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# HARMONY AND VOICE LEADING

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EDWARD ALDWELL  
CARL SCHACHTER

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**EDWARD ALDWELL**

The Curtis Institute of Music  
The Mannes College of Music

**CARL SCHACHTER**

Queens College of the  
City University of New York



HARCOURT BRACE JOVANOVIICH, INC.

New York San Diego Chicago San Francisco Atlanta

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ISBN: 0-15-531515-3

Library of Congress Card Number: 78-52039

Printed in the United States of America

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# PREFACE

*Harmony and Voice Leading* is a textbook in two volumes dealing with tonal organization in the music of the eighteenth and nineteenth centuries. Both in content and in method it offers a new approach to the teaching of harmony. As the title suggests, the book emphasizes the linear aspects of music as much as the harmonic, with relationships of line to line and line to chord receiving as much attention as relationships among chords. In addition, large-scale progressions—both harmonic and linear—are introduced at an early stage so that students can gain an understanding of the connection between detail and broad, inclusive plan in a musical composition. They learn that “harmony” is not merely the progression from one chord to the next and that “voice leading” is much more than the way two consecutive chords are connected.

The book is suitable either for a self-contained course in harmony or for an integrated program combining harmony with other aspects of music. *Harmony and Voice Leading* touches on many of these aspects, including rhythm, melody, counterpoint, and form. It can function, therefore, as the basic text for an integrated program, and can serve as a convenient point of departure for systematic work in the other areas, with or without a supplementary text. Many theory programs are returning to the study of species counterpoint, usually at an early stage. This book would combine very well with work in species counterpoint; such a combination would provide an excellent basis for the understanding of tonal music. But counterpoint need not precede or accompany work in *Harmony and Voice Leading*; this is a completely self-contained and self-sufficient text.

In most theory programs, instruction in harmony or counterpoint usually follows a review of fundamentals: scales, key signatures, intervals, and so forth. This initial phase can pose difficult problems for instructors. Students vary widely—even wildly—in the quality of their previous training. And even those with a reasonably secure grasp of the fundamentals seldom understand the significance

of the material they have learned by rote. The first three units of *Harmony and Voice Leading* attempt to deal with these problems. They offer both a review of the fundamental materials and a glimpse—a first glimpse for most students—of their significance for musical structure. Thus these opening units attempt to provide both a practical and a conceptual basis for the students' later work. For students deficient in their knowledge of fundamentals, we have provided a large number of written drills in the accompanying workbook as well as a smaller group in the text itself. Better prepared students will not need to devote much time to these drills, but they will profit from reading through the first three units and from classroom discussion of their contents.

If *Harmony and Voice Leading* is used for the harmony phase of a comprehensive theory program, four semesters will suffice to work through the two volumes; of course, other aspects of music would also be covered during that time. If the book is used for a self-contained harmony course, less time will be required—about three semesters depending on the number of class hours a week and the amount of time spent reviewing fundamentals. The remaining months could be devoted to an intensive study of form, to larger compositional projects, or to twentieth-century music. The two volumes of text and the workbooks contain far more exercise material than could be covered in any single course. Instructors can thus choose the number and type of exercises that best meet the needs of their particular class. The remaining exercises will provide valuable material for classroom demonstration, exams, and review.

The order in which important materials and procedures are presented differs from that found in any other text. After a discussion of chord vocabulary, chord construction, and voice leading (Units 4 and 5), the fundamental harmonic relationship between tonic and dominant is introduced, and the discussion then proceeds quickly to the most frequent linear expansions of tonic harmony. Confining students' work in these initial stages to a single harmonic relationship and to a number of closely related contrapuntal ones makes it much easier for them to *hear* what they are doing than if they are confronted immediately with seven root-position chords, each with a different sound and function. In subsequent units students learn new usages a few at a time, in a way that relates to and expands on the techniques they have already mastered. This order of presentation also makes it possible to show examples from the literature at a much earlier stage than in other approaches—and without including usages that students have not yet learned. Thus they develop their ability to hear in a logical and orderly fashion, and they can begin their analysis of music of the highest quality much sooner than in other approaches.

Although *Harmony and Voice Leading* probably covers more material than any comparable text, it does not require an inordinate amount of time to complete. Nonetheless, this book offers no shortcuts. There are no shortcuts in learning music theory—especially in the development of writing skills. If twentieth-century students wonder why they need to master such skills—why they need to take the time to learn a musical language spoken by composers of the past—they

can be reminded that they are learning to form the musical equivalents of simple sentences and paragraphs. The purpose is not to learn to write "like" Mozart or Brahms, but to understand the language the great composers spoke with such matchless eloquence, the language that embodies some of the greatest achievements of the human spirit.

Late in the eighth decade of the twentieth century, no one can minimize the importance of a thorough study of twentieth-century music. But we believe that to combine in a single text an intensive study of tonal harmony with an introduction to twentieth-century techniques would fail to do justice to either subject. For one thing, some of the simplest and most fundamental principles of earlier music—the functioning and even identity of intervals, for example—become radically altered in twentieth-century usage, so that it is impossible to proceed directly from one kind of music to the other. And the twentieth century has seen the development of compositional styles that sometimes differ from one another so profoundly as to amount to different languages. To deal adequately with this disparate and often complex material requires a separate text.

Many readers will realize that this book reflects the theoretical and analytic approach of Heinrich Schenker, an approach many musicians recognize as embodying unique and profound insights into tonal music. *Harmony and Voice Leading* is not a text in Schenkerian analysis—no knowledge of it is presupposed for either instructors or students—but the book will lay a valuable foundation in Schenker's approach for students who wish to pursue it later.

We extend our thanks to the many colleagues, students, and friends—more than we could possibly mention—whose comments and suggestions helped us in writing this book. Gerald Krimm typed the manuscript while perusing it with a highly critical eye. Hedi Siegel prepared the indexes with unusual care and discrimination. Larry Laskowski contributed a few of the exercises—and excellent ones. Bertrand E. Howard, University of Arkansas; Roy Johnson, The Florida State University; Gordon R. Keddington, Diablo Valley College; and Gary E. Wittlich, Indiana University, read the manuscript and offered valuable advice. David Loeb, The Curtis Institute of Music and The Mannes College of Music, shared with us his vast knowledge of the literature and set us on the track of many excellent examples. Charles Burkhart, Queens College of the City University of New York, and John Rothgeb, State University of New York at Binghamton, gave generously of their time and their deep knowledge of music theory in subjecting the manuscript to careful and very helpful scrutiny. And Felix Salzer and the late Ernst Oster provided unfailing interest and encouragement.

We also thank the staff of Harcourt Brace Jovanovich—in particular Nina Gunzenhauser, who sponsored the project and gave us enthusiastic and discerning guidance; Albert Richards, who offered valuable support; and finally our editor, Natalie Bowen, to whom we owe a special debt of gratitude for the uncommon intelligence and dedication she brings to her work.

Edward Aldwell  
Carl Schachter

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# ONE | KEY, SCALES, AND MODES

## 1-1 Mozart, Piano Sonata, K. 545, I

Allegro

The musical score is presented in four systems, each with a grand staff (treble and bass clefs). The first system begins with a treble clef, a common time signature (C), and a key signature of one flat (B-flat). The right hand starts with a half note B-flat, followed by quarter notes C, D, E, and F. The left hand plays a steady eighth-note accompaniment. The second system features a trill (tr) on the first measure of the right hand and a fingering of 5 on the second measure. The third system continues the eighth-note accompaniment in the left hand. The fourth system starts at measure 10, marked with a '10' above the treble clef, and includes a key signature change to two flats (B-flat and E-flat) in the right hand.

## TONAL RELATIONSHIPS; MAJOR KEYS

1. **Key.** We'll begin by considering the opening of Mozart's familiar Sonata in C major, K. 545 (Example 1-1). The piece obviously contains many tones besides C. Why, then, do we call it a "Sonata in C major," or say that "it's written in the key of C"? Most people would answer that music is "in a key" when its tones relate to one central tone—the one that has the same name as the key—and when the functions of the other tones result from the ways in which they relate to the central one. According to this answer, the Mozart sonata is in C because C is the central tone; we hear the other tones as subordinate to C. (Why it's not simply in C but in C *major*, we'll discuss presently.)

This explanation of key is certainly correct as far as it goes, but it tells us little about the *kinds of relationships* that exist between the central tone and the others. (A definition of chess as "a game played on a board by two people, each with sixteen pieces" would be correct in the same way. But it wouldn't help anyone to learn to play chess.) Let's now look more closely at these relationships.

2. **The tonic.** We call the central tone of a key the *tonic*. In Example 1-1, both hands begin on the tonic, C. The left hand stays on C for most of bars 1-4 and moves on the C as the lowest point in the downward motion F-E-D-C, bars 5-8. The right-hand part does not return to C after the opening bars, but its subsequent course points to C as its eventual goal. Example 1-2 shows the most prominent tones of the melodic line. In bars 3 and 4, the melody moves from the high A down as far as E. The sixteenth-note scales that follow repeat, in varied form, the melodic line A-G-F-E but then carry it one step further, to D (bar 9). In listening to the melody, we are led to expect it to finish on C, to complete the circle by ending where it began. But it doesn't—not yet, at any rate. Instead the D is taken up again in bars 11 and 12; the first part of the piece closes without having arrived at its melodic goal.

1-2

The image shows two systems of musical notation for the opening of Mozart's Sonata in C major, K. 545. The first system (bars 1-4) shows the right hand playing a melodic line starting on C4, moving up to G4, then down to F4, E4, and D4. The left hand plays a bass line starting on C3, moving up to G3, then down to F3, E3, and D3. The second system (bars 5-8) shows the right hand playing a melodic line starting on D4, moving up to E4, F4, G4, and A4. The left hand plays a bass line starting on C3, moving up to G3, then down to F3, E3, and D3. The notation includes treble and bass staves with notes, rests, and fingerings. Above the first system, a melodic line is highlighted with a dashed line and labeled with notes A, G, F, E, A, G. Above the second system, another melodic line is highlighted with a dashed line and labeled with notes F, E, D, D.

And, in fact, C's function as a goal is not fulfilled until almost the end of the piece (Example 1-3). Generalizing from the Mozart, we can state that the tonic, the central tone of the key, forms the *point of departure* from which the other tones move and the *goal* to which they are directed. As in bars 1-12, the music does not always reach its goal at the moment we expect it to; by ending a part of the piece in a state of suspense, a composer can enhance the feeling of finality at the very end.

### 1-3 Mozart, Piano Sonata, K. 545, I

(Allegro)

67

70 D

C

3. Scales. In Example 1-1, Mozart uses only some of the tones that the piano keyboard can produce. Almost all the sounds in these twelve bars result from playing the white keys; of the nearly 200 notes, the only exceptions are two C $\sharp$ 's (bar 9) and one F $\sharp$  (bar 10). And if we were to look at other pieces in C major, we would find similar tonal materials. For the most part the pieces would contain the tones C, D, E, F, G, A, and B, and any other tones would play a subordinate role.

When all the tones that belong to a key occur in consecutive order, each one next to those closest to it in pitch, the result is a *scale* (Latin *scala*, steps, staircase, or ladder). In bars 5-8 of the Mozart, C major scales occur beginning on A, G, F, and E. The basic form of a scale, however, is the one that begins and ends on the tonic. A scale in this basic form can be thought of as a symbol of, or

abstraction from, the natural flow of music—at least of music that is written “in a key.” For such a scale begins on the tonic as its point of departure and concludes on the tonic as its goal (Example 1-4).

**1-4** scale degrees in C\*

The capped numbers above the notes in Example 1-4 indicate *scale degrees* (sometimes called *scale steps*) and will be used for this purpose throughout the book. In addition to numbers, the following traditional names are used so often for the scale degrees that you should memorize them:

1̂	tonic
2̂	supertonic
3̂	mediant
4̂	subdominant
5̂	dominant
6̂	submediant
7̂	leading tone

**4. The octave.** The beginning and ending tones of Example 1-4 are both C, but they are not one and the same tone. The last tone sounds considerably “higher” in pitch than the first. Yet despite this marked difference in register, the sounds of the two C’s are very similar; that’s why we call them both by the same letter name. When two tones are separated by an *octave* (Latin *octava*, eighth) they are equivalents—that is, they are variants of the same sound. This phenomenon of *octave equivalence* is one of the most important aspects of pitch organization in music. In technical writing about music, it is frequently helpful to indicate the register in which a tone occurs. Example 1-5 shows how this can be done.

**1-5** registers

\*Throughout the examples, the exercises, and the Workbook, capital letters are used for major keys and lower-case letters are used for minor keys. Thus, G and g indicate the keys of G major and G minor respectively.

5. **Major scales; whole steps and half steps.** If we play a white-key scale from C to C on the piano, we can easily see that there is a black key between most of the adjacent white keys—between C and D, D and E, F and G, and so on. However no black key appears between E and F or between B and C. The distance between one tone of a scale and the next is usually called a *step*. The scale from C to C contains two kinds of steps: small ones between E and F and between B and C, larger ones between the other adjacent tones. The small ones occur where there is no intervening black key; the larger ones where there is a black key.

We call the smaller steps *half steps* (or *semitones*) and the larger ones *whole steps* (or *whole tones*). The half steps occur between  $\hat{3}$  and  $\hat{4}$  and between  $\hat{7}$  and  $\hat{8}$ ; all the others are whole steps:

1 w 2 w 3 h 4 w 5 w 6 w 7 h 8

A scale with half steps and whole steps arranged in the above order is called a *major scale*. Only the major scale has half steps between  $\hat{3}$  and  $\hat{4}$  and  $\hat{7}$  and  $\hat{8}$ . Any piece whose tones can be arranged to form such a scale is a piece in a major key.

The major scale is one kind of *diatonic scale*. All diatonic scales contain five whole steps and two half steps within the octave, but each of the different types of diatonic scale has the half steps in different places. From the time of the ancient Greeks through the nineteenth century, most Western art music was based on diatonic scales. Other kinds of scales are used in some Western folk music, music of non-Western cultures, and much twentieth-century music.

6. **Intervals.** Example 1-6a shows the tones that begin each of the first five bars of the Mozart sonata in both the left-hand and the right-hand parts. We call the relationship between two tones heard in a single context an *interval*. Intervals formed by simultaneously sounding tones are called *vertical* (because they are written one above the other). Intervals formed by tones that sound one after the other are called *horizontal* (Example 1-6b). The terms *harmonic* and *melodic* are sometimes used instead of vertical and horizontal.

## 1-6

(a) vertical intervals

The image shows two musical staves. The top staff is labeled 'RH' (Right Hand) and the bottom staff is labeled 'LH' (Left Hand). Part (a) shows vertical intervals between the RH and LH parts. Part (b) shows horizontal intervals within the RH part. Brackets above the notes in part (b) indicate the intervals between successive notes.

We can describe intervals by ordinal numbers arrived at by counting letter names up from the lower to the higher tone, or down from the higher to the lower. Thus C up to G is a *5th*, because it spans five letter names, C, D, E, F, and G. From B to C is a *2nd*, because it spans two letter names. From G to the next G above is an *octave* (not an “eighth,” though it has the same meaning as “octave”). Finding the numerical size of an interval does not identify it completely. For example, B-C and C-D are both 2nds. Yet C-D (a whole step) is larger than B-C (a half step). Later on we will be specifying intervals more exactly; for now, it is enough to be able to determine the numerical size.



7. **Chords; triads.** Compare the first and last bars of the Mozart (Examples 1-1 and 1-3). Both bars contain the same three tones (with octave duplications); the tones are C, E, and G ( $\hat{1}$ ,  $\hat{3}$ , and  $\hat{5}$ ). These three tones are very closely associated, the basis of their association being membership in the same chord. A *chord* is a group of three or more tones that functions as a *simultaneity*—that is, the tones make sense played all at the same time. In essence a chord is a vertical unit; the simplest and most basic way to present it is as a *block chord*, with all the tones sounding at once (as in the last bar of the Mozart, second beat). But a composer can also present the tones one after the other, as Mozart does in bar 1. Because our ear and memory can group the tones into a unit, we still hear a chord. But not a block chord; it is a *broken chord* or *arpeggio*.

The chord C-E-G contains three tones; the upper two form the intervals of a *5th* and a *3rd* from C, the lowest. A three-tone chord formed in this way is a *triad*. The triad is the basic chord in Western music from the fifteenth through the nineteenth centuries. All other chords are derived from it. In every key the triad  $\hat{1}$ - $\hat{3}$ - $\hat{5}$  has the tonic as its lowest tone. Since the lowest tone, called the *root*, functions as the basis of the chord, we call this triad the *tonic triad* or *tonic chord*.

8. **Active tones; stable tones.** Among the many mysterious powers of music is its ability to suggest *motion*. In listening to a piece of music, we do not hear a succession of static tones; rather, we hear tonal motions, one tone moving to another. In part this impression comes from rhythm, for musical rhythm has close relationships to some of the physical activities—walking, for instance—that form our primary experience of motion. But the impression of motion also arises from tonal organization. We have already seen that  $\hat{1}$ , the tonic, functions as the goal to which the other tones are directed. (And musical motion is essentially *directed* motion, motion to a goal.) We might say that all the other scale degrees, in different ways, are *active* in the direction of  $\hat{1}$ , that they tend to move to this stable, central tone. However  $\hat{3}$  and  $\hat{5}$  can also function as stable tones, though they are less stable than  $\hat{1}$ . They can serve as goals to which other, still more active tones can move because they are members of the tonic triad and thus closely associated with  $\hat{1}$ . Motion to  $\hat{3}$  or  $\hat{5}$  will not have the same finality as motion to  $\hat{1}$ .

Many melodies begin on  $\hat{3}$  or  $\hat{5}$  rather than on  $\hat{1}$ . If these melodies are harmonized, the tonic will almost always appear in the lowest part. Thus the music will still move from a tonic at the beginning to a tonic as final goal even if  $\hat{1}$  does not serve as the initial *melodic* tone.

9. **Passing tones; neighboring tones.** Example 1-7 contains a diagram of the C major scale. The stable tones,  $\hat{1}$ ,  $\hat{3}$ ,  $\hat{5}$ , and  $\hat{8}$ , are shown as whole notes; the more active tones are written with black noteheads.

1-7

○ = stable tones    ● = active tones

As the diagram indicates, the active tones lead from one stable tone to another: up from  $\hat{1}$  to  $\hat{3}$ ,  $\hat{3}$  to  $\hat{5}$ , and  $\hat{5}$  to  $\hat{8}$ ; down in the reverse order. A tone that