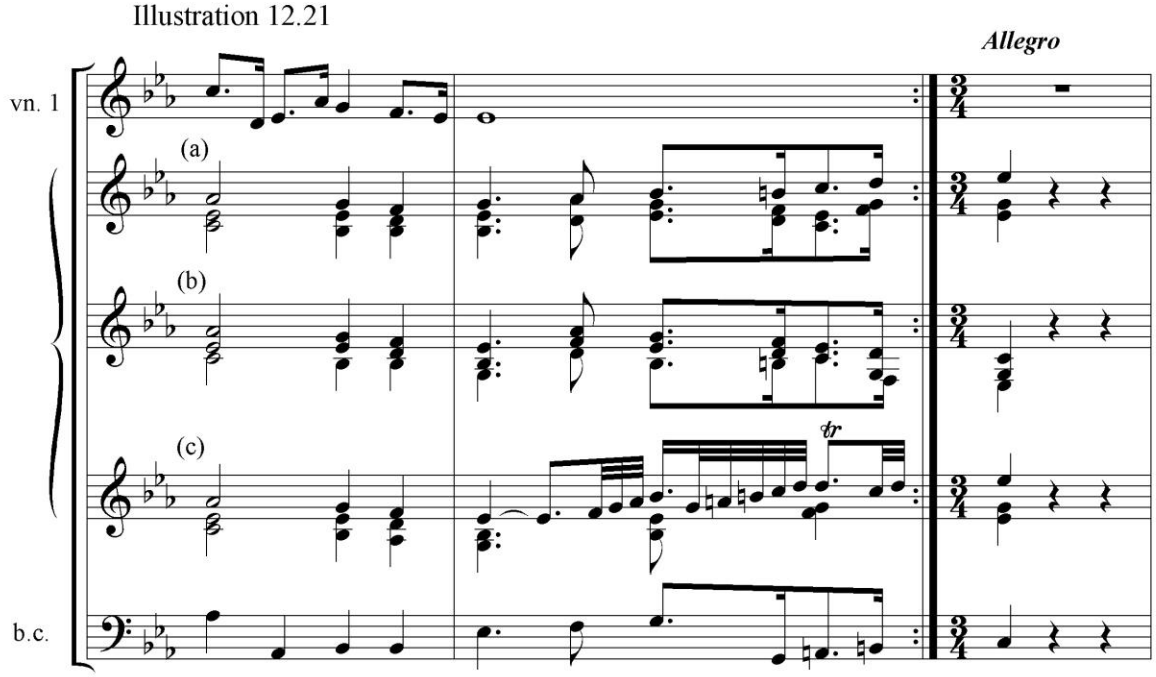


Illustration 12.20b



In later works, continuo players may be called upon—at least by modern conductors—to add flourishes at cadences or during rests. Historically, such things were more likely to have been entrusted to the principal violinist or to the soloist in a concerto. But one type of flourish that perhaps does belong to the harpsichordist occurs in passages of the type shown in Illustration 12.21, from the overture to Handel's *Semele*. The Illustration shows the measures leading up to the double bar, at which point one either repeats the first section of the overture or continues to the Allegro. In the last measure before the double bar, the violins hold out their note; only the bass line has written-out moving notes. Here it seems appropriate for the harpsichordist to enhance the sense of motion, as suggested on the inner staves of Illustration 12.21. The first two of these involve relatively simple counterpoint. The third is more brilliant, although this type of realization is most effective if confined to just one or two passages in a given piece.

Illustration 12.21



Eighteenth-century documents show that famous performers, including Bach and Handel, sometimes incorporated substantive counterpoint or virtuoso passagework into their continuo realizations. Mattheson and Heinichen gave instructions for virtuoso accompaniment,[66] and Bach included what are, in effect, written-out continuo parts in several works. In the Largo of his B-minor flute sonata, the keyboard instrument not only plays very full chords but inserts little runs between the phrases of the solo instrument. In the F-major harpsichord concerto (BWV 1057), which is an arrangement of the Fourth Brandenburg Concerto, Bach gives the keyboard player new counterpoint to accompany several passages or the two recorders, who were originally joined by just figured bass. The solo harpsichord part in the Fifth Brandenburg Concerto is also, up to a point, an elaborately realized continuo. At almost the same time, in the aria "Vo' far guerra" from the opera *Rinaldo,* Handel gave himself several harpsichord solos in the ritornellos. These were evidently improvised, but his contemporary William Babell published an arrangement that probably preserves something of the character of what Handel played.

Apart from rare examples such as "Vo' var guerra," such playing is hardly ever an actual necessity. In other music, what a player might imagine, in the inspiration of the moment, to be at the height of style and taste may sound like vulgar froth to a cultivated listener. Others, of course, may still enjoy it.

Partimento realization

Active invention in creating the realization is a necessity when playing a *partimento:* a self-contained composition that consists solely of a figured bass. *Partimenti* originated as simple exercises during the seventeenth century. By 1700 the Italian composer and keyboard player Bernardo Pasquini had assembled collections of sonatas for one and for two harpsichords in the form of figured bass lines (see Illustration 12.22 below). Even fugues could be written as *partimenti;* the first two or three entries of the subject, including countersubjects, might be written out, but thereafter it was up to the player to figure out where to bring in the theme, sometimes prompted by verbal rubrics in addition to figures.

Some eighteenth-century treatises on figured bass realization included samples of *partimenti.* The German composer Gottfried Kirchhoff even published a collection of little preludes and fugues in this form, and a number of such works have been attributed (quite doubtfully) to J. S. Bach.[67] Handel also left examples, but the most extensive cultivation of the genre appears to have been in Italy. There *partimento* playing was part of the standard training of composers and keyboard players at least to the end of the eighteenth century. In recent times it has been revived as an aid to learning improvisation.[68]

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[66] See Heinichen (1728, esp. the end of vol. 1, pp. 552ff.; extracts in Arnold, 457ff.) and Mattheson 1731 *passim.*

[67] Among these are the large preludes and fugues listed as BWV 907 and 908 as well as a collection of smaller pieces discussed by Renwick (1999). Kirchhoff included eight of the latter in his *ABC Musical* (Amsterdam, ca. 1734), which can be consulted in the "pedagogical edition" by Derek Remeš on his website (www.derekremes.com).

[68] Handel's examples have been edited by Alfred Mann (1982) and David Ledbetter (1990). On the Italian eighteenth-century tradition, see Giorgio Sanguinetti, *The Art of Partimento* (Oxford University Press, 2012), and the website http://partimenti.org/ (compiled by

The figures and progressions in most *partimenti* are conventional and rarely raise serious issues of realization. Indeed, how creative the realizations were meant to be is an open question, for partimento exercises seem to have been meant chiefly to teach standard types of voice leading. Illustrations 12.22 and 12.23 show samples by Pasquini and by Friedrich Erhardt Niedt, who demonstrated in a 1706 publication how entire compositions could be built upon figured bass lines.[69] In both illustrations, the original notation is shown in full size; the suggested realization appears in small notes. Illustration 12.22 is realized chiefly in three voices and in a fairly free manner, in keeping with what was likely Pasquini's practice. It includes the simple fugal passage shown in Illustration 12.22b (the only such passage in Pasquini's *partimento* sonatas). The second measure of this passage ends with a so-called Corelli clash: the top voice anticipates the note b1 on the following downbeat as the lower voice resolves the preceding dissonance, creating parallel seconds *(b1/c#2–a#1/b1).*[70]

Illustration 12.23 incorporates a somewhat more serious fugue. The suggested realization is accordingly more strict, in four voices, in keeing with what we might presume about German practice in such a piece. It comes from a publication that Niedt intended as a preliminary volume for his 1706 treatise. The latter was subsequently re-issued by Johann Mattheson, whose own *Grosse Generalbassschule* provided partimento-like exercises in all the major and minor keys, with detailed commentary.[71]

Robert Gjerdingen).

[69] Friedrich Erhard Niedt, *Handleitung zur Variation* (Hamburg, 1706), later re-issued by Johann Mattheson as volume 2 of Niedt's *Musicalische Handleitung* (Hamburg, 1721).

[70] Pasquini (who knew and performed with Corelli) wrote both voices through the downbeat of m. 3. The figures follow Pasquini's notation, in which flats indicate minor triads even when the third of the chord is actually a natural, as it is throughout this Illustration.

[71] Illustration 12.23 is from volume 1 of Niedt's *Musicalische Handleitung* (Hamburg, 1710). Unfortunately there is no modern edition or translation of either this or Mattheson's work, although both are readily available online.

Illustration 12.22

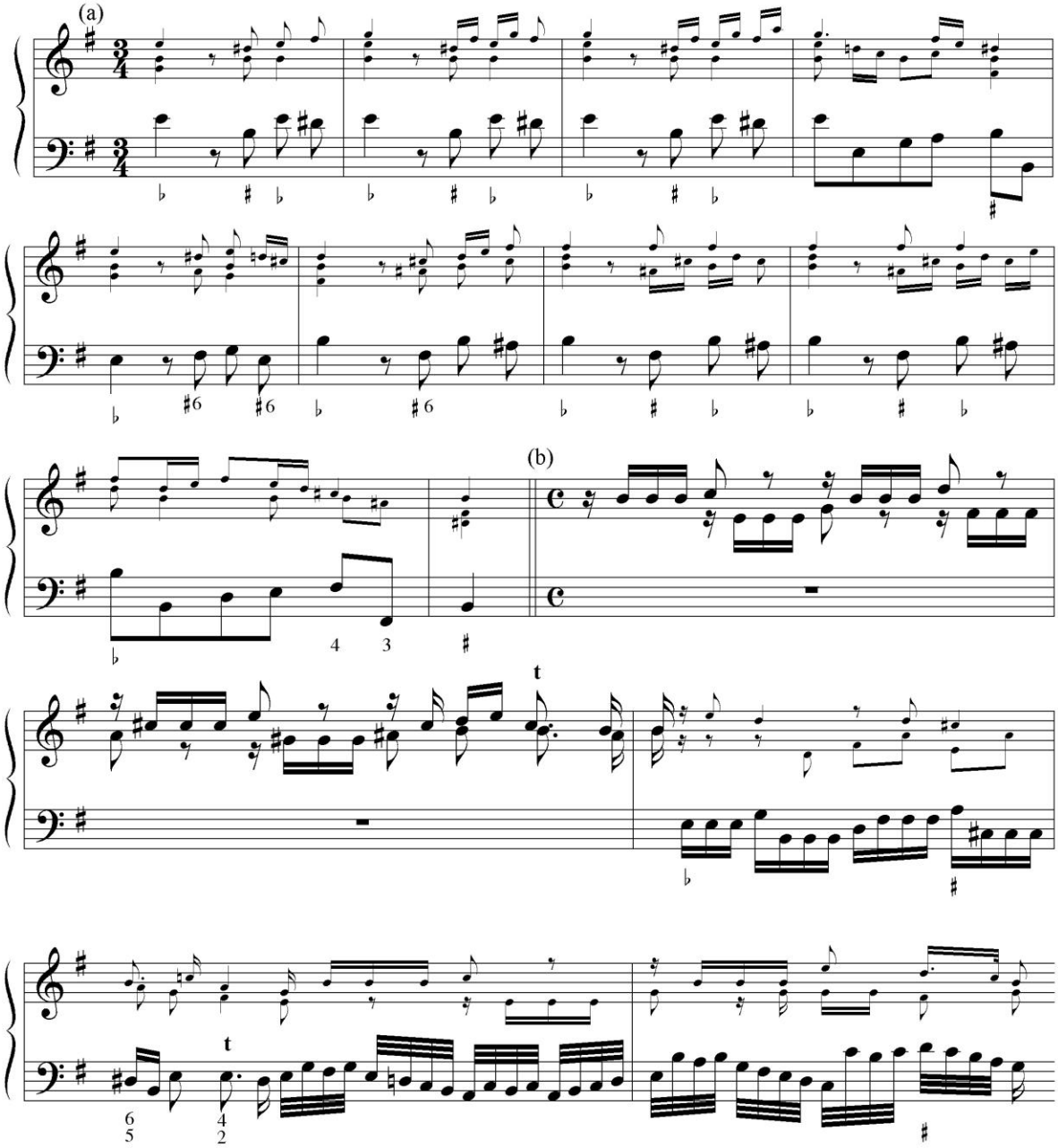
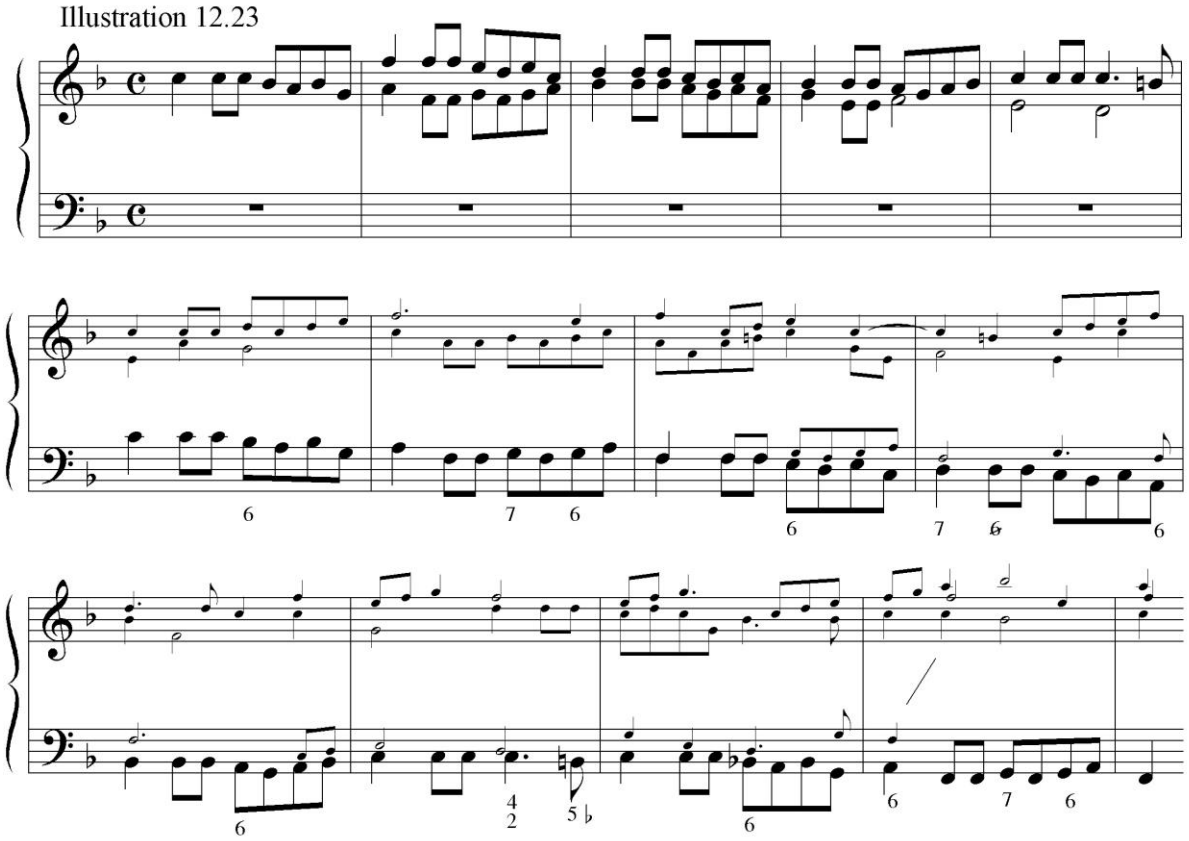


Illustration 12.23



French Figured Basses

A more practical concern than *partimento* basses for most players today is the realization of eighteenth-century French continuo parts. French musicians, apart from their distinct compositional style and performance practices (such as *notes inégales*), employed distinctive continuo figures and a corresponding approach to realization. Some features of French figured basses have already come up in previous chapters. Fundamental to the French approach to figured bass was the primacy of chordal thinking, as opposed to the more strictly contrapuntal approach taken in Germany and, probably, in Italy. France was late to adopt figured bass notation, which is absent from most French music from before the second half of the seventeenth century. Figured basses in music by Lully and other seventeenth-century composers are close in appearance to those from Italy, but by 1700 they were employing certain idiosyncratic signs that were eventually explained in French treatises.

The two most characteristic signs in this tradition are the figures 5 and 6 cut by a slash. These are represented in the present text by the expressions “5-slash” and “6-slash.” Elsewhere in Europe, the slash usually signified an accidental alteration of an interval; 5-slash was a diminished fifth, whereas 6-slash was the equivalent of the figure 6 preceded (or followed) by a sharp. In France, however, these symbols stood for alternate forms of the 6-chord, each with a (different) added note.

The symbol 5-slash stood for a 6/5 chord, called the *grande sixte* or “large sixth.” The fifth in this chord is often a diminished fifth, and when this is the case, we would say that the chord is

functioning as a first-inversion dominant-seventh harmony ($V^{6/5}$).[72] The symbol 6-slash, on the other hand, stood for a 4/3 chord, known in France as the *petite sixte* or "small sixth." The name supposedly stemmed from the "less extended" form of this chord. If realized with the sixth in the top part, the *petite sixte* over the note *d (f1/g1/b1)* would be played by the first, second, and fourth fingers of the right hand. If, however, the bass note is replaced by *H*, then to produce the same harmony the right hand must be "extended," reaching for the third of the *grande sixte f1/g1/d2)* in the upper part with the fifth finger.[73] Like the *grande sixte*, the *petite sixte* can also function (in modern terms) as a dominant, constituting the second inversion of the dominant-seventh harmony ($V^{6/4/3}$).

Both chords are, strictly speaking, dissonances, two of the upper voices being separated by a second (or a seventh). French musicians, however, must have understood them as no different from other chords illustrated in French continuo treatises. Illustration 12.24 shows a typical eighteenth-century French figured bass, with realization.[74] The first instance of 6-slash (in m. 1) is also preceded by a sharp; the latter would have been superfluous for a German or Italian musician, but it is necessary here to indicate that the sixth is raised to D-sharp even as it is also accompanied by 4 (B) as well as 3 (A). French publishers even added slashes to the figures 5 and 6 when issuing music by composers from other countries, such as Corelli's violin sonatas. These compositions would have acquired a distinctively French sound when played with the numerous *grandes* and *petites sixtes* indicated in the unauthorized Paris editions.[75]

The same preference for sonorous, mildly dissonant chords led French musicians to favor other harmonies whose realization must often have disregarded the rules of strict dissonance treatment. Typical are the 7/5/3 and 7/5/2 chords, sometimes with augmented fifth (called the *quinte superflue*), in Illustration 12.25, from the opening of Couperin's sonata *La française*. Notable here is the composer's idiosyncratic figuring, which includes several inverted signatures (such as 5/7). In addition, Couperin uses 2 where others employed 9 to signify a dissonance resolved in one of the upper parts. One of these chords, figured as 3/2 in m. 11, might be realized

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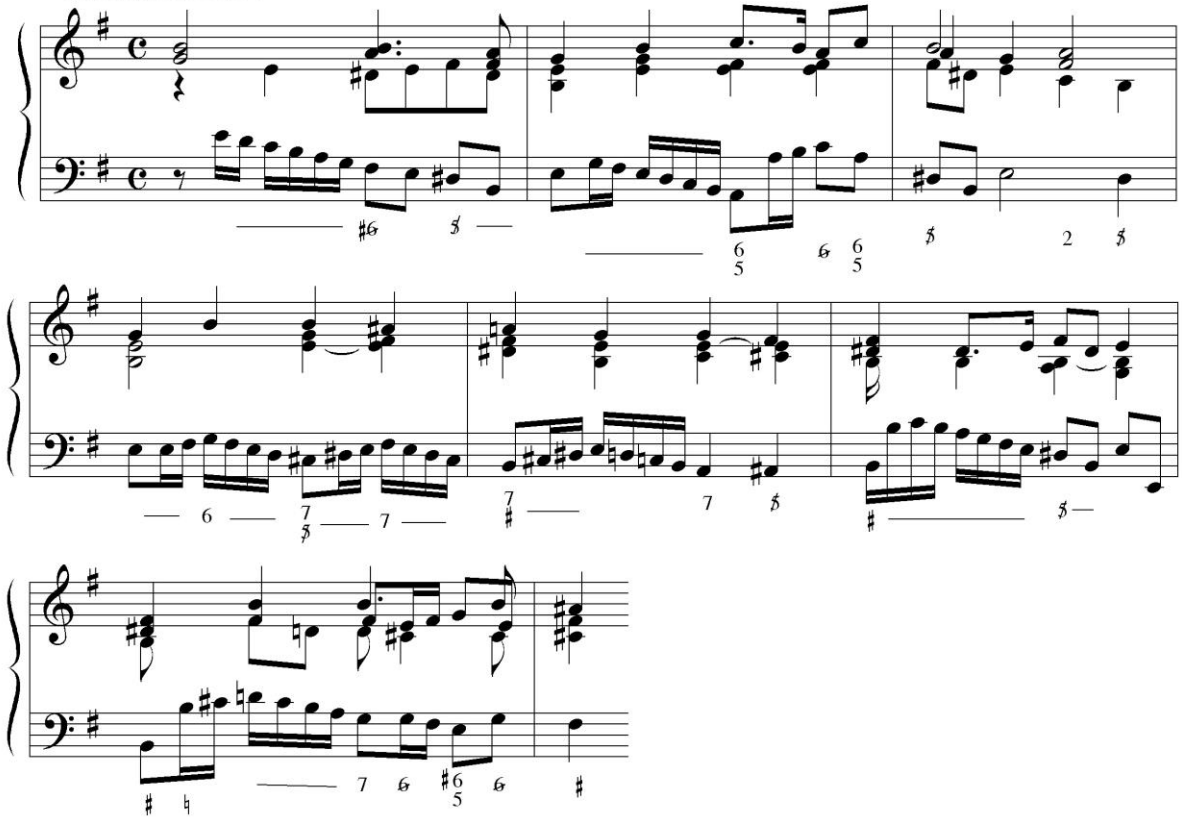
[72] 5-slash can also appear in conjunction with other figures, such as 7, in which case it retains its usual meaning of a diminished fifth.

[73] This seems to be the best interpretation of the explanation for the terminology, given by Michel de Saint Lambert (1707). Of course, the exact stretch of the hand in playing each chord depends on how the notes are disposed. The *petite sixte* with the third or fourth in the top part requires the right hand to be just as "extended" as it is in two of the three dispositions of the 6/5-chord.

[74] Illustration 12.24 is from the flute sonata op. 1, no. 6 (1723) by Leclair, who explained his use of these and other figures in a preface; in subsequent publications, however, he rejected the French usage of 6-slash. See Thérése de Goede, "Correspondence," *Early Music* 36 (2008): 168–71, esp. 169. The expressions *petite sixte* and *grande sixte* must already have been in use by around 1690, when Couperin employed them without explanation in his unpublished treatise on figured bass realization.

[75] See, for example, the opening of Corelli's sonata op. 5, no. 3, transposed to D (from C) in an anonymous French arrangement for flute, included in *A. Corelli–Anonimo Francese: VI sonate per flauto traversiere e basso trascritte dall'opera V, parte I*, facsimile from an early eighteenth-century Paris print, with preface by Marcello Castellani (Florence: Studio per Edizioni Scelte, 1996).

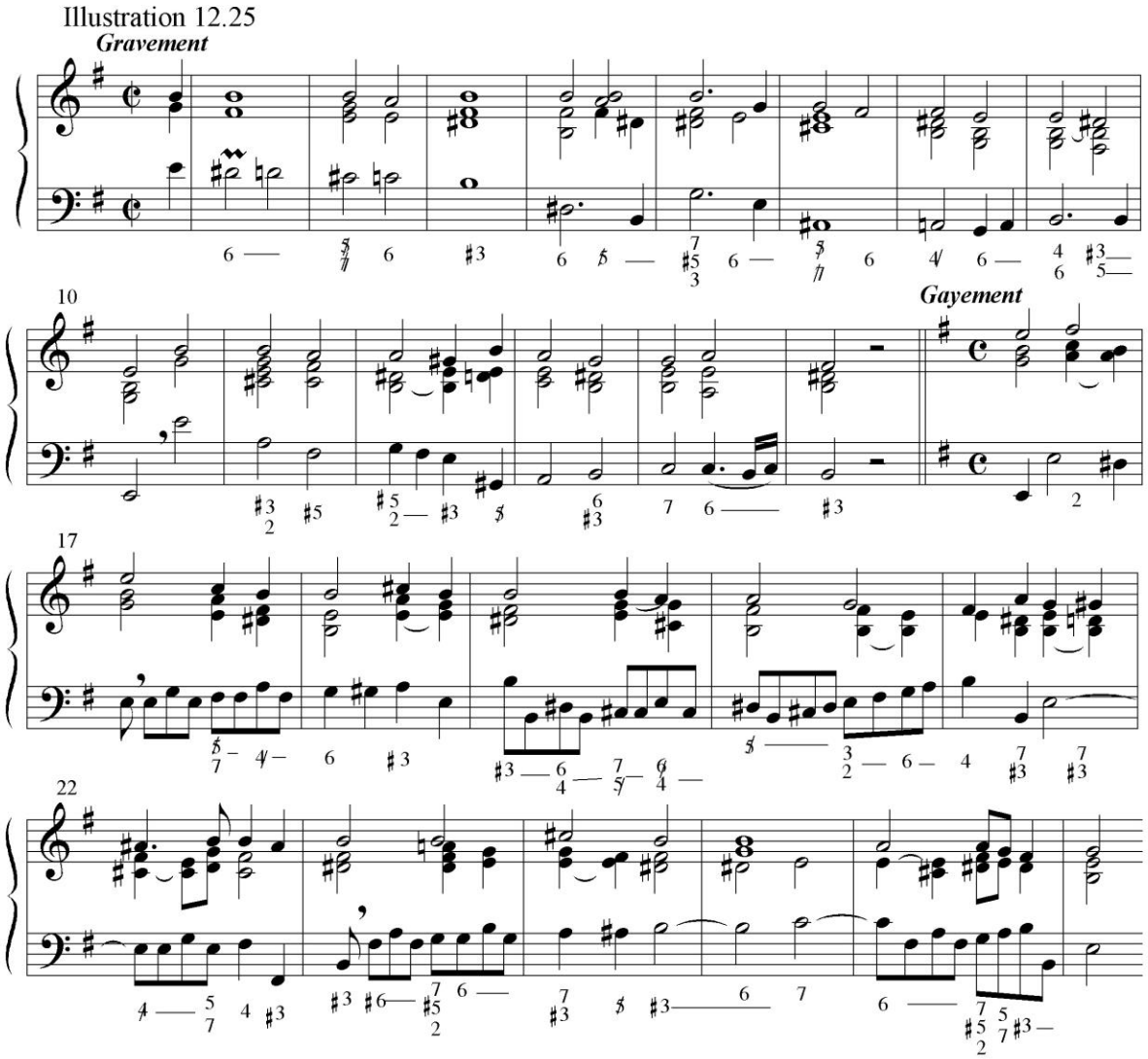
Illustration 12.24



in five parts (as shown), producing a particularly rich sonority. At the harpsichord, each sonority would have been quickly arpeggiated, as explained by Rameau.[76]

[76] In part 4 of his *Traité* (rule 5 on pp. 371–72), Rameau explained the normal performance of each chord in a continuo part, with the lowest note of the realization sounding with the bass, the higher notes following in a quick arpeggiation or breaking of the chord.

Illustration 12.25



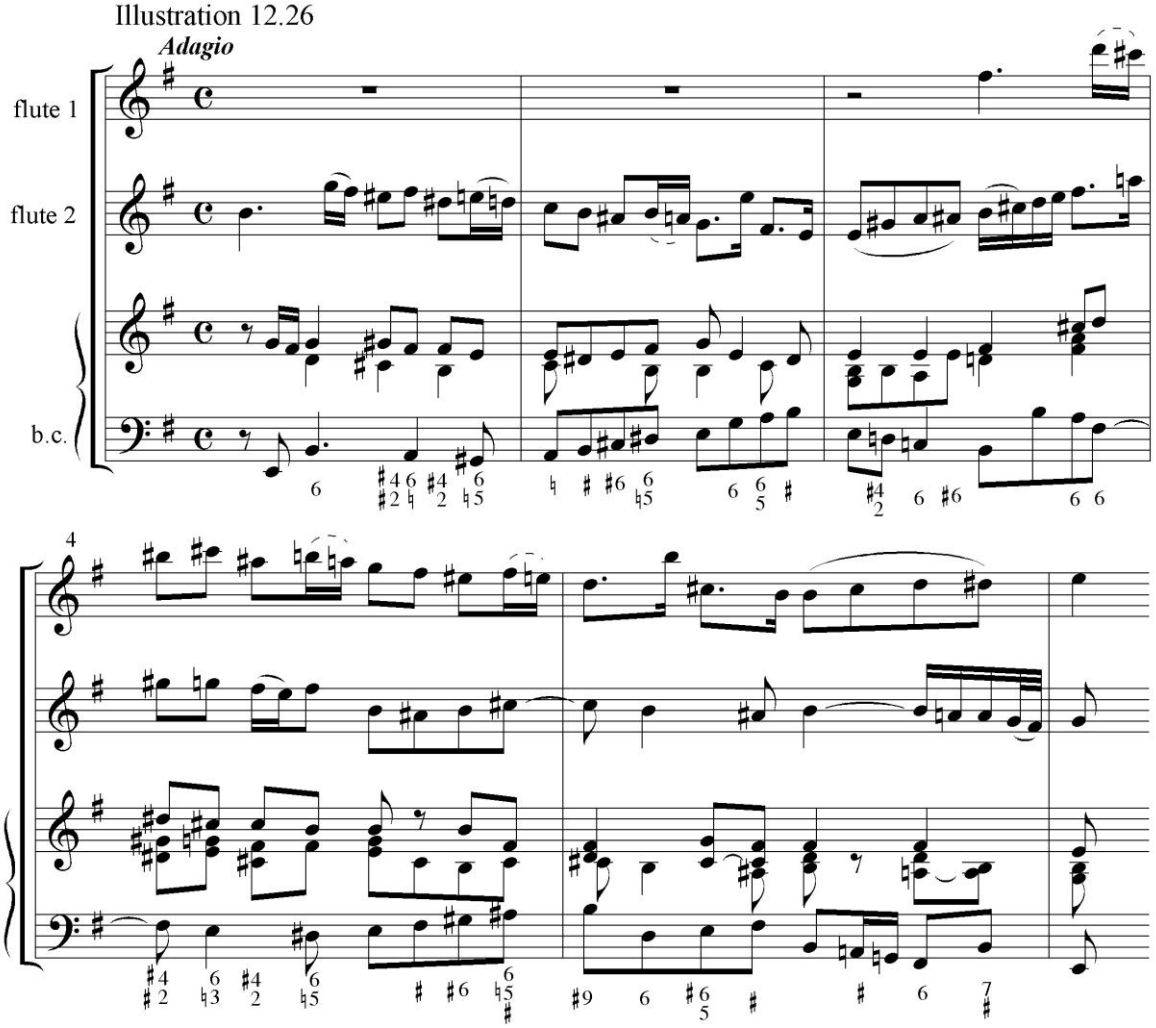
`Figured Bass in the *Galant* Style

The discussion of Illustration 12.15 mentioned some of the adjustments that C. P. E. Bach advised players to make to a theoretically correct figured bass realization. His instructions, which complement those given by Quantz, applied above all to the accompaniment of chamber music in the *galant* style. These adjustments served two purposes: to avoid unintended dissonances, especially on accented beats, between the solo parts and the figured bass realization; and to give soloists the freedom to prolong expressive appoggiaturas and other ornaments for as long as they wished, without interference from the continuo player. In practice, this meant leaving out notes from the accompaniment that would otherwise double the soloist, especially on the many ornamental notes (chiefly appoggiaturas) typical of this style. Also to be omitted were notes that could be tuned more purely by the voice or on a string or wind instrument than on a tempered keyboard.

Quantz was so concerned about pure intonation that he added a key to the flute to distinguish E-flat from D-sharp (the latter is lower, forming a pure third with B). In Illustration 12.26, from the opening of a trio sonata for two flutes and continuo (QV 2:22), one would therefore avoid doubling any of the sharpened notes in the upper part—at least in the initial passage, where a single flute introduces the chromatic subject. This is so despite the fact that all those notes are meticulously signified in the figures. With the entry of a second treble instrument in m. 3, it

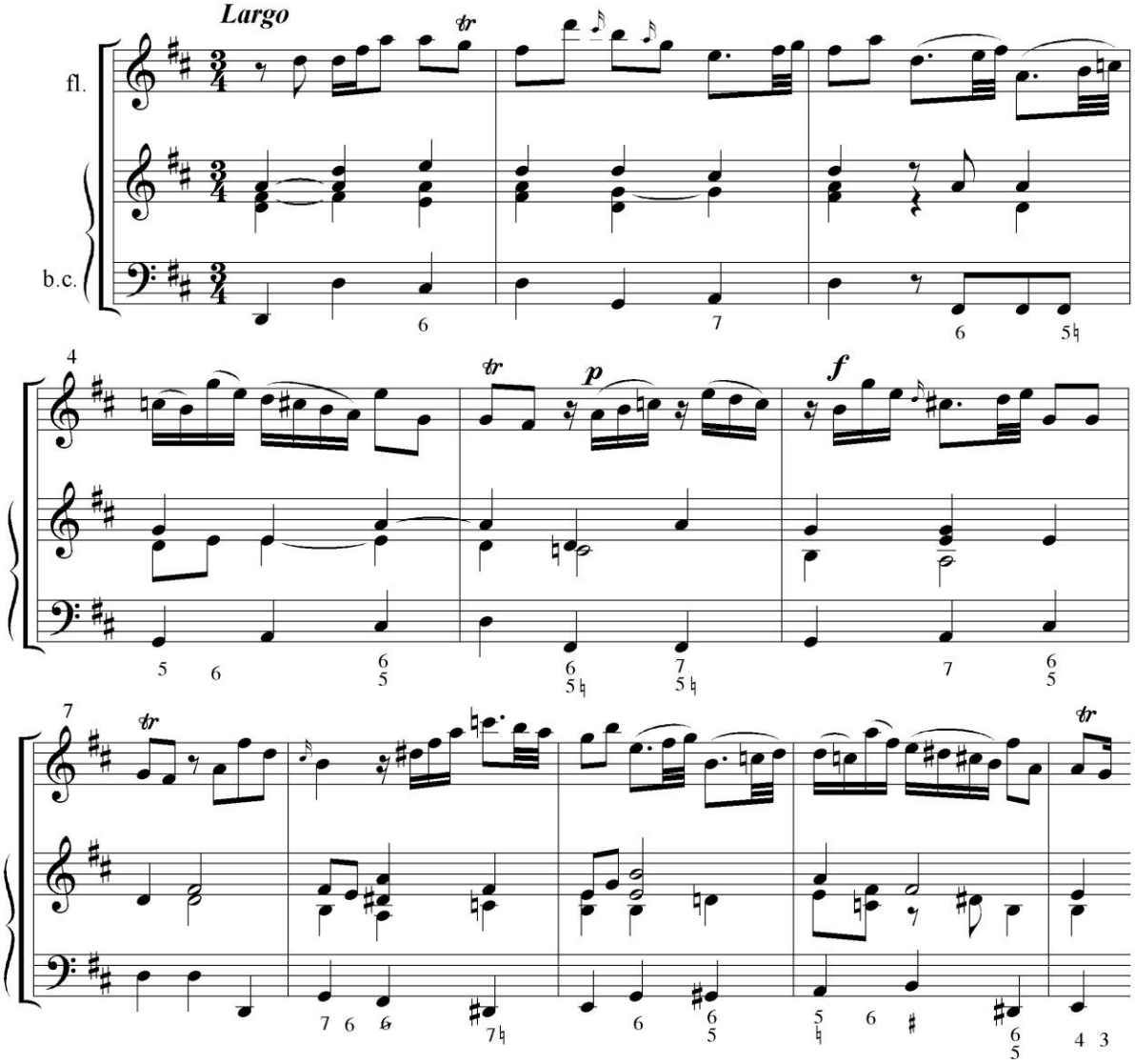
might be less essential to leave out the sharpened notes. Nevertheless, one would still avoid doubling them at the unison, in the same high register in which they appear in the score.

Illustration 12.26



The result is a realization that contains open fifths or even rests at points where the soloist has a sharpened leading tone on G, D, A, or E. One also omits notes when the solo part contains an ornament whose precise rhythm in performance cannot be anticipated by the keyboard player. This is a particular concern in solo sonatas such as the one by C. P. E. Bach shown in Illustration 12.27 (W. 126, first movement). Here one might omit doubling the resolutions of appoggiaturas, not only when these are written as small notes, as in m. 2, but also where they appear as full-size notes on the beat, as in mm. 4 and 5. Other chords are realized incompletely where a *piano* indication appears, as on the second beat of m. 5, or where there might be a danger of overpowering a quiet flute near the bottom of its range, as in m. 7. Editorial realizations in modern editions of music by Quantz, C. P. E. Bach, and other composers of the mid-eighteenth century often disregard these considerations, producing results that would have been judged uncouth if not incompetent by discerning listeners of the time.

Illustration 12.27



C. P. E. Bach and Quantz also provide advice (albeit somewhat conflicting) for the accompaniment of passages in parallel thirds and sixths, which are common in the mid-century *galant* style. Illustrations 12.28a–b show examples by both composers, from the trio sonatas W. 160 and QV 2:42. Figuring like that in the first measure of Illustration 12.28a seems to dictate verbatim doubling (or octave doubling) of the upper parts. Yet one might instead invert the upper parts of the realization, to avoid doubling the melody in the top voice.[77] On the other hand, it is probably best not to play any additional notes, even though these might fill out the harmony (such as the third *bb1* on the downbeat of m. 3). In this style, transparency takes priority over complete chords.

[77] Quantz (*Essay,* 17.6.22) suggests doubling a soloist in such progressions at the lower octave (inverting the figures). This is in keeping with his general rule, given in the previous paragraph, for the accompaniment to remain lower than the soloist. C. P. E. Bach seems to envision unison doubling in this type of progression (e.g., *Essay,* ii.19.7). Unlike Quantz, who wrote primarily with regard to chamber music with solo flute, Bach may have had in mind above all accompaniment of the voice. At the time he published the relevant volume of his *Essay,* his work as a composer focused on songs in which the keyboard usually doubles the voice literally.

Illustration 12.28a

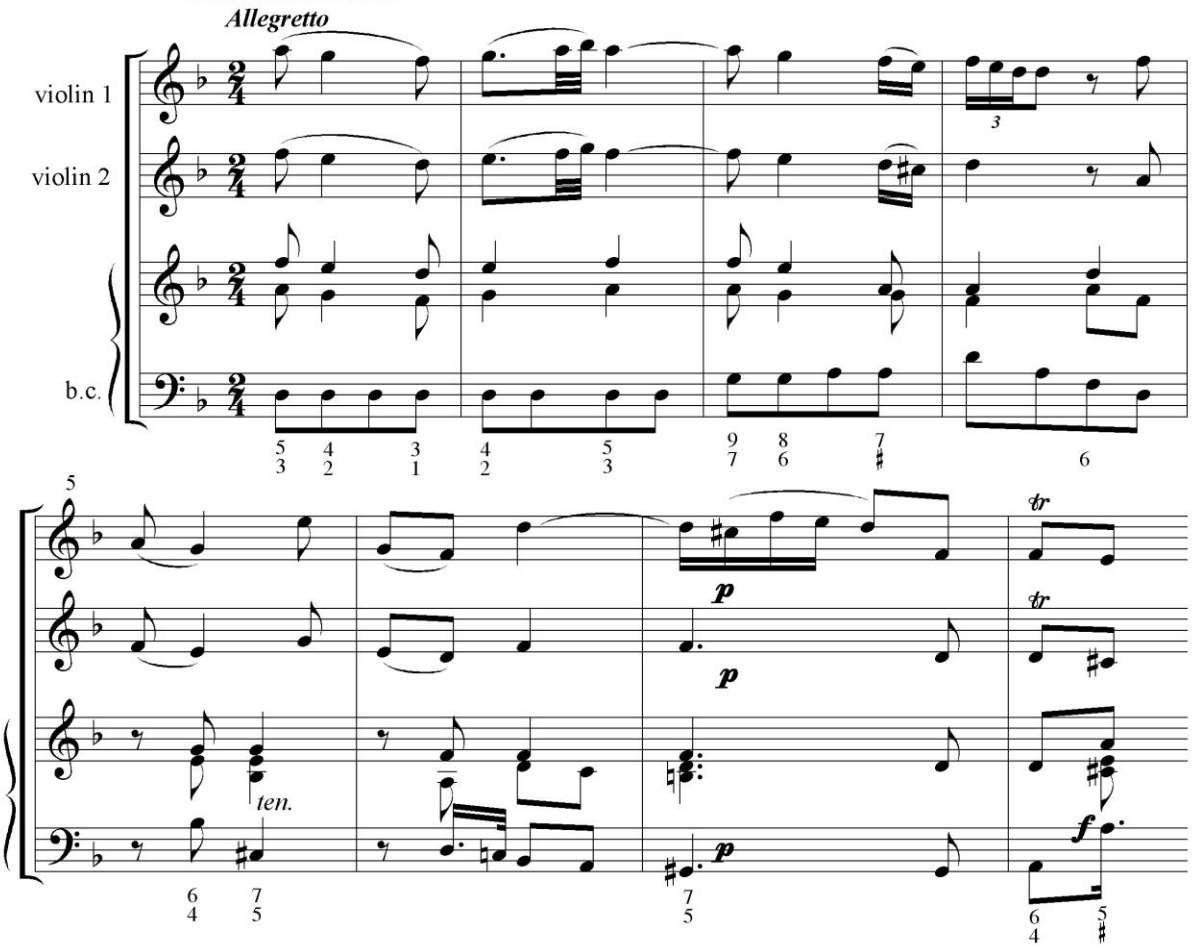
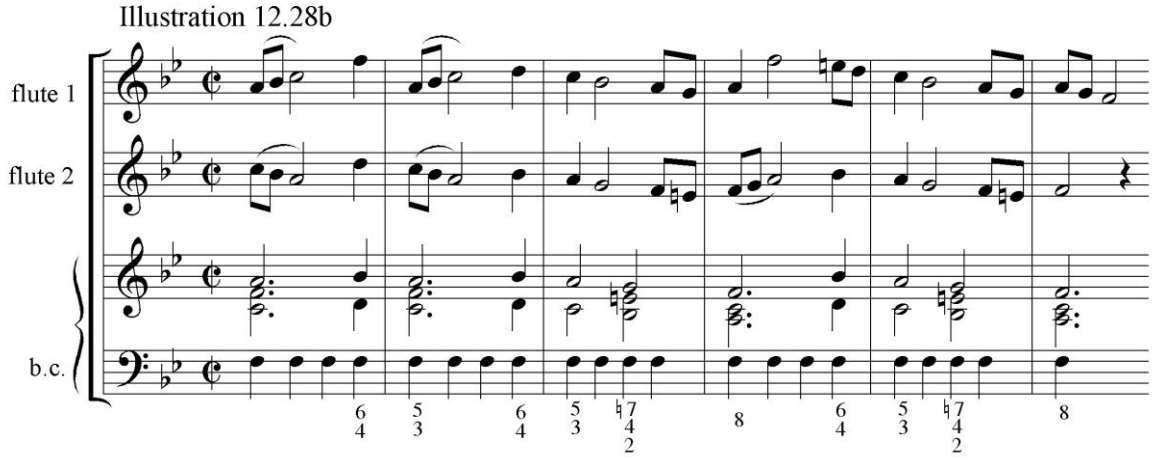


Illustration 12.28b



In other types of music, especially eigtheenth-century works for larger ensembles, one finds passages in which it may be desirable either to vary (embellish) the bass line, or to simplify it. These options arise especially when the bass line as written is unidiomatic for a keyboard instrument, as in a so-called drum bass, or with a very lively melodic bass line. Assuming that the latter is already being played by a cello or other bass instrument, a continuo player may choose instead to provide a firm beat, especially in orchestral music. C. P. E. Bach specified use

of the simplified bass line in Illustration 12.29 only when the player is doubling the bass in octaves. It seems self-evident, however, that one could also just play the simplified version in the original register, provided that there are other instruments playing the bass line as written. If, however, one feels a need to provide a noisy or propulsive accompaniment, quick repeated notes can be converted into more idiomatic types of keyboard figuration, using patterns such as one also given by C. P. E. Bach (Illustration 12.30).[78]

Illustration 12.29

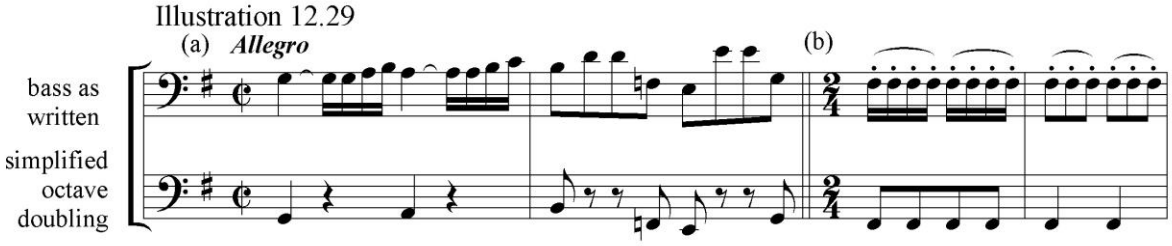
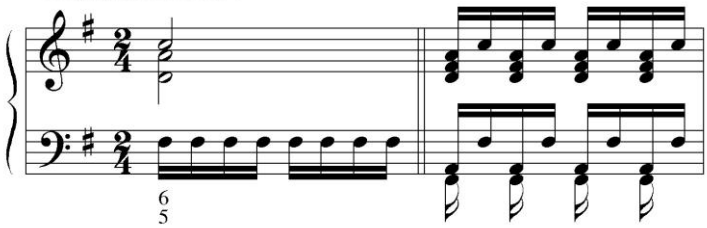


Illustration 12.30



* * *

Much more could be said about the "refinements" *(Zierlichkeiten)* of a good continuo realization, as C. P. E. Bach called them. And one might, following the latter, extend the discussion from accompaniment to improvisation, which for many eighteenth-century musicians was, in essence, a highly embellished variety of figured bass realization. But there is no need to repeat here what is readily available elsewhere. Besides, continuo players today are not usually expected to improvise fugues or fantasias. They may, however, take a quiet satisfaction from the fact that, through their training and practice in figured bass, they have come as close as anyone can come today to understanding the musical thought of those whose works they are performing.

[78] Illustrations 12.29 and 30 are from C. P. E. Bach, *Essay*, ii.29.7 and 17.

BIBLIOGRAPHY

This bibliography provides an annotated sampling of available literature, divided between the following categories:

Baroque Treatises Relevant to Figured Bass Realization
Modern Studies of Figured Bass Notation and Practice
Modern Figured Bass Methods and Manuals

For further listings see the articles on Continuo in *The New Grove Dictionary of Music and Musicians*, 2d edn. (London: Macmillan, 2000) and *Grove Music Online* <https://www.oxfordmusiconline.com/grovemusic>. Most of the treatises listed in the first section are available through imslp.org and other onlinen resources.

Baroque Treatises Relevant to Figured Bass Realization

Agazzari, Agostino. *Del sonare sopra'l basso con tutti li stromenti*. Siena, 1607. Facsimile, Bologna: Forni, 1969. A short but important source on early continuo practice, with one brief but interesting example of written-out realization (p. 7).

Bach, Carl Philipp Emanuel. *Versuch über die wahre Art das Clavier zu spielen*. 2 vols. Berlin, 1753–62. Translated by William J. Mitchell as *Essay on the True Art of Playing Keyboard Instruments.* New York: Norton, 1949. The second volume (part 2 in the translation) is on figured bass and during the twentieth century was regarded as a standard source on continuo practice in the Bach circle. The discussion is highly detailed and not intended for beginners; it includes, in addition to a systematic treatment of the chords of figured bass, discussions of improvisation and the special requirements of mid-eighteenth-century *galant* style. Users of the English version should be wary of faulty musical examples and imprecise translations.

Banchieri, Adriano. *L'organo suonarino*. Venice, 1638. Facsimile, Bologna: Forni, 1969. An important source on early Baroque organ practice, with some exercises in improvisation that use figured bass.

Couperin, François. *Regle pour l'accompagnement*. In *Oeuvres complêtes,* vol. 1: *Oeuvres didactiques*. Edited by Louise B. M. Dyer. Paris: Editions de l'Oiseau-Lyre, 1932.

Dandrieu, Jean-François Dandrieu. *Principes de l'accompagnement du clavecin*. Paris, ca. 1719. Facsimile, Geneva: Minkoff Reprint, 1972. A pragmatic manual consisting mainly of exercises to be realized according to the French tradition of the early eighteenth century.

Delair, Denis. *Traité d'acompagnement pour le theorbe, et le clavessin*. Paris, 1690. Translated with commentary by Charlotte Mattax as *Accompaniment on Theorbo and Harpsichord: Denis Delair's Treatise of 1690.* Bloomington: Indiana University Press, 1991.

Fux, Johann Joseph. *Gradus ad Parnassum*. Vienna, 1725. Facsimile, New York: Broude Brothers, 1966. Extracts translated and edited by Alfred Mann as *The Study of Counterpoint from Johann Joseph Fux's Gradus ad Parnassum*. New York: Norton, 1965. Although not concerned with figured bass, this was the book Haydn, J. S. Bach, and others read as the authority on strict counterpoint.

Gasparini, Francesco. *L'armonico pratico al cembalo*. Bologna, 1713. Translated by Frank S. Stillings and edited by David L. Burrows as *The Practical Harmonist at the Harpsichord*. New Haven: Yale School of Music, 1963. Somewhat thin but of great interest as the product of a student of Pasquini, who knew and played with Corelli. Includes chapters on recitative

and on ornamenting bass lines.
Handel, George Frideric. *Aufzeichnungen zur Kompositionslehre. Hallische Händel-Ausgabe:* Supplement, Band I. Edited by Alfred Mann (1982). Not a treatise as such, but extracts from manuscripts that Handel used for teaching, including some figured bass exercises. Also edited by Ledbetter (see below under Modern Figured Bass Methods and Manuals).
Heinichen, Johann David. *Der Generalbass in der Composition*. Dresden, 1728. Facsimile, Hildesheim: Olms, 1969. The chief source on German continuo practice in the first half of the eighteenth century; a comprehensive manual, particularly notable for its treatment of the "theatrical" or less strict style of realization. Extensive extracts in Arnold (below); discussed by Buelow (also below).
Mattheson, Johann. *Grosse General-Bass-Schule*. Hamburg, 1731. Facsimile, Hildesheim: Olms, 1968. An expanded version of *Der exemplarische Organisten-Probe* (Hamburg, 1719); includes exercises in figured bass realization, with commentary (not translated).
Muffat, Georg. *An Essay on Thoroughbass*. Edited with an introduction by Hellmut Federhofer. Rome: American Institute of Musicology, 1961. From a manuscript dated 1699. This is an edition—not a translation—of a detailed treatise (in German) by an important Austrian figure of the period around 1700. Seemingly as much a composition treatise as a practical manual in continuo playing, it includes numerous examples that represent a somewhat earlier approach to harmony than that presented in this book. The editor's introduction includes a summary of early Austrian treatises, with extensive quotations.
Niedt, Friedrich Erhard. *Handleitung zur Variation*. Hamburg, 1706. Second edition as volume 2 of *Musicalische Handleitung*. Edited by Johann Mattheson. Hamburg, 1721.
Pasquali, Nicolo. *Thorough-Bass Made Easy.* Edinburgh, 1757. Facsimile edited by John Churchill. London: Oxford University Press, 1974.
Penna, Lorenzo. *Li primi albori musicali*. Bologna, 1684. Facsimile, Bologna, Forni, 1969. A general treatise on composition and organ-playing; the last of the three books (in one volume) is on what we call continuo realization (Penna calls it *suonare l'organo sopra la parte*). A valuable and unjustly neglected source, one of very few to give detailed information on the practice of keyboard continuo playing in Italy during the seventeenth century.
Quantz, Johann Joachim. *Versuch einer Anweisung die Flöte traversiere zu spielen*. Berlin, 1752. Facsimile of the 3d edition (Berlin, 1789), Kassel: Bärenreiter, 1953. Translated by Edward J. Reilly as *An Essay on Playing the Flute*, London: Faber, 1966. Although not concerned with figured bass realization as such, includes valuable discussions of embellishment and cadenzas as well as a section (xvii.6) on "the duties of the . . . keyboard player" in an orchestra.
Rameau, Jean-Philippe. *Traité de l'harmonie reduite à ses principes naturels*. Paris, 1722. Translated with an introduction and notes by Philip Gossett as *Treatise on Harmony*, New York: Dover Publications, 1971. Although the book is best known for its presentation of Rameau's theory of functional harmony, the last of its main four sections is a figured bass treatise. The practices described are those of the late French Baroque, which differ in many respects from those described by C. P. E. Bach. Rameau's attempt to use the *basse fondamentale* as an aid in figured bass realization is an unnecessary hindrance, anticipating the use of function-labels by theorists of the nineteenth and twentieth centuries.

Saint-Lambert, Michel de. *Nouveau traité de l'accompagnement*. Paris, 1707. Facsimile, Geneva: Minkoff Reprint, 1974 (with Saint-Lambert, *Les Principes du clavecin*). Translated by John S. Powell as *Treatise on Accompaniment With the Harpsichord, the Organ, and With Other Instruments*. Bloomington: Indiana University Press, 1991. An important predecessor of Rameau.

Simpson, Christopher. *The Division-Viol*. London, 1659; facsimile of the second (1665) edition, London: J. Curwen and Sons, 1965. Foreword by Nathalie Dolmetsch. Not on continuo playing, but a few discussions are germane, and the ground basses be used by keyboardists as well as string players.

Torres, José de. *Reglas generales de acompañar, en órgano, clavicordio, y harpa, con sólo saber cantar la parte, o un bajo en canto figurado*. 2d edn. Madrid, 1736. Bilingual edition with translation by Paul Murphy as *José de Torres's Treatise of 1736: General Rules for Accompanying on the Organ, Harpsichord, and the Harp, By Knowing Only How to Sing the Part, or a Bass in* Canto figurado. Bloomington and Indianapolis: Indiana University Press, 2000. Although the translation is uneven and some examples are inaccurately transcribed, valuable as the only readily available source on Iberian continuo practice.

Modern Studies of Figured Bass Notation and Practice

Arnold, Frank T. *The Art of Accompaniment from a Thorough-Bass as Practised in the XVIIth and XVIIIth Centuries*. London: Oxford University Press, 1931. Reprint in 2 volumes with new introduction by Denis Stevens, New York: Dover Publications, 1965. An indispensable survey of the history and practice of figured bass. Arnold can be faulted for having neglected later French and Italian sources and for treating the style of C. P. E. Bach as a goal toward which earlier types of realization were evolving. Arnold's work would be worth having if only for its extensive musical examples and quotations from original sources (in translation). In addition, however, Arnold's musicality and scholarship have never been surpassed, and his critical observations remain valuable. Arnold assumes a familiarity with music history and with the basic principles of figured bass.

Buelow, George J. *Thorough-Bass Accompaniment according to Johann David Heinichen*. Berkeley and Los Angeles: University of California Press, 1966; 2d edn., Ann Arbor: UMI Research Press, 1986. A study of the most important German treatise before C. P. E. Bach (see above under Heinichen).

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Modern Figured Bass Methods and Manuals

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Kolneder, Walter. *Schule des Generalbassspiels*. 2 vols. Wilhelmshaven: Heinrichshofen's Verlag, 1983. A comprehensive textbook, unfortunately not translated. Occasionally marred by anachronistic explanations of the harmony and stylistically questionable realizations in examples, but invaluable for the wide selection of examples from throughout the Baroque.

Ledbetter, David. *Continuo Playing According to Handel: His Figured Bass Exercises*. Oxford: Clarendon Press, 1990. An edition with commentary and sample realizations of exercises from Handel's manuscripts. Includes exercises in the improvisation or composition of fugues over figured bass lines.

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