VOLUME ONE

The Shaping of Musical Elements

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PREFACE

To be knowledgeable about music theory, a person needs information, a body of concepts and facts that are essential to the understanding of musical structure, and judgment, the ability to make intelligent choices in a variety of musical situations. Information can be learned, but judgment can only be developed. It comes with experience in the application of information in a variety of situations, by comparing differing solutions to a problem, and by arriving at decisions based on informed study. The theoretical material covered in this text conforms to the body of information usually included in the first year of music theory: diatonic harmony, borrowed chords, secondary dominants, and leading-tone chords; melodic analysis and musical forms, from the phrase to the binary and ternary forms and comparable structures; and textural analysis, with an emphasis on two-voice music.

Throughout, this text is concerned with tension, the principal manifestation of the affective nature of music. We will examine each element of musical structure to see how it contributes to or is affected by the growth and relaxation of tension. As the student becomes more aware of how tension is produced and fluctuates in music, judgment will sharpen and insight into new situations will improve.

Tension patterns in music have direct bearing on the interpretation of that music in performance; performers understand this intuitively. It is a major goal of the authors to bring into focus the forces shaping the rise and fall of tension and to provide the musician with analytical tools for understanding the origin and fluctuation of tension in a particular situation.

Standard terminology has been used wherever possible, but even in a text on fundamentals one occasionally finds a concept that has not been widely explored and for which no generally accepted term is available. In such cases the authors have chosen standard English words rather than neologisms.

This text is intended for a typical college-level freshman music theory course meeting regularly with a teacher for lecture and discussion. It assumes that, in addition to doing the workbook exercises, the student will have opportunities to try out some of the sounds and concepts in a laboratory, usually with keyboard instruments and playback equipment available. Suggested laboratory experiences are found at the end of each workbook chapter, but theory teachers may prefer to replace or supplement these suggestions.

The strategy of the authors in presenting the formal organization of music is to explore motives and other aspects of melody up to the phrase (chapter 3), then move to a consideration of harmony and other topics until chapter 21, which deals with the organization of the period and larger units. Those who prefer to cover the entire area of form from the phrase to the double period should skip to the first half of chapter 21 immediately after finishing chapter 3.

CHAPTER ONE

Notation, Intervals, and Scales

Terms Introduced in This Chapter

- rhythm
- tone
- note
- rest
- tie
- dot
- basic duration (BD)
- tempo
- measure
- bar
- meter
- divisions
- simple meter
- compound meter
- time signature
- meter signature
- beat group
- secondary accent
- subdivisions
- staff
- octave
- clef
- great staff
- ledger lines
- octave signs
- half step (semitone)
- whole step (whole tone)
- accidentals
- pitch class
- enharmonic equivalents
- octave designations
- dynamics
- diatonic system
- interval
- inversion
- simple interval
- compound interval
- major scale
- scale degrees
  - tonic
  - supertonic
  - mediant
  - subdominant
  - dominant
  - submediant
  - leading tone
- key signature
- minor scale
- natural minor scale
- relative minor/major scale
- parallel minor/major scale
- subtonic
- harmonic minor scale
- melodic minor scale
- circle of fifths

Musical tones have physical properties that can be heard: duration, pitch, intensity, and timbre (tone color). Western music has developed an elaborate system for notating duration and pitch and a somewhat simpler method for specifying intensity (dynamics).

DURATIONS

rhythm

A series of durations is *rhythm* in a specific sense. In a broader sense, the term includes all the implications and relationships that durations can imply.

Note and Rest Values

tone

note

A distinction is often made between a *tone* (a musical sound) and a *note* (the symbol for a musical sound). Notes are written symbols used for specifying duration and pitch.

EXAMPLE 1-1. The parts of a note

rest

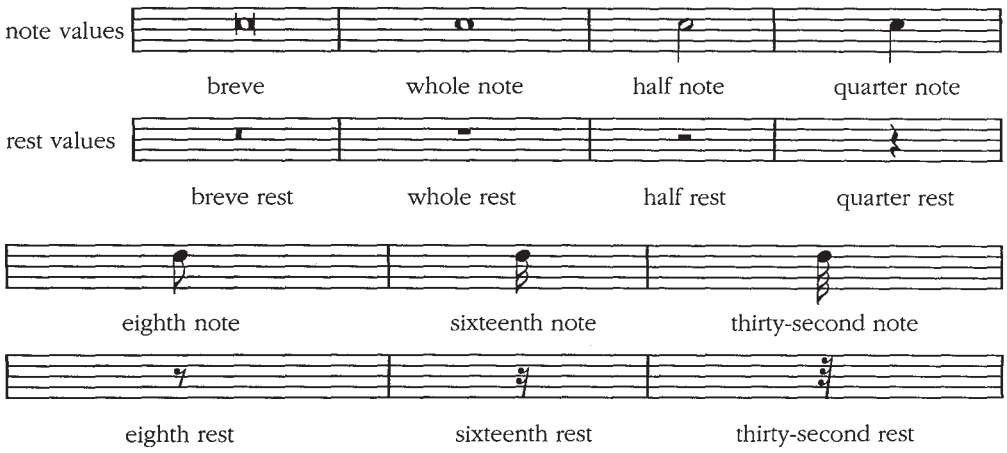
The basis of rhythmic notation is the system of relative note values. Each note value is twice the length of the next smaller value. Silences are represented by a parallel system of *rests* corresponding to each note value. The whole rest may be used to indicate a full measure rest in any meter.

Ties

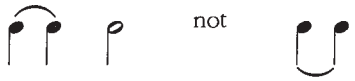
tie

The durations of several notes may be combined by *ties.* Tied notes are played without interruption. Ties are written so as to connect the note heads, but they are not used to combine rests.

EXAMPLE 1-2. Note and rest values



EXAMPLE 1-3. Tied notes

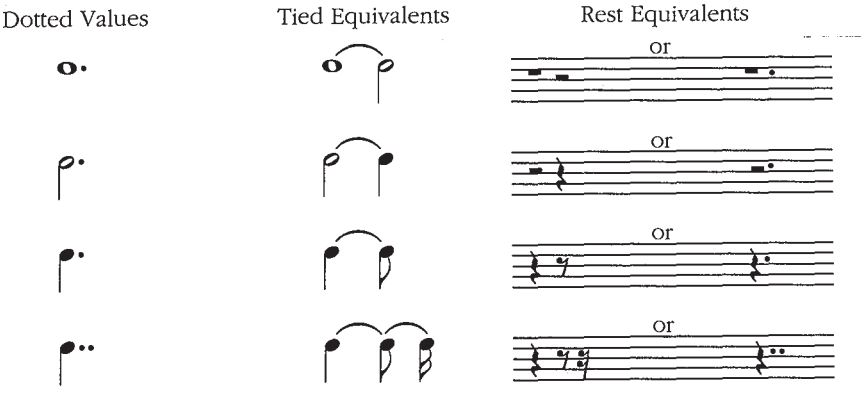


Dotted Notes and Rests

dot

A *dot* increases the value of a note by half of its original value. Each additional dot adds half the value of the preceding dot.

EXAMPLE 1-4. Dotted notes



METER

Basic Durations

basic duration

tempo

measure
bar
meter

In most Western music, rhythm is organized by a succession or stream of even pulses, sometimes called beats, but more precisely termed *basic durations* (BD). BD refers to the time that elapses between pulses; the shorter the time between the pulses, the faster the *tempo.*

Certain pulses within the regular stream are perceived as accented or stronger. These stronger pulses appear as the beginning of a group of BDs, called a *measure,* or *bar.* This regular accent pattern is called *meter* and usually consists of groups of two, three, or four beats, called duple, triple, or quadruple meter.

Divisions of Basic Durations: Simple and Compound Meters

divisions

simple meter
compound meter

Rhythm is further organized by *divisions* of the basic durations, that is, shorter durations within the beat. Basic durations are of two types: those that divide into two equal parts and those that divide into three equal parts. Meters using basic durations that divide into two parts are called *simple meters,* and those using basic durations that divide into three parts are called *compound meters.* In simple meter any undotted note value can be selected to represent the BD; the basic division of the beat is represented by a note one-half the value of the BD. For instance, if a quarter note represents the BD, eighth notes represent the divisions of the beat into two equal parts.

In compound meter any dotted note value may be selected to represent the BD; the basic division of the beat is represented by a note one-third the value of the BD. For instance, if a dotted quarter note represents the BD, eighth notes represent the divisions of the beat into three equal parts.

Time Signatures

time signature
meter signature

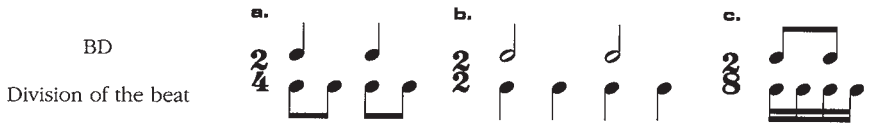
At the beginning of a piece of music a *time signature* or *meter signature* is given. This consists of two numbers that indicate how the rhythm is notated.

Time Signatures for Simple Meters

In time signatures for simple meters, the lower number indicates the note value that represents the beat, and the upper number indicates the number of beats in the measure. Once the note value representing the beat has been selected, all the notes and rests in the piece are notated as multiples or divisions of the BD.

In example 1-5a the lower number in the time signature (4) means the quarter note represents the beat, and the upper number (2) indicates the number of beats in the measure. Eighth notes represent divisions of the beat. In example 1-5b the half note represents the beat and quarter notes represent divisions of the beat. In example 1-5c the eighth note represents the beat, and sixteenth notes represent the divisions of the beat. Table 1-1 summarizes the meaning of commonly used time signatures for simple meters. A meter that has two beats per measure is called *duple meter;* three beats per measure, *triple meter;* four beats, *quadruple;* five beats, *quintuple.*

EXAMPLE 1-5. Basic durations and divisions in simple meters



Time Signatures for Compound Meters

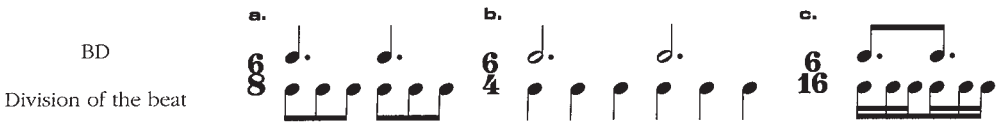
In compound meters the signature must be interpreted differently from simple meters. Signatures for compound meters indicate how many divisions of the beat are contained in each measure. In a measure of compound duple meter, for example $\frac{6}{8}$, the signature will indicate the number of divisions in the measure (six), not the number of beats (two). To determine the number of beats in a measure of compound meter, divide the upper number of the time signature by three.

In example 1-6a the beat is represented by a dotted quarter note, division by eighth notes. There are two beats per measure in examples 1-6b and 1-6c; in each case, however, the BD is represented by different values. In example 1-6b the dotted half note represents the beat and quarter notes represent the divisions; in example 1-6c the dotted eighth note represents the beat, sixteenths the divisions. Table 1-2 summarizes the meaning of commonly used time signatures for compound meters.

Note value representing BD:	♪	♩	𝅗𝅥
2 beats per measure	$\frac{2}{8}$	$\frac{2}{4}$	$\frac{2}{2}$
3 beats per measure	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{3}{2}$
4 beats per measure	$\frac{4}{8}$	$\frac{4}{4}$	$\frac{4}{2}$
5 beats per measure	$\frac{5}{8}$	$\frac{5}{4}$	$\frac{5}{2}$

TABLE 1-1. Time signatures for basic durations in simple meter

EXAMPLE 1-6. Basic durations and divisions in compound meters



Note value representing BD:	♪.	♩.	𝅗𝅥.
2 beats per measure	6/16	6/8	6/4
3 beats per measure	9/16	9/8	9/4
4 beats per measure	12/16	12/8	12/4

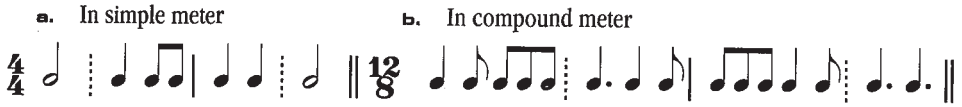
TABLE 1-2. Time signatures for basic durations in compound meter

Secondary Accents

beat groups
secondary accents

In meters of more than three beats per measure, the beats are perceived to group into *beat groups* of two or three beats. The first pulse of the first beat group has the primary accent of the measure. The first pulse of succeeding beat groups have *secondary accents,* which, while not as strong as primary accents, are stronger than other beats in the measure. Secondary accents serve to mark divisions within the measure. In examples 1-7a and 1-7b the dashed vertical line marks the place where a secondary accent occurs (on the third beat in $\frac{4}{4}$ and compound meter). In slow tempos, meters with six pulses may exhibit a secondary accent resulting from two beat groups, a three plus three pattern, as in example 1-8.

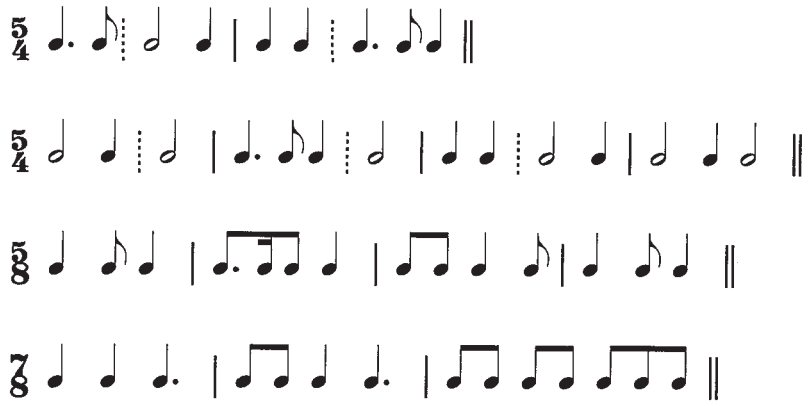
EXAMPLE 1-7. Location of secondary accents



EXAMPLE 1-8. Secondary accents in sextuple meter

Meters with five pulses divide into two beat groups, either three plus two or two plus three. Similarly, meters with seven pulses divide into three beat groups with combinations of twos and three. Wherever possible, the divisions are reflected in the beaming, as shown in example 1-9.

EXAMPLE 1-9. Secondary accents in quintuple and septuple meters

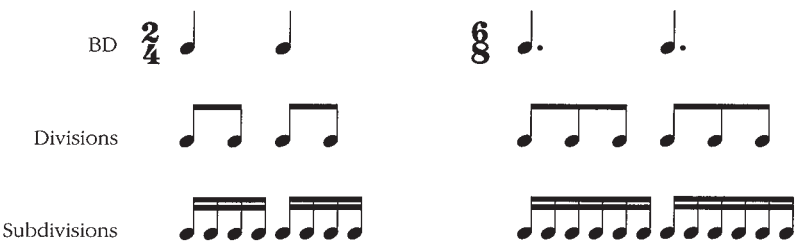


Subdivisions of the Basic Duration

subdivisions

When a division is further divided, *subdivisions* of the basic division result. In simple meters there are four subdivisions of the basic duration, and in compound meters, six subdivisions of the basic duration. This is illustrated in $\frac{2}{4}$ and $\frac{6}{8}$ in example 1-10.

EXAMPLE 1-10. Divisions and subdivisions



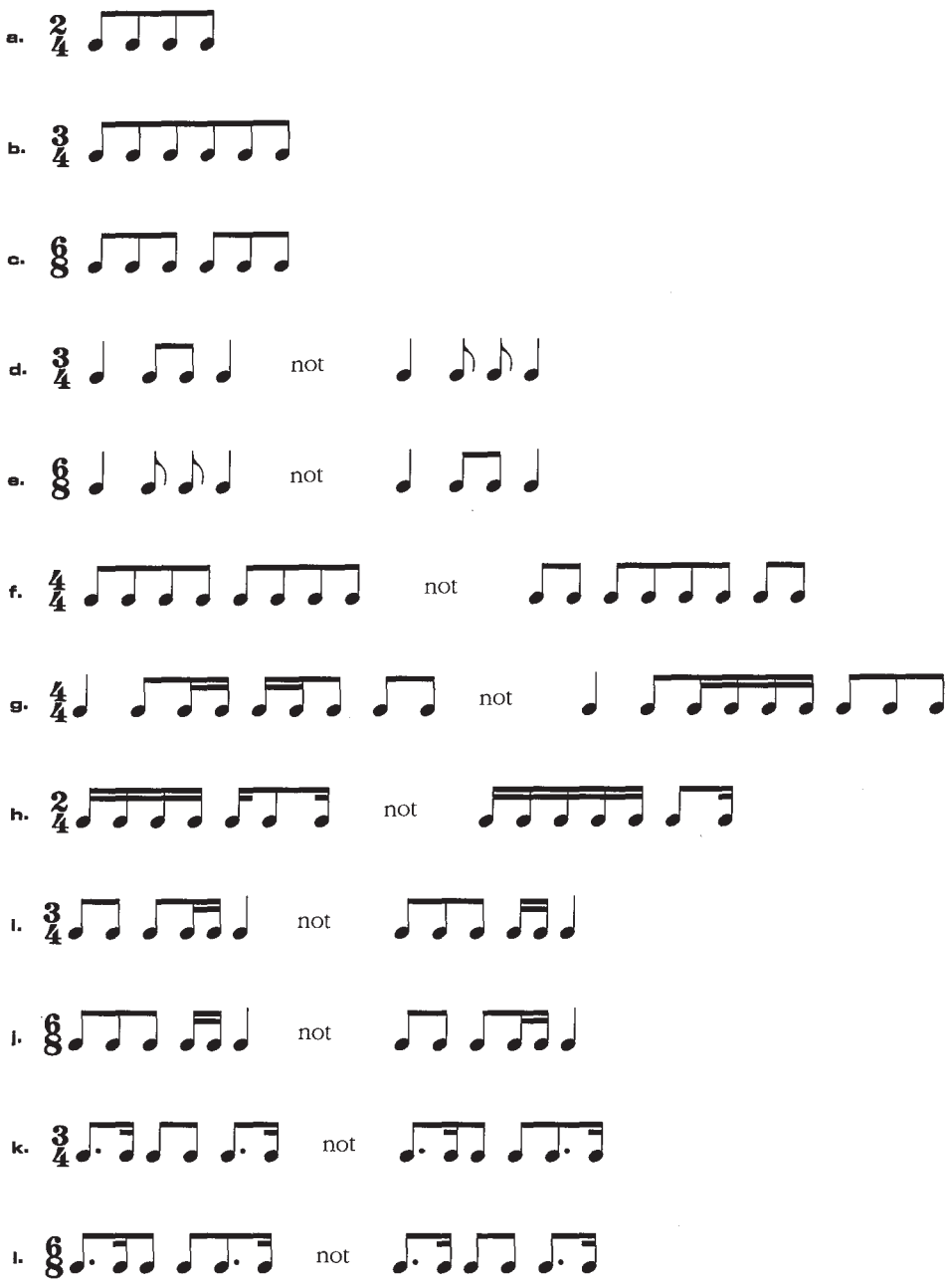
Grouping in Rhythmic Notation

Music notation is a set of conventions revealed in the practices of the best music publishers today. Musicians learn these conventions through long experience

reading music. It is impossible to create rules that fully explain every instance of good rhythmic notation. Notation is designed clearly to reflect beat groups and beats that conform to the metric structure through the application of beams, ties, and rests.

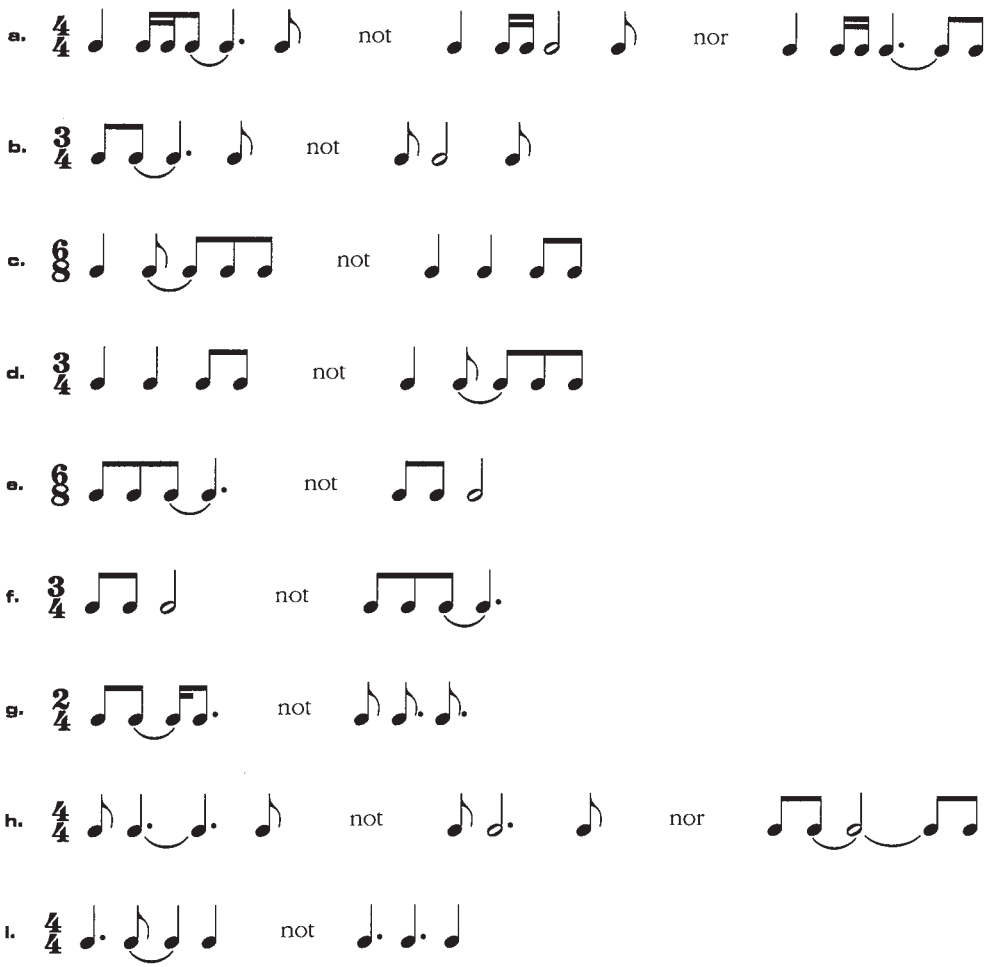
The metric structure is reflected in the beaming of eighth notes and shorter values. Note values that are equivalent to a beat or beat group are beamed together. Example 1-11 shows beamings that reflect beats or beat groups. Some instances of incorrect notation are also shown.

EXAMPLE 1-11. Note values beamed in beats or beat groups



In deciding when to use ties, economy as well as clarity becomes a consideration. The most economical notation is the one that uses the least number of notes and rests. When a complex relationship occurs between durations and metric structure, clarity through the use of ties is preferred and economy sacrificed. Example 1-12 illustrates such cases.

EXAMPLE 1-12. The use of ties for clarity



If a simple relationship exists between durations and the metric structure, clarity is not a problem. Use the most economical notation and avoid ties. Example 1-13 illustrates cases typical of this category.

EXAMPLE 1-13. Situations where ties are not needed

a. 

b. 

c. 

d. 

e. 

f. 

g. 

h. 

i. 

j. 

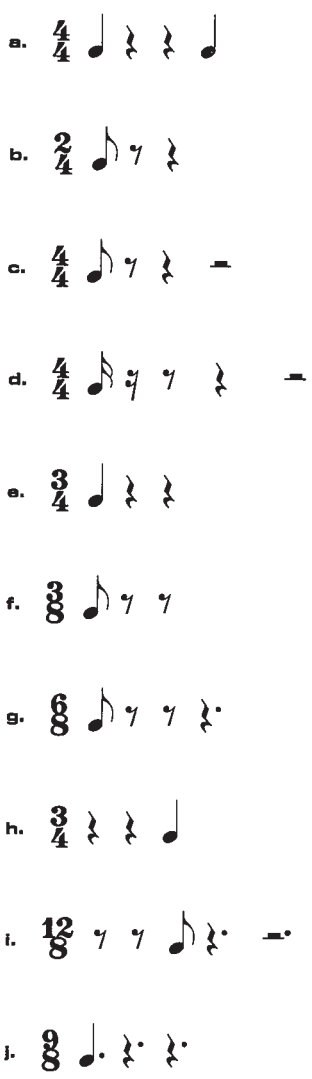
k. 

l. 

Clarity takes precedence over economy in the notation of rests as well. Economy is applied in showing beats and beat groups. In compound time dotted rests are used to show basic durations or beat groups, but in simple meters metric structure is made clearer by avoiding dotted rests. Instances of this are shown in example 1-14. Note in examples 1-14e through 1-14i that rests of two beats within a triple beat group are not grouped within a single, larger rest. Similarly, rests of two

divisions within a single beat of compound meter are not grouped in a single, longer rest.

EXAMPLE 1-14. The use of rests for clarity



PITCH NOTATION

Pitch Designation

staff

The system for designating pitches employs notes written on or between the lines of a *staff,* which consists of five horizontal lines.

EXAMPLE 1-15. The staff

Note Names

The first seven letters of the alphabet are used to designate pitches. If you begin on C and play only the ascending white keys of the keyboard, you will recognize the familiar sound of the seven tones of a major scale. If you stop on eighth tone, you will again be on C, the eighth tone being an *octave* higher than you started. The phenomenon of the octave is one of the most fundamental in music. The relationship between the low C and the high C is unique: the two tones sound almost "identical," yet the distance between them is quite large.

octave

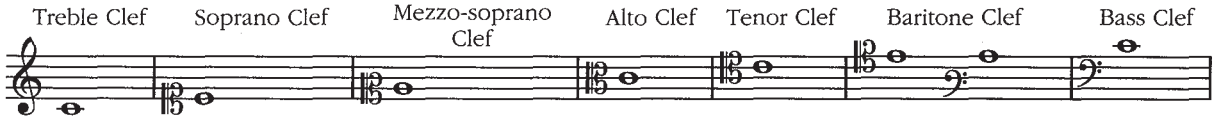
Clefs

clef

The location of specific pitches on the staff is determined by means of a *clef.* Clefs are stylized letters and are often designated by their letter names: the treble clef is a G clef; the soprano, mezzo soprano, alto, and tenor clefs are C clefs; and the bass clef is an F clef. The baritone clef may be written either as a C clef or an F clef. Different clefs are useful in accommodating the ranges of the various voices. In example 1-16 middle C (c^1) is given for each clef.

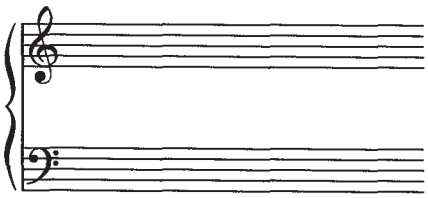
great staff

EXAMPLE 1-16. c^1 on the different clefs



The most frequently used clefs are the treble and the bass, the former for high voices and the latter for low ones. These two clefs are combined with a brace to form the *great staff.* This is useful for notating music in a variety of ranges from high to low.

EXAMPLE 1-17. The great staff



Ledger Lines

ledger lines

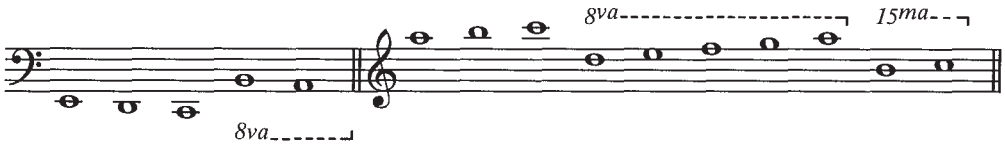
Ledger lines are short horizontal lines that extend the range above and below the staff to accommodate individual notes that exceed the range of the staff itself. In example 1-16, for example, c^1 is notated with one ledger line on both the treble clef and the bass clef.

Octave Signs

octave sign

If the range of a passage moves too far above the treble or below the bass staff, *octave signs* may be used. As shown in example 1-18, 8^{va} means *ottava* in Italian (an octave in English), and 15^{ma} means *quindicima* in Italian (a fifteenth in English).

EXAMPLE 1-18. The use of octave signs



Accidentals

half step

The distance from any pitch to the next higher or lower pitch is known as a *half step,* or *semitone.* Using the keyboard in example 1-19a as a reference, one can see that C is a half-step higher than B, and F is a half-step higher than E. Two half steps

whole step

make the distance of a *whole step,* or *whole tone.* Therefore, D is a whole step higher than C and a whole step lower than E.

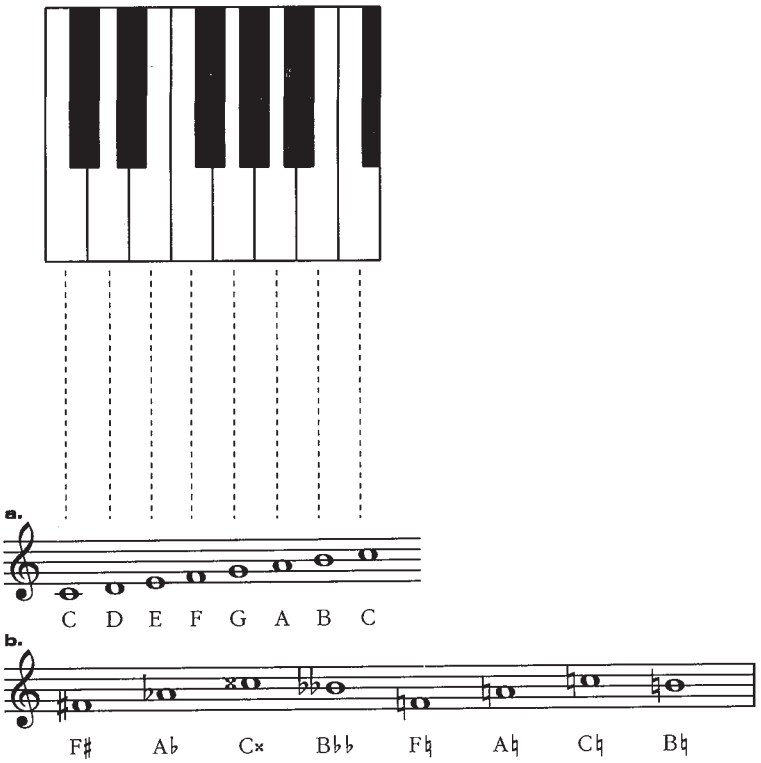
accidentals

Symbols written before notes, called *accidentals,* are used to represent all the various pitches on the staff.

- ♯ sharp: raises the note a half step
- ♭ flat: lowers the note a half step
- 𝄪 double-sharp: raises the note a whole step
- ♭♭ double-flat: lowers the note a whole step
- ♮ natural: cancels previous sharp or flat

Example 1-19b illustrates these.

EXAMPLE 1-19. Whole steps, half steps, and accidentals



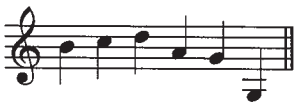
An accidental applies only in the octave given, for the duration of the measure or for the duration of a note tied over into the next measure.

Stem Direction

When notes with stems occur on or above the middle line of the staff, the stem is written downwards. In such instances, the stem comes down from the left side of the note head. Stems on notes that occur below the middle line of the staff are written upwards; these stems go up from the right side of the note head.

Stems are usually one octave in length. For notes lying more than an octave from the middle line, the stem extends to the middle line, as shown in example 1-20.

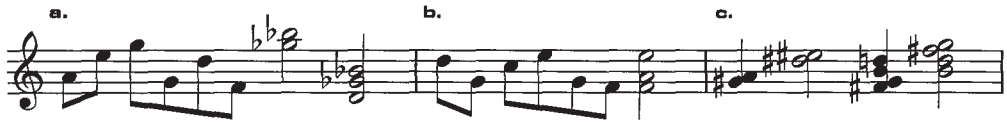
EXAMPLE 1-20. Length and direction of note stems



Special Problems in Pitch Notation

When two or more notes are beamed together or use the same stem, the stem direction is determined by the note that is furthest from the middle line of the staff (example 1-21a). If the highest and lowest notes are equidistant from the middle line, the stems go down (example 1-21b). If notes on the same stem are a second apart, the lowest note is on the left side of the stem (example 1-21c).

EXAMPLE 1-21. Direction of note stems and placement of note head and accidentals



Pitch Classes

pitch class

enharmonic equivalents

In Western music the octave is divided into twelve parts, each a distinct pitch. Each of these pitches occurs in all octaves, from the highest to the lowest range of the audible spectrum. Each pitch, together with all of its recurrences in other octaves, forms a *pitch class.* Thus, all the F-sharps form the pitch class class F-sharp; all the Ds form the pitch class D, and so forth. Each pitch may be spelled in different ways. Notes in the pitch class C-sharp, for example, may be written as D-flat in certain instances. C-sharp and D-flat are said to be *enharmonic equivalents.* The twelve pitch classes are, in ascending order:

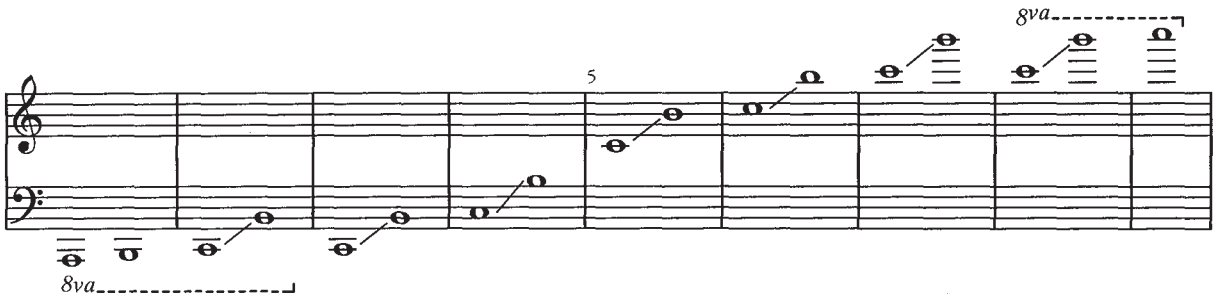
C	B♯	D𝄫
C♯	B𝄪	D♭
D	C𝄪	E𝄫
E♭	D♯	F𝄫
E	D𝄪	F♭
F	E♯	G𝄫
F♯	E𝄪	G♭
G	F𝄪	A𝄫
A♭	G♯	
A	G𝄪	B𝄫
B♭	A♯	C𝄫
B	A𝄪	C♭

Octave Designations

octave designations

Several systems have been devised to specify the octave in which a particular tone lies. Two systems are shown in example 1-22. The names for the octaves (contra, subcontra, etc.) and the letter forms (c, c^1, B, b^3, etc.) used to identify a note are shown. In conversation, the octave designation is given first, followed by the letter name of the note, for example, "two-line c" (c^2). Hereafter in this text, the first method will be used.

EXAMPLE 1-22. Octave designations



1. AAA,BBB	CC --- BB	C --- B	c --- b	c^1 --- b^1	c^2 --- b^2	c^3 --- b^3	c^4 --- b^4	c^5	
(subcontra)	(contra)	(great)	(small)	(c′) (b′)	(c″) (b″)	(c‴) (b‴)	(c⁗) (b⁗)	(c⁗′)	
or	or	or	or	(one-line)	(two-line)	(three-line)	(four-line)	(five-line)	
2. A_0, B_0	C_1 --- B_1	C_2 --- B_2	C_3 --- B_3	or	or	or	or	or	
				C_4 --- B_4	C_5 --- B_5	C_6 --- B_6	C_7 --- B_7	C_8	

DYNAMICS

dynamics

Dynamics are the degrees of volume or loudness in music. Table 1-3 shows the most commonly used dynamic markings. By extending this system, more extreme possibilities may be derived.

Dynamic levels in order of increasing loudness

ppp	triple piano
pp	pianissimo (double piano)
p	piano
mp	mezzo-piano
mf	mezzo-forte
f	forte
ff	fortissimo (double forte)
fff	triple forte

Dynamic changes

cresc.	crescendo (gradually louder)
	crescendo
dim.	diminuendo (gradually softer)
	diminuendo
decresc.	decrescendo (gradually softer)
fp	forte-piano (loud, then immediately soft)

TABLE 1-3. Dynamic levels and changes

THE DIATONIC SYSTEM

diatonic system

Within a particular culture, specific patterns of tones are used in making music. One pattern became established in and around ancient Greece and spread to all parts of the Western world. This pattern is known as the *diatonic system.* It consists of a continuous succession of whole steps (1) and half steps (1/2) in this order: 1/2 1 1 1/2 1 1 1 1/2 1 1 1/2 1 1 1. The pattern recurs every eight notes (an octave higher or lower). Theoretically, the diatonic system may be extended infinitely upward or downward.

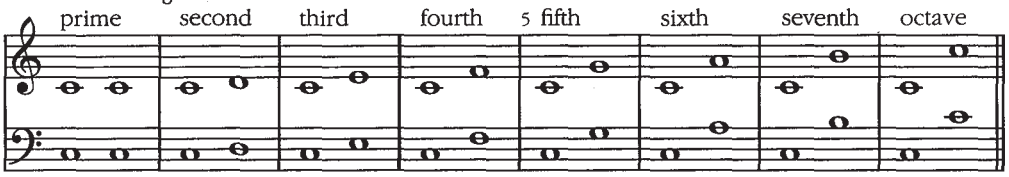
INTERVALS

interval

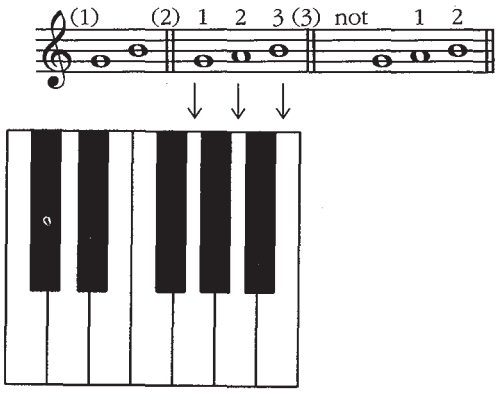
The distance between two pitches is called an *interval.* Intervals are identified in two stages. First, a general numerical description is given, based on the number of notes between and including the two pitches as shown in example 1-23a. In counting the number of steps between two notes, we begin with one, not zero. In example 1-23b (1) the interval is a third. The steps are correctly counted in example 1-23b (2), incorrectly in example 1-23b (3).

EXAMPLE 1-23. Identifying intervals numerically

a. Interval designations



b. Counting intervals



The various intervals have characteristic appearances on the staff. Look at example 1-26a. Note that for the unison (prime), third, fifth, and seventh, the component notes are either both on a line or both on a space, while for the second, fourth, sixth, and octave, one note is on a line and the other is on a space.

Once the numerical size of the interval is known, a more specific designation can be made, depending on the number of whole or half steps between the notes. For this purpose, all intervals are assigned to one of two groups. Group A includes intervals that are capable of being "major" or "minor": seconds, thirds, sixths, and sevenths. Group B includes intervals capable of being "perfect": unisons (or primes), fourths, fifths, and octaves. The intervals in group A may be "major," "minor," "diminished," or "augmented," depending on the number of whole steps they contain.

	Diminished	Minor	Major	Augmented
2nds	0	1/2	1	1 1/2
3rds	1	1 1/2	2	2 1/2
6ths	3 1/2	4	4 1/2	5
7ths	4 1/2	5	5 1/2	6

TABLE 1-4. Steps contained in group A intervals

If a group A interval is a half step smaller than major, it is called *minor;* if it is a half step smaller than minor, it is called *diminished;* if it is a half step larger than major, it is called *augmented.* It is rare to encounter an interval that exceeds these designations, but there are such terms as *doubly diminished* and *doubly augmented* for these cases.

A similar chart can be drawn for the group B intervals (table 1-5). These may be "perfect," "diminished," or "augmented," depending on the number of whole steps they contain. Intervals in this group that are a half step smaller than perfect are called diminished; those a half step larger than perfect are called augmented. (The diminished prime does not logically exist.)

	Diminished	Perfect	Augmented
primes	---	0	1/2
4ths	2	2 1/2	3
5ths	3	3 1/2	4
octaves	5 1/2	6	6 1/2

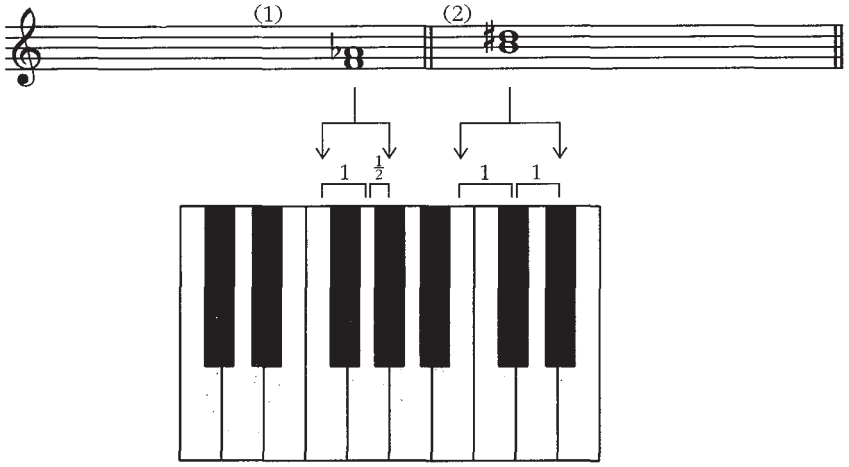
TABLE 1-5. Whole steps contained in group B intervals

The interval shown in example 1-24a (1) is a minor third (m3); the one-and-one-half steps between the tones are shown with the keyboard diagram. Example 1-24a (2) illustrates the two whole steps between the tones of a major third (M3). The interval shown in example 1-24b (1) is a perfect fourth (P4) with two-and-one-half steps between the tones shown on the keyboard. Also included is a perfect

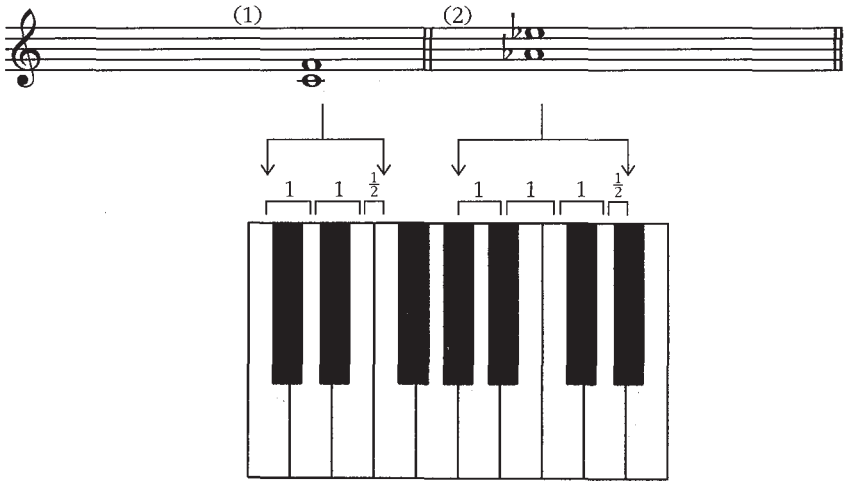
fifth (P5) with three-and-one-half steps between the tones shown in example 1-24b (2).

EXAMPLE 1-24. Notated intervals and their keyboard locations

a. A minor third (m3) and a major third (M3)



b. A perfect fourth (P4) and a perfect fifth (P5)



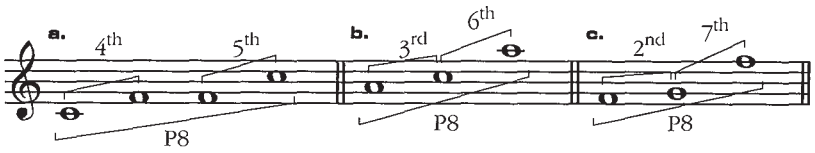
Inversion of Intervals

inversion

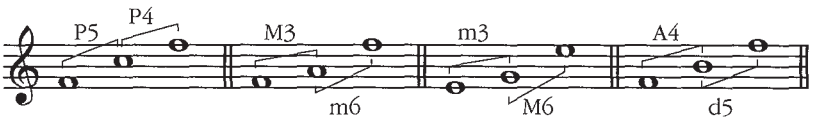
Certain intervals have a complementary relationship. For instance, if we start on C and go up a P4, we arrive at F. If from that F we go up a P5, we arrive at the C an octave higher than our starting point. The two intervals, P5 and P4, add up to an octave. Another way of viewing this is through the process of *inversion.* If we move (transpose) the lower tone of an interval up an octave, or the upper tone down an octave, we arrive at a similarly complementary interval. Thus, fourths invert to be-

come fifths, thirds invert to sixths, and sevenths invert to seconds. Notice that a major interval becomes minor when inverted, while a minor interval becomes a major when inverted; likewise, augmented intervals become diminished, diminished intervals become augmented, and perfect intervals remain perfect.

EXAMPLE 1-25. Inversion of intervals



EXAMPLE 1-26. Quality of inverted intervals



Compound Intervals

simple interval
compound interval

Intervals from P1 up to P8 are called *simple intervals.* Those larger than an octave are called *compound intervals.* The numbering system continues after the octave up to the thirteenth: an octave plus a second equals a ninth; octave plus third equals a tenth; octave plus fourth equals an eleventh; octave plus fifth equals a twelfth; and octave plus sixth equals a thirteenth. This is usually as far as compound intervals are reckoned, except occasionally for the double octave (the fifteenth, abbreviated 15^{ma}, as mentioned earlier). Compound intervals are often referred to as though they were simple intervals, that is, as though the tones were actually within an octave. Thus a tenth may be called a third if the actual distance between the notes is not pertinent to the discussion.

Compound intervals are named in the same way as their simple interval counterparts, that is, ninths are major or minor (like seconds); elevenths are perfect (like fourths), and so on.

EXAMPLE 1-27. Examples of compound intervals

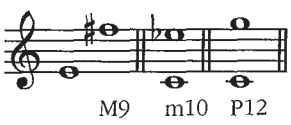


Table 1-6 summarizes the information about the most common intervals from the unison to the octave.

Name of Interval	Whole steps	Half steps	Abbreviation	Inversion
unison or prime	0	0	P1	P8
minor second	1/2	1	m2	M7
major second	1	2	M2	m7
minor third	1 1/2	3	m3	M6
major third	2	4	M3	m6
perfect fourth	2 1/2	5	P4	P5
augmented fourth	3	6	A4	d5
diminished fifth	3	6	d5	A4
perfect fifth	3 1/2	7	P5	P4
minor sixth	4	8	m6	M3
major sixth	4 1/2	9	M6	m3
minor seventh	5	10	m7	M2
major seventh	5 1/2	11	M7	m2
perfect octave	6	12	P8	P1

TABLE 1-6. Summary of common intervals

SCALES

Major Scales

major scale

One of the most important concepts in music theory is the *major scale,* which consists of eight consecutive notes beginning at some point in the diatonic system. It is usually shown in ascending order, the first and last notes an octave apart.

Major Scale Degrees

scale degrees

Each of the eight tones is called a *scale degree* and is given a name depending on where it lies within the scale. The most important scale degree is the *tonic,* or key-note, the scale degree on which the scale begins and ends.

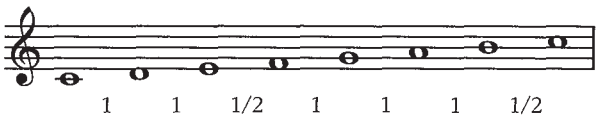
Scale degree	Name
1	tonic
2	supertonic
3	mediant
4	subdominant
5	dominant
6	submediant
7	leading tone
8	tonic

TABLE 1-7. Major scale degree names

Major Scale Pattern

The pattern of the major scale may be described as a specific ordering of whole and half steps, as shown in example 1-28.

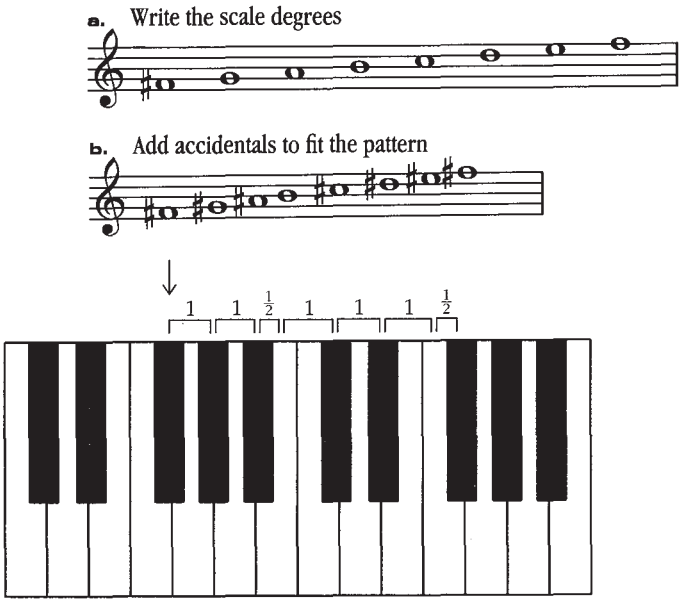
EXAMPLE 1-28. Major scale pattern



Scales are named according to their tonic: The major scale beginning on C is called the C-major scale, B major begins on B, and so on. We say that we are "in the key of C major," C being the key-note. When learning to write a scale it is usually best to write the scale degrees first, then add the necessary sharps and flats. This

will avoid the omission of a scale degree. For instance, example 1-29 shows the steps to be followed in writing the F-sharp major scale.

EXAMPLE 1-29. Steps in writing the F-sharp major scale

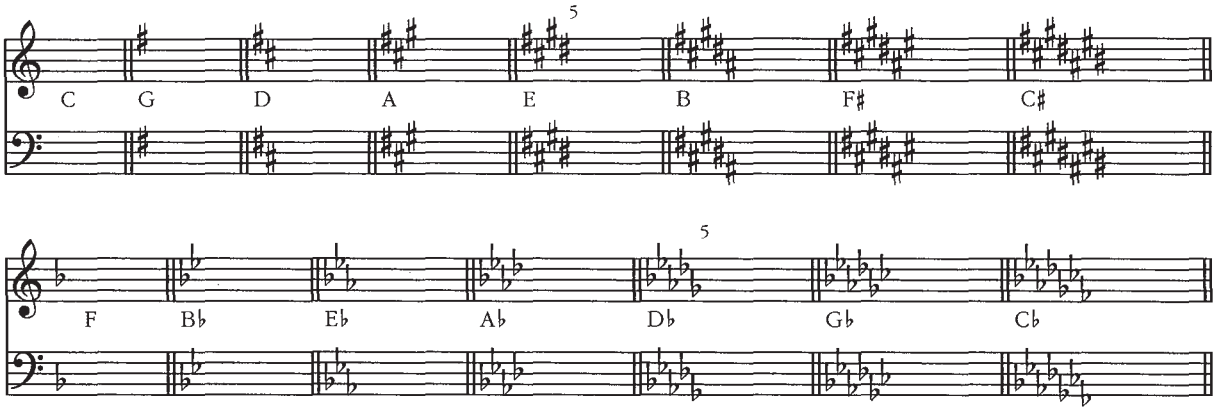


Major Key Signatures

key signature

At the beginning of many compositions there is an indication to the player about the notes to be used. This is given in the form of a *key signature* showing the sharps and flats required for the key of the piece. The sharps and flats are always written in the same order (ex. 1-30), so the performer can tell at a glance which notes are required. Any note not marked with a sharp or flat is understood to be natural.

EXAMPLE 1-30. Major key signatures



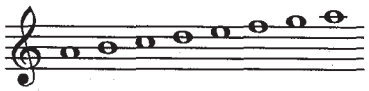
Minor Scales

minor scale

Along with the major scale, the *minor scale* is of great importance in Western music. The minor scale, as we shall see, has some variants, but its basic pattern is shown in example 1-31. This pattern is known as the *natural minor scale.*

natural minor scale

EXAMPLE 1-31. Natural minor scale

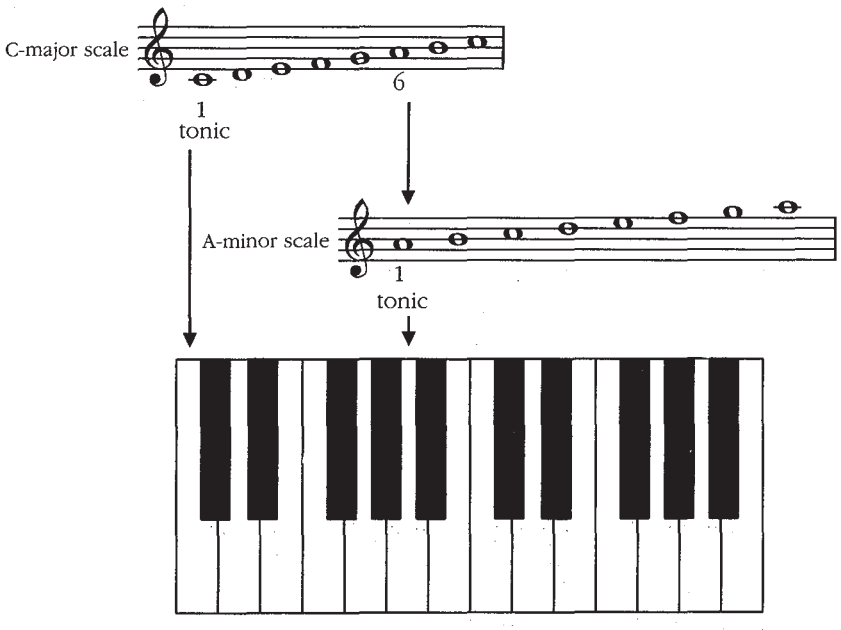


Relative and Parallel Minor Scales

relative minor/major scale

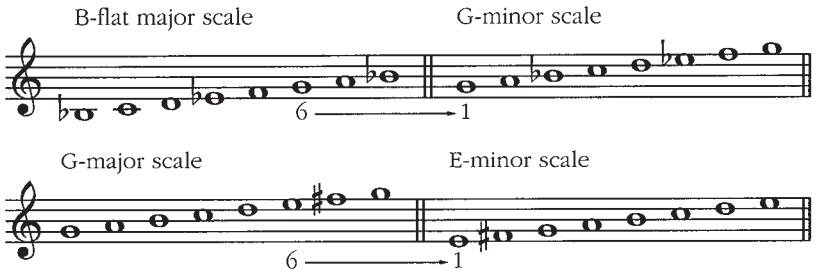
Scales and keys that use the same pitches but have different tonics are called *relative.* The two scales seen in example 1-32 share the same tones. The scale beginning on A is called the A-minor scale. It is said to be the "relative minor" of C major. Conversely, C major is the "relative major" of A minor. The relative minor is found by using the sixth step of the major scale as a tonic.

EXAMPLE 1-32. Relative major and minor scale



Every major scale has a relative minor scale that may be determined in the same manner. As seen in example 1-33, the relative minor of B-flat major is G minor (G being the sixth degree of the B-flat major scale), and the relative minor of G major is E minor.

EXAMPLE 1-33. Examples of relative major and minor scales

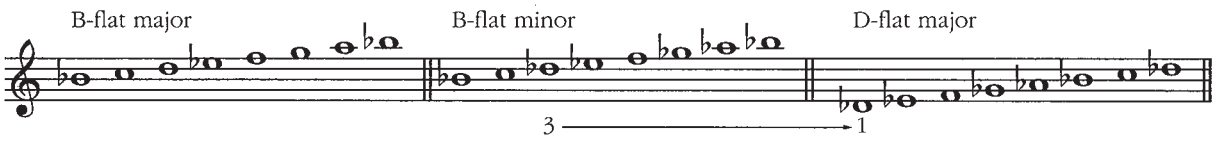


If you begin with the minor scale and wish to determine the relative major, it lies on the third degree, a minor third above the tonic. Thus, the relative major of B-flat minor is D-flat major.

parallel minor/major scale

Scales and keys that have the same tonic but use different pitches are called *parallel.* The relationship between B-flat major and B-flat minor is called parallel. B-flat major is the parallel major of B-flat minor. Example 1-34 compares the relative and parallel relationships.

EXAMPLE 1-34. Relative and parallel scales



Harmonic and Melodic Minor Scales

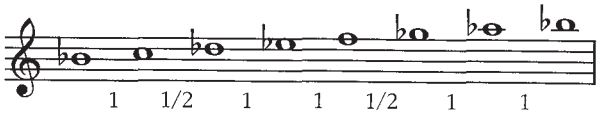
harmonic minor scale

melodic minor scale

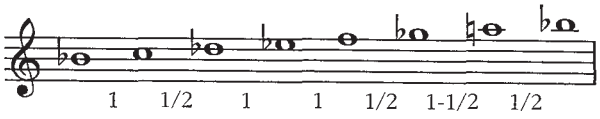
Thus far we have considered only the natural minor scale, which has exactly the same tones as the relative major. There are also two variants of the minor scale: the *harmonic minor scale* (same as the natural minor, with the seventh degree raised a half step) and the *melodic minor scale* (same as the natural minor, except that the sixth and seventh degrees are raised a half step when the scale is ascending; when the scale descends, the unaltered natural minor is shown). Example 1-35 illustrates how the B-flat minor scale and its variants should be written. Note the change in position of the whole and half steps in these variants.

EXAMPLE 1-35. The three forms of the B-flat minor scale

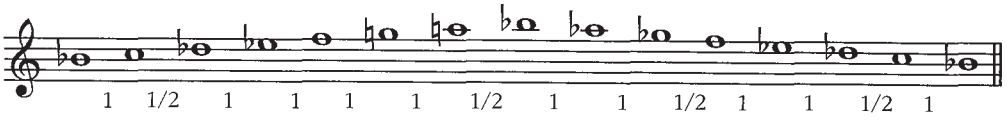
a. Natural minor scale



b. Harmonic minor scale (seventh degree raised)



c. Melodic minor (sixth and seventh degrees raised while ascending)



A scale should be understood as a systematic list of pitches, not ascending and descending melodic motion. When deciding to raise or lower the sixth or seventh scale degree in a musical composition, the composer takes into consideration various factors to be studied later.

Minor Scale Degrees

subtonic

The names of the scale degrees are the same in minor as they are in major, except for the variant forms of the seventh scale degree. When 7 is a half step below 8 it is called the leading tone, and when it is a whole step below 8 it is called *subtonic* (see table 1-8).

Minor Key Signatures

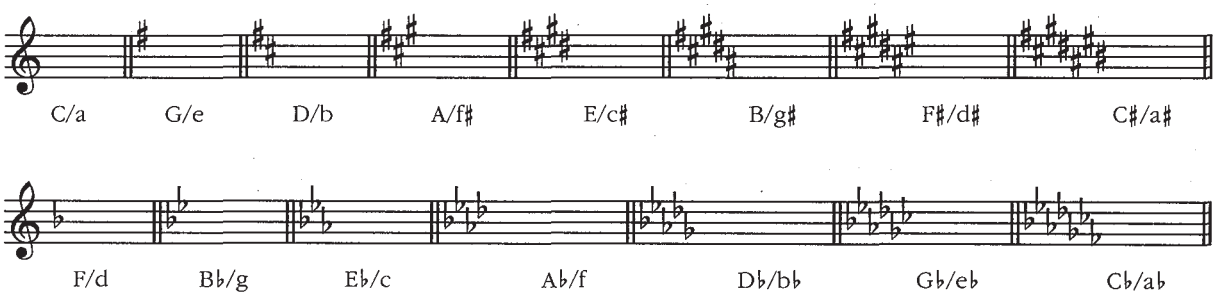
Key signatures for major and minor keys, showing the sharps and flats in their normal order, are illustrated in example 1-36. Notice that for each key signature there is a major and a minor key indicated. Major keys are indicated by a capital letter, as in C major (C). Minor keys are indicated by lower case letters, as in c minor (c).

Alterations in the basic pattern, such as the raising of the sixth and seventh degrees in minor, are not shown in the signature. These alterations must be indicated as accidentals, notes that require sharps or flats not included in the key signature. Therefore, one cannot know from the signature alone which key is intended; only a perusal of the actual notes of the piece can give that information. This will be discussed later. But if you are not already familiar with all of the key signatures in example 1-36, it is wise to memorize them as soon as possible.

Scale degree	Name
1	tonic
2	supertonic
3	mediant
4	subdominant
5	dominant
6	submediant
7	subtonic (whole step below 8)
	leading tone (half step below 8)
8	tonic

TABLE 1-8. Minor scale degree names

EXAMPLE 1-36. Key signatures



circle of fifths

The major and minor keys can be arranged in order of increasing sharps and flats, shown in the form known as the *circle of fifths,* seen in figure 1-1. Beginning with C major at the top of the circle, keys with increasing numbers of sharps are reached by clockwise motion, while keys with increasing numbers of flats are reached by moving counterclockwise. Minor keys with corresponding signatures are shown inside the circle. Notice that three major keys and three minor keys appear with enharmonic equivalents at the bottom of the circle.

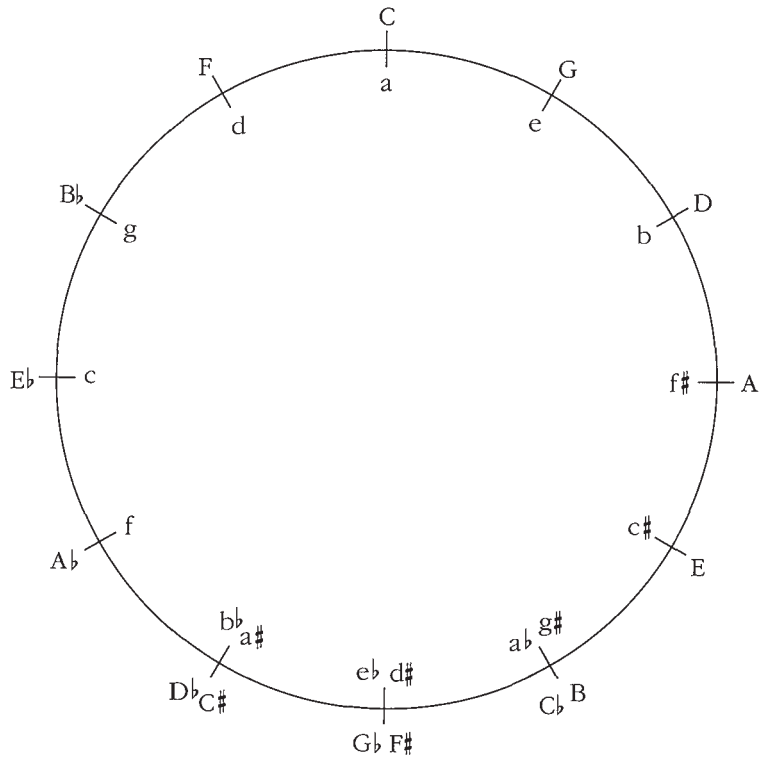


FIGURE 1-1. Circle of fifths

SUMMARY

Music notation employs an array of symbols that indicate rhythmic value by shape and indicate pitch by location on a staff.

The durations of individual tones are heard within a framework of regular beats (equally timed pulses). The rate at which the beats occur is called tempo. The beats tend to group into regular patterns called meter. In a musical work, tones are perceived as multiples, fractional divisions, or subdivisions of the beat.

Letter names are used to identify pitches. The pitch resources used in traditional Western music are embodied in the diatonic system, in which the smallest interval (distance between two pitches) is the half step. Larger intervals may be measured by the number of steps or half steps spanned by the tones. Typically, the pitch resources for a piece can be summarized in a scale, which is a series of ascending pitches with specific intervals between the various scale degrees. The tone on which the scale begins is called the tonic. It is heard as the primary pitch, to which all the other tones are subordinate. The most commonly used of these patterns are the major scale and the minor scale.

CHAPTER TWO

Melody and Tonality

Terms Introduced in This Chapter

attack
release
duration
dynamic accent
agogic accent
metric accent
agogic pattern
arsis
thesis
arsis group
syncopation
subordinate agogic pattern
principal agogic pattern
phrase
cadence
contour
range
tessitura
conjunct and disjunct motion
prominence
change of direction
recurrence
location
emergent tone
step progression
repetition
tonic, tonal center
tonal
atonal
tonality
interval root
scale
pitch complement
diatonic modes
modulation
change of mode

The understanding of melody must include a broad spectrum of concepts that are associated with rhythm and pitch, which leads to further concepts involving tension, tonality, and scales.

RHYTHM

The organization of melodic rhythm centers on the creation of accents, their relationships, and the tension associated with them.

Durations

attack

release

duration

Each musical tone has a point of beginning or *attack;* an ending point or *release;* and an elapsed time between the beginning and ending, known as its *duration.* A similar statement may be made for rests in that each has a beginning, an ending, and a particular length.

Accents

A musical accent is a point of emphasis, an event distinguished from its surroundings by a perceived difference in volume, length, location, or other aspect. It is essential to distinguish between three types of accents, although all three may occur simultaneously.

dynamic accent

The *dynamic accent* is produced by an increase in dynamic intensity on the accented tone. It is indicated by various accent marks and by dynamic indications.

agogic accent

The *agogic accent* is the natural emphasis attributed to a tone that is longer than the tone(s) preceding it. The agogic accent arises because our minds give greater importance to longer tones.

metric accent

The *metric accent* is produced by a pattern of expectations that arises when regularity appears or is suggested by agogic accents, dynamic accents, or other prominent changes in the music. There are traditional assumptions, familiar to all performers, regarding the relative strength of metric points within each meter.

Agogic Accents

agogic pattern

arsis

thesis

An agogic accent results from an *agogic pattern* of three components: *arsis, thesis,* and the attack of the thesis, which is the agogic accent itself. The arsis ("lifting") is the unaccented portion of the agogic pattern and consists of the relatively shorter tone or tones that precede the longer tone to come, the thesis. The thesis ("lowering") is the accented portion and is longer than any of the tones in the arsis. The attack of the thesis is the point of accent known as the agogic accent and for analyti-

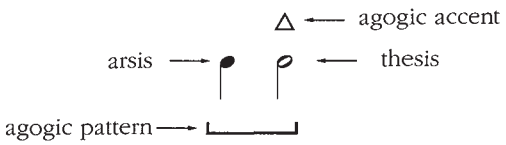
cal purposes will be marked with an upward-pointing triangle as shown in example 2-1. (For a complete list of analytical symbols introduced in this chapter see "Guide to Analytical Symbols," p. 399.)

In example 2-2a, the rhythm resembles that of example 2-2b, except that rests are used for the latter part of the longer note values. Rests extend the effect of the preceding note, so there is little difference between examples 2-2a and b, as far as the agogic patterns are concerned.

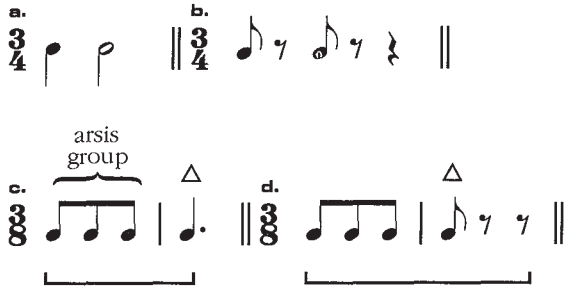
arsis group

The arsis may consist of a group of durations, all shorter than the thesis to follow. The *arsis group* in example 2-2c illustrates this. Example 2-2d shows the same effect with rests extending the final note. Agogic accents often follow lengthy arsis groups. In example 2-3, the agogic accents are marked with triangles above the thesis tones, while each agogic pattern is indicated by a bracket.

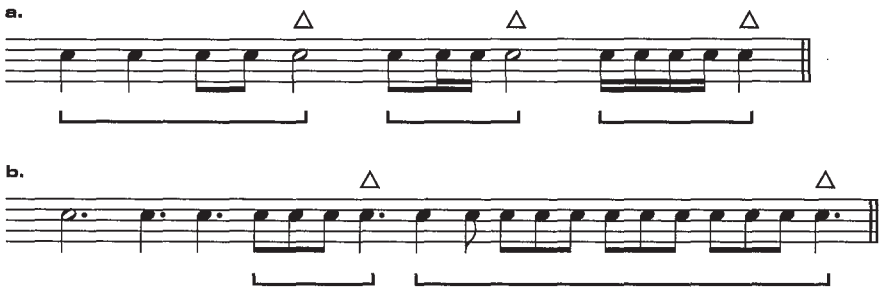
EXAMPLE 2-1. The elements of an agogic pattern



EXAMPLE 2-2. Agogic patterns and rests

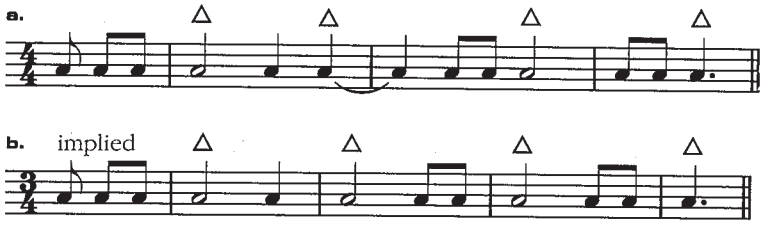


EXAMPLE 2-3. Agogic accents and patterns



At times the agogic accents may contradict the metric accents and suggest a meter different from the notated meter signature. In example 2-4a, a meter of $\frac{3}{4}$ is implied by the agogic accents, despite the notated $\frac{4}{4}$ meter. Compare examples 2-4a and b.

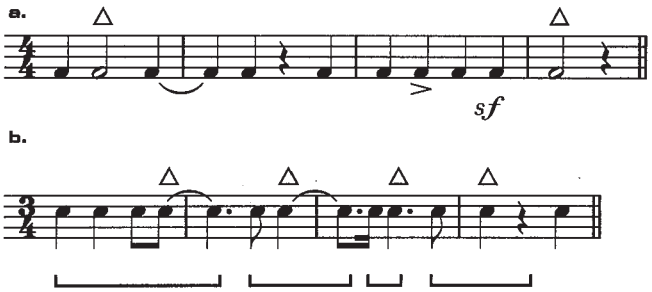
EXAMPLE 2-4. Implied meter



syncopation

The term *syncopation* is used to describe any disturbance of the normal pulse or a rhythm in which the accent is shifted to a normally weak point in the measure. This is illustrated in example 2-4. Syncopations are often less systematic in their suggestion of changes in metric patterns, as seen in examples 2-5a and b. The dynamic accents in measure 3 of example 2-5a will have the effect of disturbing the meter because of the emphasis on what is normally a weak point in the measure.

EXAMPLE 2-5. Syncopations



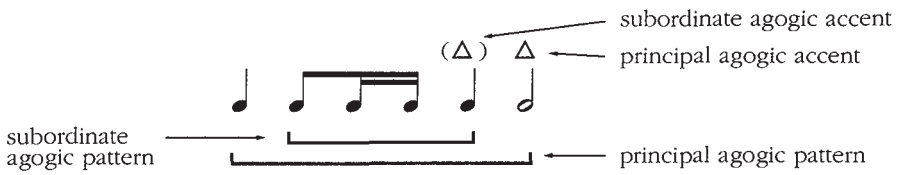
Subordinate Agogic Patterns

subordinate agogic pattern

principal agogic pattern

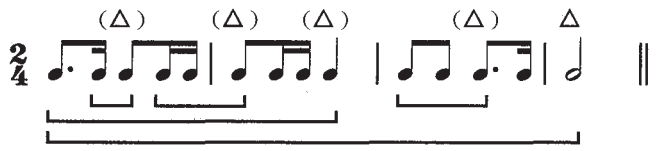
Occasionally an agogic pattern will become part of the arsis of a larger pattern. The imbedded pattern is called a *subordinate agogic pattern,* while the larger pattern is called a *principal agogic pattern.* In example 2-6, each pattern is marked by a bracket, but the agogic accent of the subordinate pattern is marked with a (Δ). The subordinate pattern, containing no duration longer than the half note, becomes part of the arsis for the principal agogic accent. The quarter note at the beginning is part of the principal agogic pattern, but not part of the subordinate pattern.

EXAMPLE 2-6. Elements of subordinate and principal agogic accents



These same concepts and symbols are applied to a more elaborate example in example 2-7. The longest bracket shows the principal agogic pattern, and the arrowhead without parentheses marks the principal agogic accent. Again, subordinate agogic accents are marked with triangles in parentheses, and the upper brackets mark off these patterns.

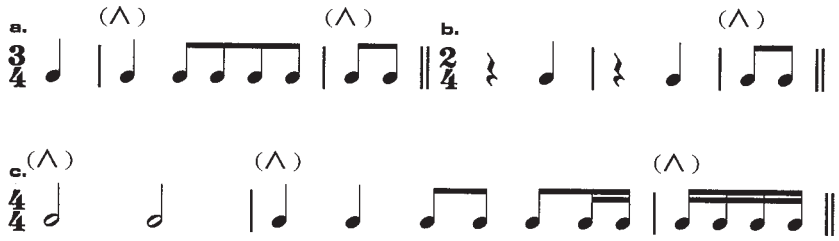
EXAMPLE 2-7. Subordinate and principal agogic patterns and accents



Metric Accents

Sometimes one finds melodies in which all or most of the notes are of the same duration, so that there may be extended passages where no agogic accents can be found. In analyzing such music, it is often useful to indicate by a (∧) the metric accent for each measure in which no agogic accent occurs. The metric accent should be marked on the note that begins on the first beat of the measure. If no note begins on the first beat, it is best to mark nothing in the measure. Example 2-8 contains differing note values but no agogic accents.

EXAMPLE 2-8. Marking metric accents



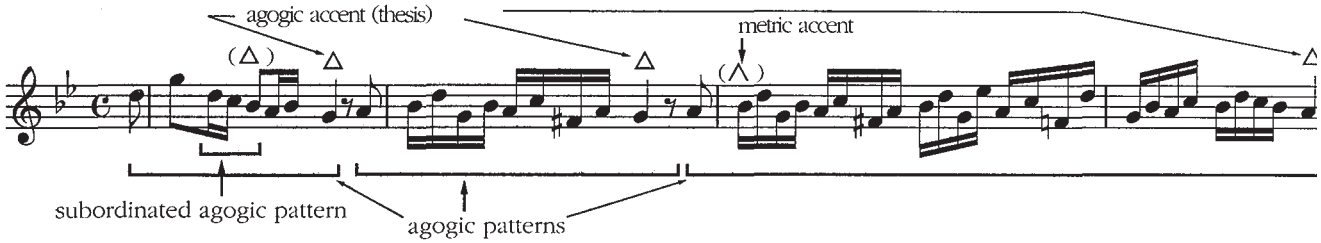
Metric accents are created by our expectations of regularity, while agogic accents are produced by the actual durations of the notes. Agogic accents normally take precedence over metric accents. In most music, of course, there is continual or recurrent agreement between the agogic and metric accents. Often, it is the regularity of the agogic accents that is the primary force in establishing a meter.

Rhythmic Analysis

Example 2-9 summarizes the method of rhythmic analysis presented thus far. Note these points:

1. Primary agogic accents are found in measures 1, 2, and 4.
2. Measure 1 contains a subordinate agogic accent.
3. Measure 3 has no agogic accent; the metric accent is marked.

EXAMPLE 2-9. Handel: Klavier Suite XV, Allemande, HHA iv/6,38

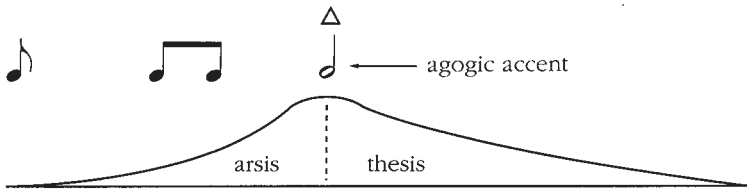


Tension

Rhythmic patterns, like other aspects of music, give the effect of rising and falling tension. The forces at work are best described in pairs of words expressing opposing elements: stability-instability, continuity-change, sameness-difference. In general, elements of constancy, for example, longer duration, will reduce tension. Elements of change, difference, or instability will increase tension.

The flow of tension is readily seen in an agogic pattern. The arsis generates tension because of its relatively short duration. The more tones in an arsis group, the greater the tension. The tension is at its peak as the thesis begins, at the agogic accent. As illustrated in example 2-10, the moment of the attack of the thesis is the point of greatest tension, after which the tension is released. As the thesis sounds, or continues with rests, the tension reduces.

EXAMPLE 2-10. The flow of tension



EMERGENT TONES

As a melody unfolds, the listener's attention is drawn to certain prominent tones. These give a sense of rising and falling tension and become focal points, or peaks of tension. The most prominent tones of a melody may be identified through an understanding of melodic contour and the relationships between melodic pitches and rhythm within the phrase.

Phrase

phrase

A *phrase* is a musical unit with an ending marked by relaxation or a change in treatment. Phrases are typically three to six bars long when the tempo is moderate. If the tempo is rapid, eight-bar phrases may be found; in slow tempos two-bar phrases may occur. The most common length is four measures.

cadence

The ending portion of a phrase is called the *cadence.* The cadence is usually perceived as an area of reduced activity or motion, as a pause or breathing point, or as an area preceding change in the kind of activity used. The last pitch in a phrase is called the *cadence pitch.* Rhythmically, a clear cadence usually consists of a strong agogic accent on the cadence pitch.

Contour

contour

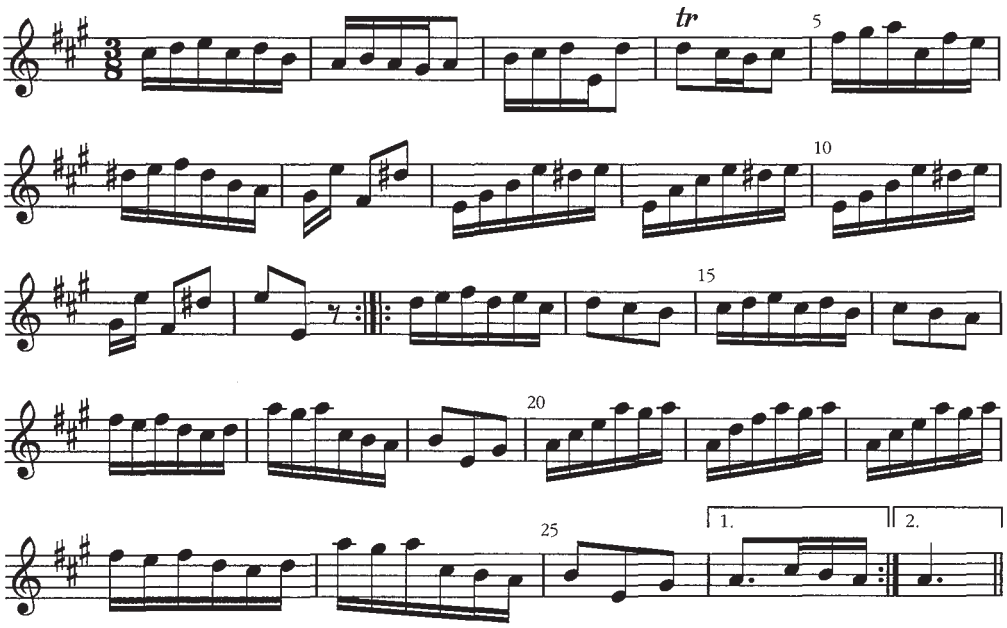
The overall shape of the melody is called the *contour.* Although each melody has its own contour, some general observations can be made about a melodic contour's range, motion, and points of prominence.

Range and Tessitura

range

The *range* of a melody is the distance between the highest and lowest tones. The range of example 2-11 is clearly from e^1 to a^2.

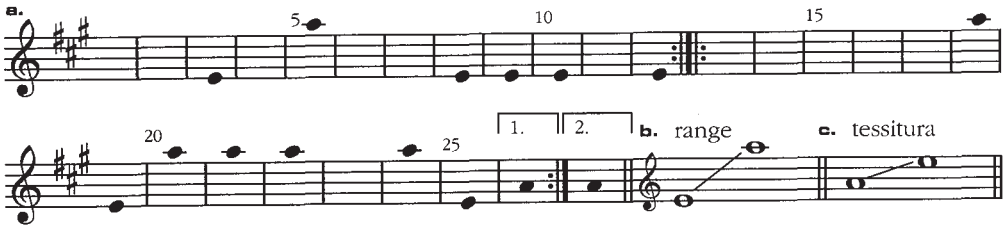
EXAMPLE 2-11. Telemann: Fantasia I, for solo flute



tessitura

The *tessitura* of a melody is the average range or the portion of the range that is used most frequently. The range and tessitura of example 2-11 are shown in example 2-12. The range is from e^1 to a^2, but the most frequently used portion is from a^1 to e^2.

EXAMPLE 2-12. Tessitura and range of example 2-11



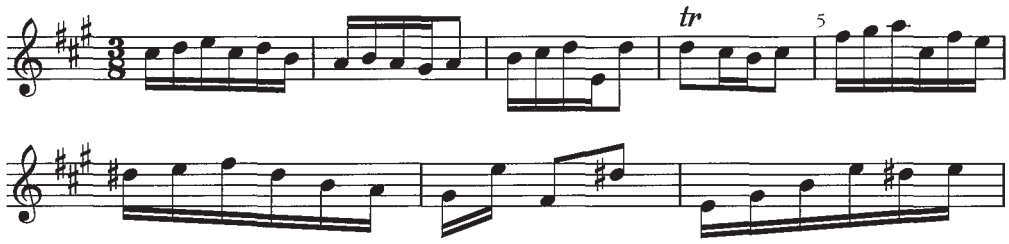
Melodic Motion

conjunct and disjunct motion

Melodic motion will vary in direction and in the degree of smoothness. Melodic motion may ascend (rise), descend (fall), or remain level. It may also be smooth, using steps of primes or seconds, or it may be angular, using skips of thirds or greater. Motion with steps is called *conjunct,* and that with skips is called *disjunct.* Example 2-13 illustrates these ideas. The figure in measure 2 hovers around a^1, after which measures 5–6 descend and measure 8 ascends. The music in measure

2 is conjunct and that in measure 7 is disjunct, but most measures combine conjunct and disjunct motion.

EXAMPLE 2-13. Telemann: Fantasia I, for solo flute



Prominence

prominence

There are four aspects of contour that produce points of *prominence,* or focal points in the melodic line.

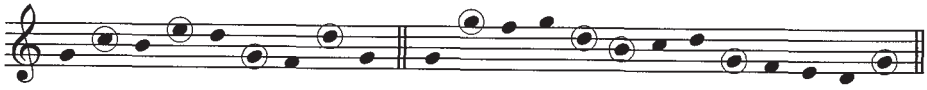
change of direction

First, *change of direction* will produce prominence. The tone that gains from this focus is the tone on which the direction changes. (See ex. 2-14. The circles indicate the more prominent tones.)

EXAMPLE 2-14. Prominence produced by change of direction

Second, disjunct motion also produces prominence. The tone that is reached by skip will be more prominent; the larger the skip, the greater the prominence. (See ex. 2-15.)

EXAMPLE 2-15. Prominence produced by disjunct motion



Often a skip will be followed by motion in the opposite direction. It is as though the skip creates a sort of vacuum in musical space, and the natural tendency is to fill this vacuum. This is only a general principle; one can find many exceptions, but there are far more instances where this has been applied. The larger the skip, the more likely that this rule will be followed.

recurrence

Third is the use of *recurrence.* A tone gains in significance when it reappears after one or more intervening notes, but it should appear at least three times out of six notes. (See ex. 2-16.)

EXAMPLE 2-16. Prominence produced by recurrence

location

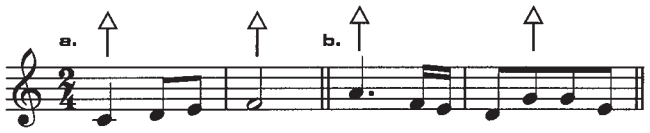
Fourth, the *location* of notes within a phrase affect their prominence. The first and last notes of the phrase will always have a strong impact on the listener.

Combining Pitch with Rhythm

emergent tone

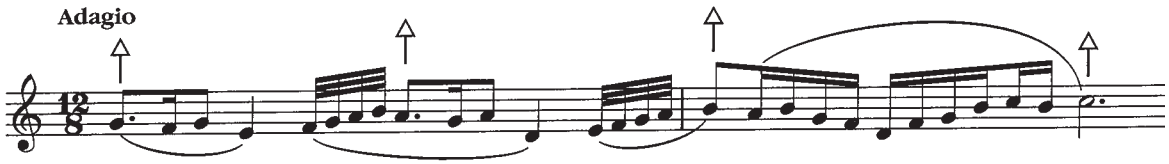
An *emergent tone* is a melodic tone (typically the most prominent in the measure in which it occurs) that gains prominence from pitch, rhythm, or both. The typical emergent tone will occur on the thesis of an agogic pattern and will have some characteristic contour that reinforces this prominence. Each emergent tone in example 2-17a is shown with an upward arrow including a stem. Less often, an agogic or metric pattern or other aspect of contour will compete as the location of an emergent tone. Judgment will be needed to identify the emergent tones in these cases (see ex. 2-17b).

EXAMPLE 2-17. Emergent tones



In moderate and quick tempos, a single emergent tone per bar is sufficient; in very slow tempos, such as in example 2-18, it may be useful to select two emergent tones per measure.

EXAMPLE 2-18. More than one emergent tone per measure



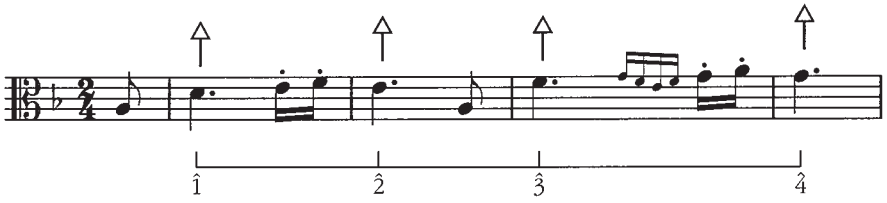
Step Progressions

step progression

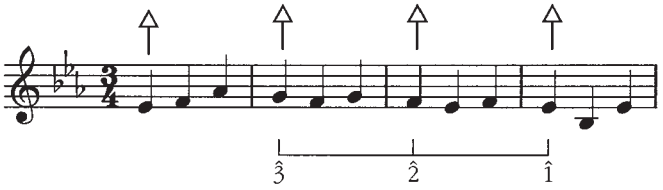
Once we have identified the emergent tones in a melody, we can look for a *step progression,* which is a scale-like pattern formed by two or more emergent tones, usually separated by intervening melodic tones. The method for identifying step progressions is shown in example 2-19. Emergent tones forming a step progression are marked with a number indicating the scale degree and a caret (^); brackets connect the notes that participate in the step progression.

EXAMPLE 2-19. Identifying step progressions

a. Brahms: Sextet in B-flat, op. 18, second movement



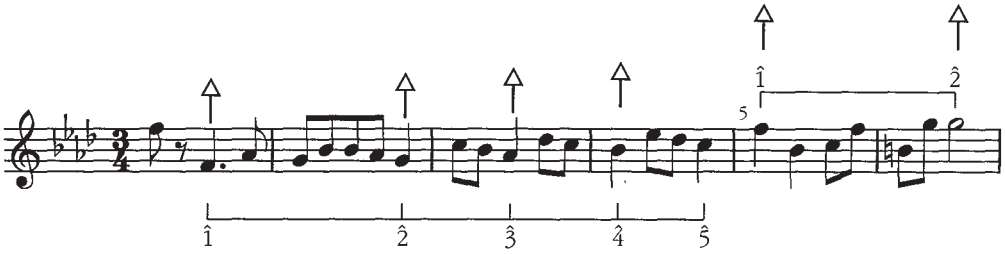
b. Brahms: Trio in E-flat for violin, horn, and piano, op. 40, second movement



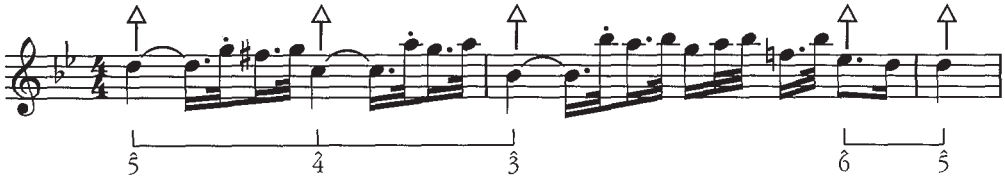
Step progressions often strengthen the sense of which key the piece is in by ending on either $\hat{1}$, $\hat{3}$, or $\hat{5}$, as in example 2-19b and example 2-20a, measure 4. Descending step progressions are found more often than ascending, but both types are common. In example 2-20b, we find two step progressions, both descending.

EXAMPLE 2-20. Step progressions

a. Dvořak: Piano Trio in F Minor, op. 65, first movement



b. Handel: Sonata in B-flat, for flute and continuo, HHA iv/18, 15

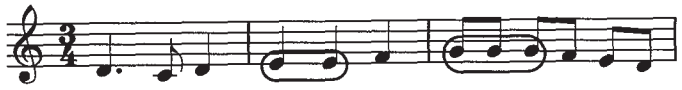


Repetition

repetition

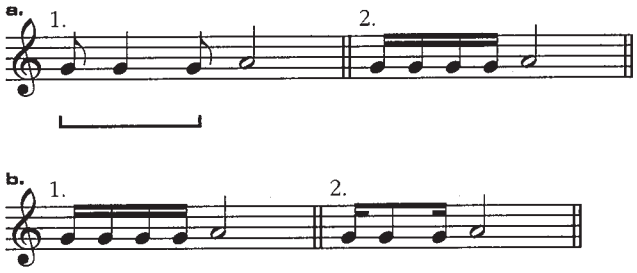
As we bring together the forces of rhythm and contour, special attention must be given to repeated tones. A tone that is repeated, or repeated more frequently than those around it, will gain prominence, as in example 2-21.

EXAMPLE 2-21. Prominence produced by repetition



The total duration devoted to repeated tones also affects prominence. In example 2-22a, measure 1 has greater prominence because the arsis is longer, but in example 2-22b, measure 1 has greater prominence because there is greater activity in the arsis.

EXAMPLE 2-22. Prominence produced by duration and repetition



Melodic Analysis

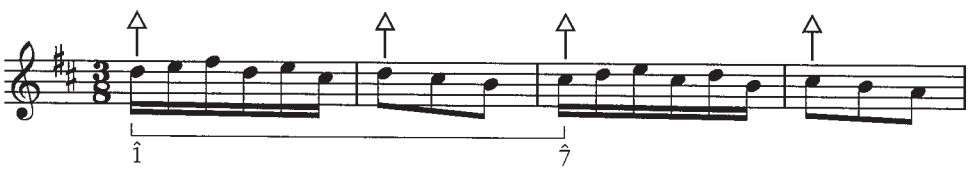
When analyzing a melody it is best to look first at the rhythm and locate the strongest agogic accents. If agogic accents are weak or lacking, focus on metric accents. Then see if some factor in the contour generates enough tension to offset the agogic or metric accents. Use the following method in analyzing a melody.

First, locate the agogic accents. Where there are none in a particular measure (as in measures 1 and 3 of example 2-23), choose the metric accent as the next strongest rhythmic feature. The notes now identified are the prime candidates for becoming the emergent tones of the melody.

EXAMPLE 2-23. Agogic and metric accents in melodic analysis

Second, identify the emergent tones of the melody. Determine if any tone gains sufficient prominence through an aspect of contour (change of direction, disjunct motion, repetition, recurrence, location, or step progression) to offset the rhythmically prominent tones identified in the first step. In example 2-23 we find that the step progression reinforces the first note of measures 1 and 3, both of which have only a metric accent. The final analysis is shown in example 2-24.

EXAMPLE 2-24. Emergent tones in melodic analysis



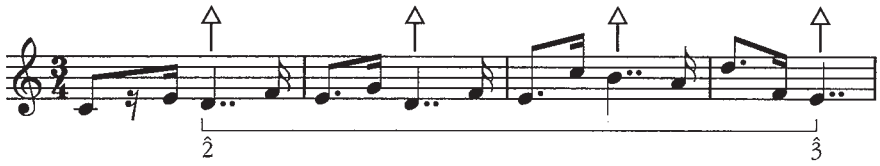
In most instances we will choose one emergent tone per measure. Exceptions to this might be made in the following circumstances:

1. The tempo is very slow and there are many notes per measure.
2. In addition to the most emergent tone, there is another tone in the measure that would continue or complete a step progression previously begun.
3. A new phrase begins in the same measure as that in which the previous phrase ended. Generally in such cases the cadence pitch is more important than the starting tone of the new phrase, but both are emergent tones.

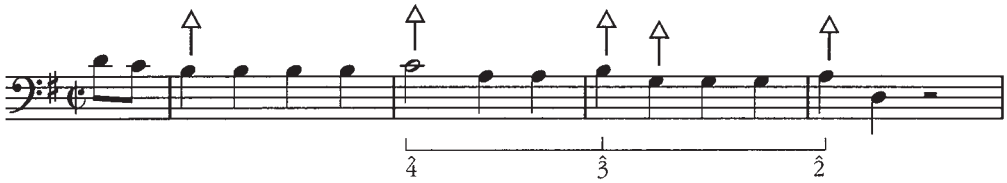
The melodies in example 2-25 give further illustrations of melodic analysis. Example 2-25a is straightforward. In example 2-25b the repeated Gs in measure 3 are strong enough to become emergent, and the B in the same measure forms a step progression with the A in measure 4, so both are emergent tones. In example 2-25c, the step progression and slow tempo justify choosing two emergent tones in some of the measures.

EXAMPLE 2-25: Emergent tones in melodic analysis

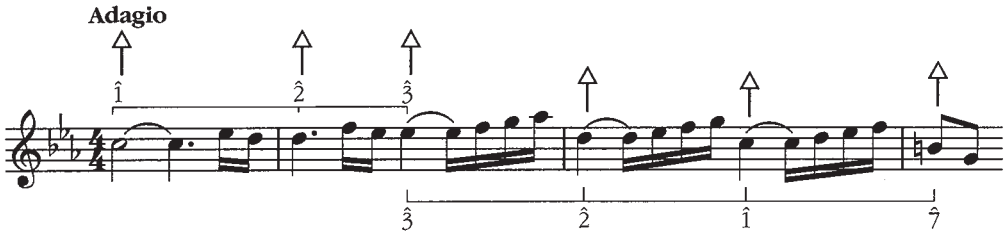
a. Schumann: Symphony No. 2, second movement



b. Cimarosa: *La Astuzie feminili*



c. Handel: Sonata in C minor, for oboe and continuo, HHA iv/18,32



The final check on the accuracy of an analysis is to sing through the melody. The analysis should reflect the way one "hears" the melody. Avoid an analysis that looks good on paper but cannot be "heard."

TONIC

tonic, tonal center

tonal

atonal

tonality

One of the most basic concepts in our traditional music is the *tonic,* or *tonal center.* A tonic or tonal center is one tone or pitch class that is heard as the most important, the other tones relating to it in various supporting or confirming roles. Music that employs such a tonal center is referred to as *tonal.* (Music without a tonal center is sometimes called *atonal.*) *Tonality* is a set of relationships between a tonic and other pitches.

The tonic of a melody is usually perceived intuitively by the listener. A more analytical approach is available through an understanding of the melodic treatment of specific scale degrees.

Scale Degrees and Tonality

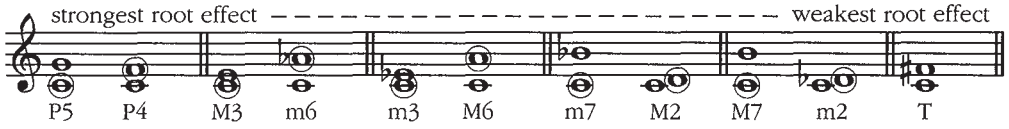
The most important tones of the scale for establishing the tonic or feeling of being in a key are the first, third, and fifth scale degrees ($\hat{1}$, $\hat{3}$, and $\hat{5}$). The importance of these degrees is partly a matter of tradition, but an examination of intervals will reveal other reasons.

Interval Roots

interval root

For acoustical and cultural reasons, when two tones are heard in succession (as a melodic interval) or simultaneously (as a harmonic interval), one of the tones will be heard as "stronger" than the other. The dominating tone is called the *interval root.* In his book *The Craft of Musical Composition,* the composer Paul Hindemith presents the list of interval roots shown in example 2-26. Each interval, together with its inversion, forms a pair in which the interval to the left is more stable, having the stronger, clearer root. The roots are circled.

EXAMPLE 2-26. Interval roots

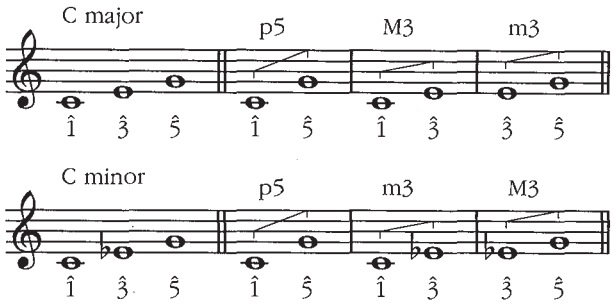


On the left side of the example are those intervals that have the strongest effect in determining tonality. On the right side we find the more ambiguous intervals, with the *tritone* (augmented fourth or diminished fifth) at the far end, very ambiguous in its tonal orientation. In each pair, one interval has the root above and the other has the root below; those with the root below are the more stable.

Roots of Intervals Using Scale Degrees 1, 3, and 5

In both major and minor keys, scale degrees 1, 3, and 5 combine to form three intervals: a P5 ($\hat{1}$–$\hat{5}$) and two thirds ($\hat{1}$–$\hat{3}$) and ($\hat{3}$–$\hat{5}$). Example 2-27 shows these intervals with the roots circled.

EXAMPLE 2-27. Intervals formed by 1, 3, and 5 scale degrees



The most important scale degrees for establishing the tonic are $\hat{1}$ and $\hat{5}$. The P5 formed by these scale degrees has the strongest possible root effect on $\hat{1}$. By emphasizing these degrees, a melody strengthens its tonality. The root of the third from $\hat{1}$ to $\hat{3}$ is also $\hat{1}$, so this interval also serves to confirm the tonic, though not as strongly as the P5 ($\hat{1}$–$\hat{5}$). The interval from $\hat{3}$ to $\hat{5}$ does not, by itself, establish the tonic clearly.

The Characteristics of Tonal Melodies

Several characteristics of tonal melodies will be useful as guides when determining the tonic of a melody.

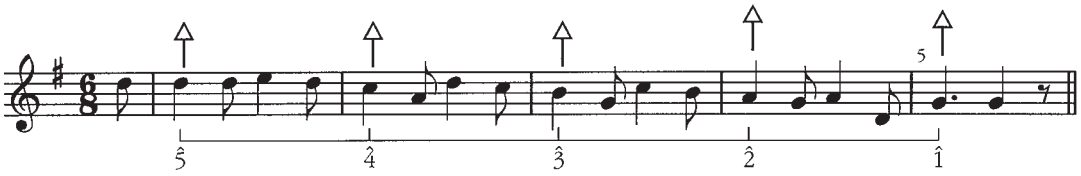
1. Scale degrees 1 and 5 both appear often among the emergent tones.
2. The first and last tones of a melody (which are often emergent tones) are often either $\hat{1}$, $\hat{3}$, or $\hat{5}$.
3. The highest and lowest emergent tones are often either $\hat{1}$, $\hat{3}$, or $\hat{5}$.
4. Skips are more often between $\hat{1}$, $\hat{3}$, or $\hat{5}$ than between other scale tones.
5. Step progressions often end on $\hat{1}$, $\hat{3}$, or $\hat{5}$.

To identify the tonic of a melody, the melody must be long enough for the tonality to be established. A full phrase is the minimum, but several phrases may be needed in some cases. Special difficulties may arise if tonality is intentionally ambiguous, if a shift in tonality occurs, or if the music relies on harmony to clarify the tonality. These situations will be studied in more detail later.

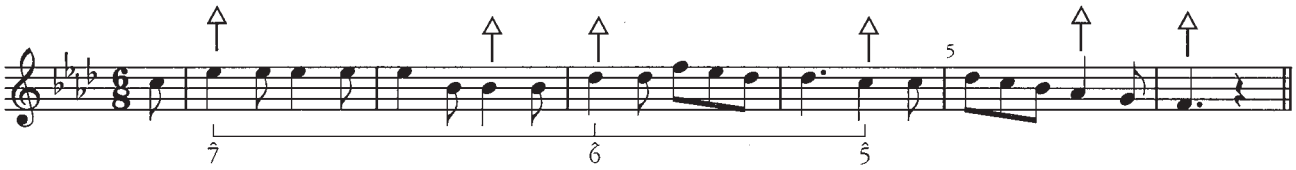
The characteristics of tonal melodies are illustrated in the melodies of example 2-28. Emergent tones and step progressions are indicated. Each of the two passages in example 2-28 appear at the end of a song; however, the tonic is clearer in example 2-28a, where the step progression leads to tonic at the end. In example 2-28b the step progression ends on $\hat{5}$ and does not lead to the tonic F, which is finally asserted at the end.

EXAMPLE 2-28. Characteristics of tonal melodies

a. Brahms: *Forty-nine German Folksongs,* No. 13, "Wach Auf, mein Hort"



b. Brahms: *Forty-nine German Folksongs,* No. 17, "Ach Gott, wie weh tut Scheiden"



SCALES

scale

A *scale* is an ascending succession of tones, beginning on the tonic, with fixed intervals and relationships. (This does not refer to scale "passages" but only to abstract scales displayed for analytical purposes.) Usually scales are shown ascending one octave, but occasionally one finds descending scales or scales that cover less than an octave.

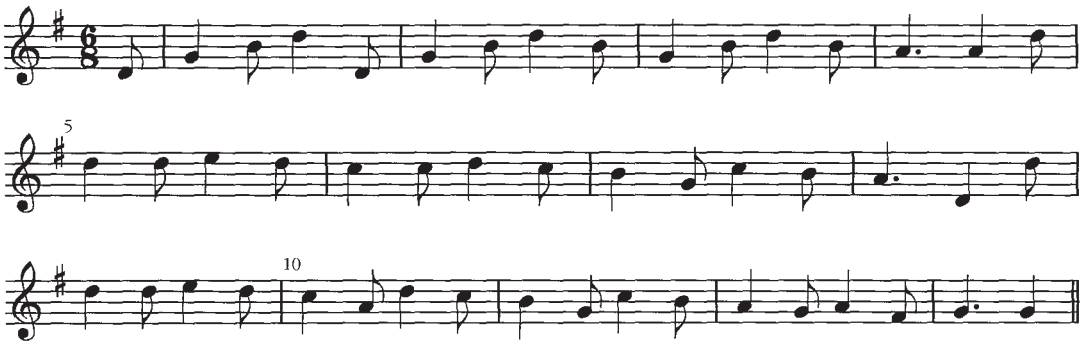
Pitch Complement

pitch complement

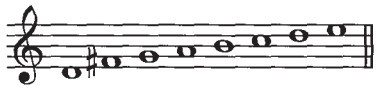
A listing of the pitches of a melody in ascending order is called a *pitch complement.* Its purpose is to show the range of a melody, the selection of pitches used, and the intervals between the pitches. The pitch complement of example 2-29 is shown below the melody.

EXAMPLE 2-29. A melody and its pitch complement

a. Brahms: *Twenty-eight German Folksongs,* No. 12, "Tageweis von einer schönen Frauen"



b. Pitch complement

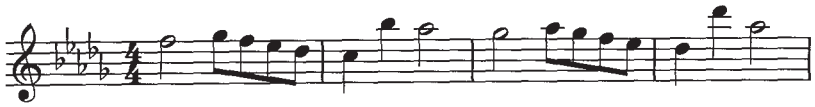


The Relationship of Pitch Complements to Scales

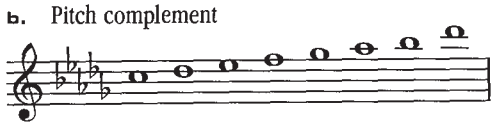
A scale differs from the pitch complement in several important ways. The scale is presented with the tonic as the lowest tone. It ascends for one octave, indicating pitch classes that are basic to the piece. In example 2-30 notice that tones below the tonic in the pitch complement appear above the lower tonic in a scale.

EXAMPLE 2-30. Pitch complements and scales

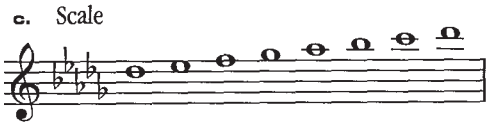
a. Chopin: Piano Sonata, op. 35, third movement



b. Pitch complement



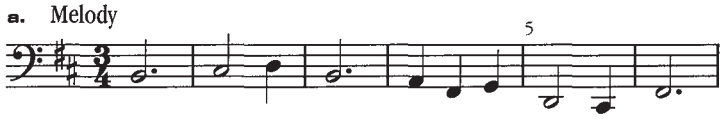
c. Scale



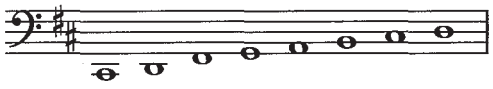
Scales are usually shown occupying a full octave, but many melodies do not actually use that many pitch classes. Some melodies may not include all of the pitches of a major or minor scale, but enough that we can assume the missing notes to complete the pattern. In example 2-31 we find six of the seven pitches of the minor scale in the pitch complement of the melody, but we can assume the missing fourth degree.

EXAMPLE 2-31. Schubert: Symphony No. 8, D. 758, first movement

a. Melody



b. Pitch complement



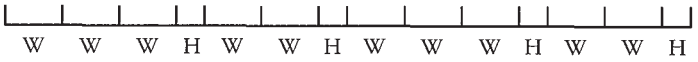
c. Scale

Diatonic Modes

As seen in chapter 1, the tones of the diatonic system have a characteristic spacing of whole and half steps (see example 2-32a). The pattern of whole and half steps for the major scale is W, W, H, W, W, W, H, or 1, 1, 1/2, 1, 1, 1, 1/2 (see example 2-32b). This pattern can be found within the diatonic system by starting on C.

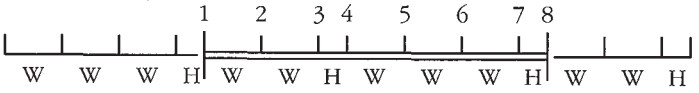
EXAMPLE 2-32. Patterns of whole and half steps

a. For the diatonic system



(W = whole step, H = half step)

b. For the major scale



diatonic modes

It is possible to start scales in other places as well. Each of these would be a *diatonic scale,* that is, they would all fit within the diatonic system. There are seven different patterns for scales within the diatonic system, each starting at a different place in the system. Each of these is a *diatonic mode* and has been given a Greek name, as shown in table 2-1.

The staff notation of these scale patterns is shown in example 2-33. These scales did not all come into use at the same time. Curiously, the last scales to be recognized were ionian and aeolian, our familiar major and minor scale patterns. These were not recognized by music theorists until the sixteenth century. The locrian mode has been little used because its fifth scale degree is not a perfect fifth above the tonic. This renders the scale unstable, as its tonic is always in doubt.

Each mode has its own interval structure, key signature, and characteristic melodic patterns. Long familiarity with the ionian and aeolian modes makes them seem more "normal" than the others. Compare the effect of the melodies in example 2-34.

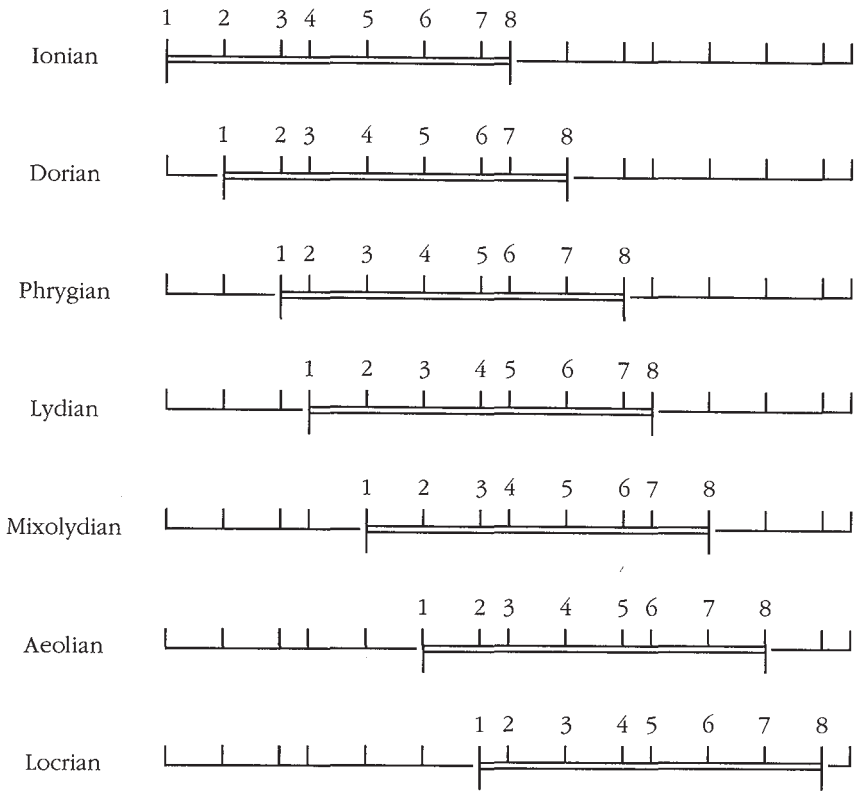
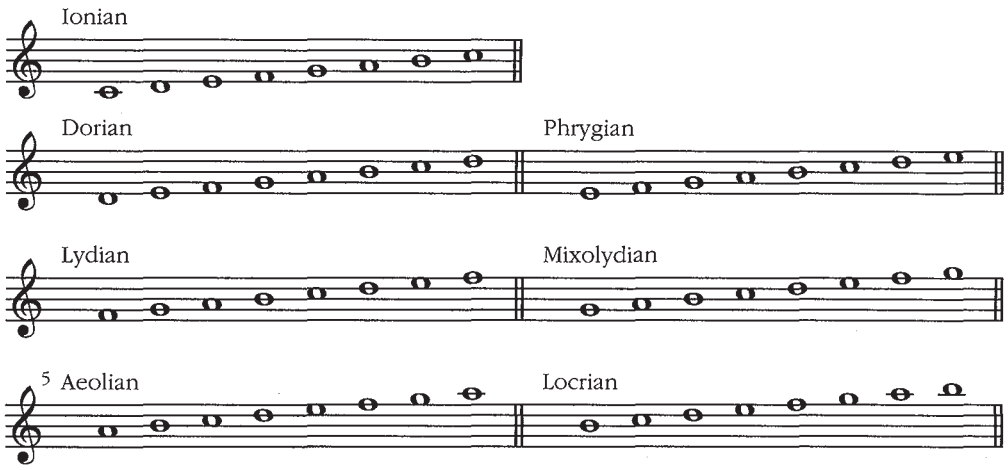
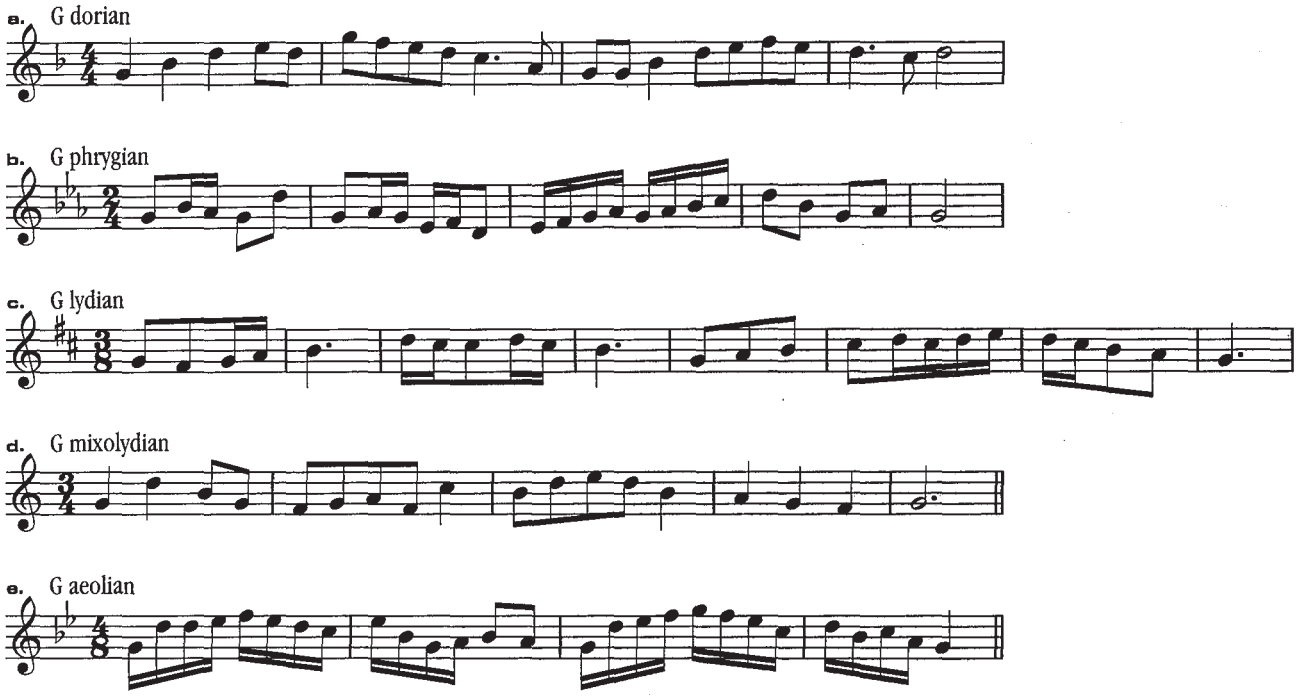


TABLE 2-1. Diatonic modes

EXAMPLE 2-33. Staff notation of diatonic modes



EXAMPLE 2-34. Melodies in different modes



Minor Mode

The minor mode has a basic diatonic pattern to which chromatic alterations are applied, as discussed in chapter 1. It is best to think of the minor mode as simply having variable forms for $\hat{6}$ and $\hat{7}$, the basic scale being the aeolian mode, which is called "natural minor."

The pitch complement and scale of the melody in example 2-35 uses two versions of $\hat{6}$ and $\hat{7}$. It is often said that the raised forms are used in ascending and the lowered forms in descending, but, as example 5 illustrates, there are so many exceptions to this that it can hardly be considered a meaningful rule.

EXAMPLE 2-35. J. S. Bach: Passacaglia, BWV 582

CHANGES IN TONALITY AND SCALES

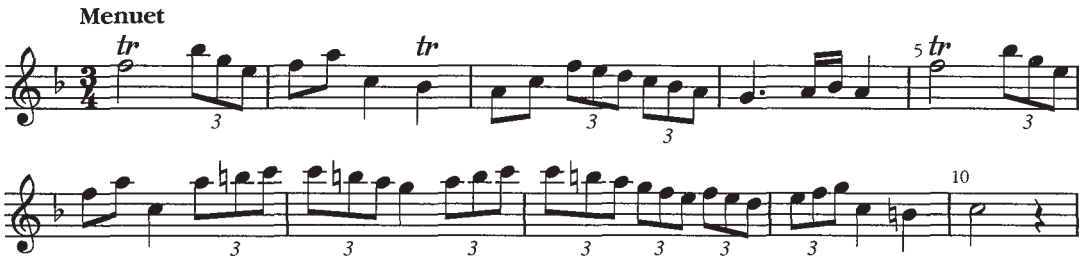
Only a relatively short musical composition will retain a single tonality or a single scale throughout. To create interest and build tension, a composer may change the tonic, the pitch complement, or both.

Modulation

modulation

A change of tonic is called a *modulation.* The new tonic in a modulation will commonly appear as a strong emergent tone, often near the end of the phrase. When a new tonic is established, a new pitch complement and scale take effect. In example 2-36 the first phrase remains in F major, but the complement changes in measure 6 (B-natural), and the emergent tones in measures 6–10 emphasize C and G, a P5 in which C is the root. The pitch complement of C major is apparent in the second phrase.

EXAMPLE 2-36. Haydn: Piano Sonata in C Major, Hob. XVI:9, second movement



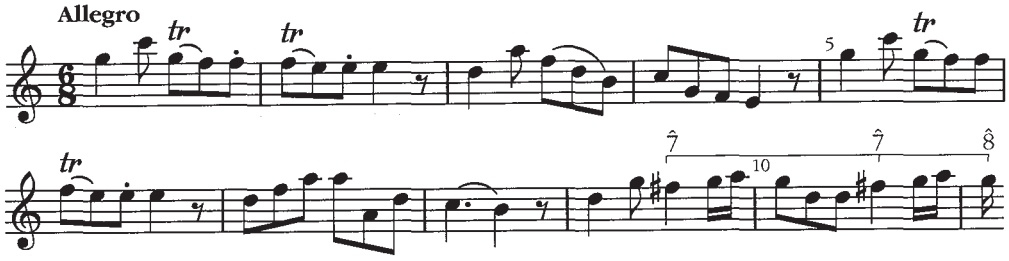
In example 2-37 the new tonic arrives as the last tone in a step progression. As was pointed out earlier, step progressions often end on tones that are of unusual significance to the tonality. In example 2-37 the step progression uses the critical tone for the modulation, F-sharp, as a leading tone resolving on G. The strong D in measures 7 and 8 affirms the new tonic with a $\hat{5}$–$\hat{1}$ relationship to the G tonic. A very rapid modulation can produce a startling effect, as seen in example 2-38.

Change of Mode

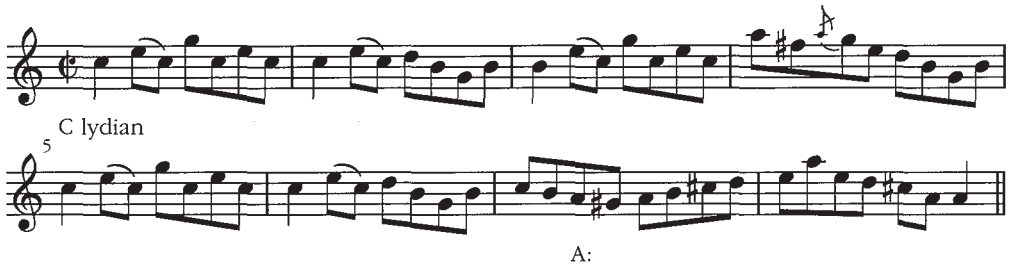
change of mode

Change of mode, sometimes called mutation, is the name given to a change in pitch complement while the tonic remains the same. The most common examples of a change of mode are changes from major to minor and vice versa, but the term may also be applied to changes involving other modes. Often a change of key signature heralds the change of mode to the parallel key, as in the change from A major to the parallel minor in example 2-39.

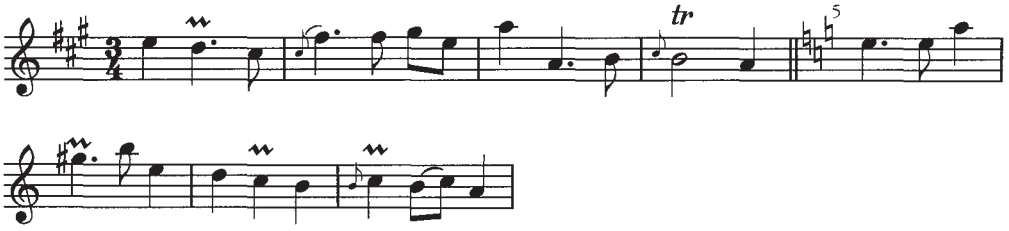
EXAMPLE 2-37. Haydn: Piano Sonata in C Major, Hob. XVI:15, first movement



EXAMPLE 2-38. Hartnett: *The Jolly Seven*



EXAMPLE 2-39. Rameau: Sarabande



WRITING MELODIES

In writing a melody, the following points may be useful.

1. It may help to start by composing a rhythm that lies comfortably in the chosen meter, employing agogic accents that usually confirm the meter. Phrases do not often end with a syncopation.
2. In your early efforts, begin on the first, third, or fifth scale degrees of the key you are in. Sing these tones so they are firmly in your ear as you begin selecting pitches.
3. Remember that skips are often followed by motion in the opposite direction.

4. Certain intervals are melodically problematic and should be handled with care. If your ear does not easily guide you in their handling, the following intervals should be avoided: major and minor sevenths, tritones, and intervals larger than an octave. The ascending seventh scale degree has a tendency to move to the tonic, while the descending fourth degree tends to move to the third.

SUMMARY

Melody consists of the interaction of melodic rhythm and contour, producing a rise and fall of tension and a sense of tonality. Melodic rhythm involves the use of accents (or points of emphasis), of which there are three types: dynamic, agogic, and metric. These accents reveal points in the melody where tension peaks and releases. Various aspects of melody—rhythm and pitch in particular—bring individual tones into prominence, giving them special importance in a melody. These tones are called emergent tones, and they often connect into step progressions and play an important role in establishing a sense of tonality.

A scale is an ascending succession of tones with fixed intervals and relationships beginning on a tonic. Not all melodies use every pitch in a scale, however, and the concept of pitch complement distinguishes those tones used in a melody from those that compose the scale on which the melody is based. Scales include seven diatonic modes, or scales that begin on each of the seven pitches in the diatonic system. Major and minor modes are also a part of the diatonic system. Only a short musical composition will retain a single tonality or scale throughout. The composer may change the tonic upon which the composition is based (called modulation) or may change the pitch complement (called change of mode).

APPENDIX A

Aspects of Acoustics

Acoustics, the science of sounds, encompasses some important concepts that are valuable for the study of basic theory. Sound consists of vibrations perceptible by the ear. As musical tones, these vibrations have four attributes: (1) frequency, (2) duration, (3) tone color or timbre, and (4) amplitude or loudness. Of concern here is a consideration of the attributes of musical pitch and the subject of tuning. Exercises related to material on acoustics are found in the appendix of the workbook.

VIBRATION

Sound is produced by vibrations, which may be started by striking the vibrating material, forcing air past it, plucking it, or using other physical means. From its position of rest, the vibrating body moves to a position of greatest displacement in one direction. Its natural resilience will draw it back toward its starting position, but it moves past that to the opposite extreme position, from which it returns to its starting position. This entire process constitutes one full cycle. This vibrating process has several aspects: frequency and the resonance of tone; overtones, which are perceived as tone color or timbre; and amplitude, which is considered as loudness.

Frequency

The number of cycles completed within one second is known as *frequency*. To a musician, a change of frequency is heard as a change of pitch; higher frequencies produce higher pitches. These vibrations occur at surprisingly rapid speeds. For example, c^1, or middle c on the piano, has a frequency of 261.1 cps (cycles per second). Cycles are measured in hertz, for example, 261.1 Hz. Vibrations are audible to humans within the range of 16 to 20,000 Hz. As people age, they often lose some of their ability to hear higher frequencies. For instance, the average person of fifty can hear up to only 15,000 Hz.

The pitch of a vibrating body depends upon several factors: the length of the vibrating body, the density of the material, the tension, the temperature, and the thickness. Music theorists since ancient Greece have paid particular attention to the relationship between the length of a vibrating body and its pitch. Comparing the pitch of a string eighteen inches long with the pitch of an identical string thirty-six inches long, under equal tension, finds them an octave apart. The mathematician Pythagorus, in the sixth century B.C., was able to make this measurement and conclude that the ratio of 2 to 1 produced the octave. Later, when the actual frequencies could be measured, it was found that the same ratio applies. Thus, if c^1 is 261.1 Hz., then c^2 (an octave higher) will be 522.2 Hz.

Resonance

Another vital factor in musical instruments is *resonance,* the transmission of vibrations from one vibrating body to another. This is important because ultimately the vibrations must be transmitted to the air around the instrument and thence to the listeners. In some instruments the resonators are obvious, such as the piano sound board or the body of the guitar or violin. In other instruments the resonator may be less obvious. In brass instrument the players' lips supply the vibrations, and the length of the tube is altered to provide resonance at the various pitches. A few percussion instruments have no resonators, for example, triangle and cymbals. These are instruments that do not produce a definite pitch. The glockenspiel, or orchestral bells, is a percussion instrument with definite pitch that also does not have resonators.

Overtones and Timbre

The vibration of a musical tone usually consists of a complex pattern in which the fundamental cycle contains smaller, faster cycles within it that are considered as an overtone series and that account for differences in tone color or timbre.

Vibration is not a simple swinging from side to side. Vibrating bodies vibrate in many segments simultaneously. For example, when the cello C string vibrates as a whole (fig. A-1), it produces the pitch shown in example A-1. But in fact the string does not vibrate only as a whole. It also vibrates in halves, thirds, fourths, fifths, and so on up to infinity (or at least up to the limits of flexibility for the vibrating string; see fig. A-2).

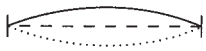


FIGURE A-1. Vibrating cello C string

EXAMPLE A-1. Pitch produced by cello's C string

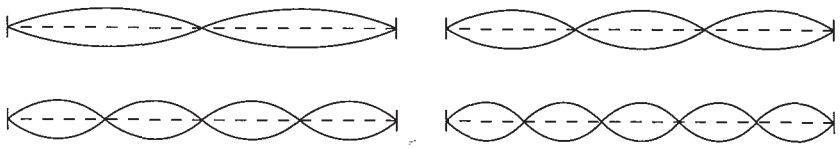
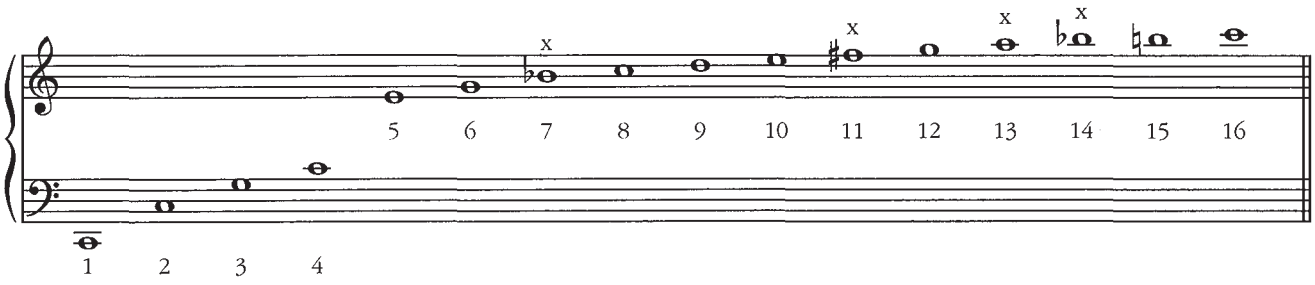


FIGURE A-2. Vibrating cello string

Such a complex pattern of motion is almost impossible to visualize, but in fact these vibrations do take place simultaneously. Since segments vary in length, a shorter segment produces a tone higher than the string vibrating as a whole (the fundamental). These higher tones are known as *overtones.* Overtones get increasingly faint as they get higher and further from the fundamental. Although the overtones extend to infinity, only the first fifteen are significant to most music theorists. Shown in example A-2 are the tones produced by an instrument sounding the fundamental C. This is called the *overtone series* or *harmonic series.* The term *harmonic* refers to the fundamental tone as well as to the overtones. The numbers in example A-2 indicate harmonics; thus, the fundamental is designated 1, the first overtone is designated 2, and so on.

EXAMPLE A-2. Harmonic series (Notes marked with an x are lower in pitch than corresponding sounds on the piano)



Several important observations can be made from this harmonic or overtone series. First, intervals get smaller and smaller as the series ascends. This is because the vibrating segments become increasingly shorter. Second, notice that harmonics 7, 11, 13, and 14 are significantly out of tune: They do not fit well into our system of tuning. Third, the numbers for the harmonics (or *partials* as they are sometimes called) show not only the order of the harmonics but the ratios that correspond to particular intervals. Thus, 2:1 represents the ratio of frequencies for tones an octave apart, 3:2 represents the ratio for the perfect fifth, 4:3 the perfect fourth, and so on. These ratios can be seen to work throughout the series. For example, the ratio between harmonic 6 and harmonic 12 is 2:1, an octave.

The acoustical basis for differences in tone color can be found in the overtones, for each vibrating body will produce a characteristic pattern of stronger and weaker partials. The varying prominence of one overtone or another will give each instrument its particular tone color (timbre). Other factors of course enter into the characteristic acoustical aspects of voices and instruments, such as the way in which the vibrations are initiated, but it is not possible to consider all these issues in detail here.

Loudness

Loudness varies with the amplitude of the vibrating body. When the vibrating body is displaced to a greater degree the tone produced will be louder. An interesting phenomenon operates here, for human ears are far more sensitive to high sounds than to low. Obviously, a guitar string vibrating as a whole has a greater amplitude, that is, moves further and displaces a correspondingly larger amount of surrounding air, than the vibrations of any of the upper partials of the same string. This explains why the higher one goes in the overtone series the fainter are the sounds produced.

TUNING AND TEMPERAMENT

As noted above, some of the intervals in the harmonic series do not fit into our tuning system. The interval from harmonic 7 to harmonic 8 is too large to be heard as a whole step, yet it is smaller than a minor third. The problem arises because our tuning system is a human construct while the harmonics are natural phenomena. The problem of reconciling these pitches has fascinated and plagued musicians for centuries. Pythagorus was able to calculate exactly the size of the discrepancy between the intervals that appear in nature and our system that attempts to divide the octave into twelve half steps.

The most perfect interval is the octave, but if we begin with any pitch and then tune the octave above and below it, we have not made any progress toward a system of tuning. In order to tune a new pitch we may turn to the next most perfect interval, the perfect fifth, with a ratio of 3:2. If we begin with a pitch, and from it tune new pitches using the ratio 3:2, we will indeed obtain all twelve tones of the chromatic scale (twelve half steps). For example, beginning with A-flat: A-flat, E-flat, B-flat, F, C, G, D, A, E, B, F-sharp, C-sharp, G-sharp.

Since G-sharp is the enharmonic equivalent of A-flat, it would seem that this is an ideal way of tuning the chromatic scale. Unfortunately, this G-sharp is not the same as A-flat. When one begins on A-flat and calculates the twelve perfect fifths at the ratio of 3:2 and transposes the final G-sharp into the same octave as original A-flat, one finds a discrepancy of 128:129.746 or $^{24}/_{100}$ of a minor second (approximately one-fourth of a half step). This discrepancy can easily be heard and is quite sufficient to render this method of tuning impractical for most music performed today. The discrepancy is known as the *Pythagorean comma;* it has troubled musicians and instrument builders for centuries.

It may seem this discussion is abstract and somewhat divorced from the practical concerns of a performing musician, but this is not the case. When musicians sing or play instruments on which the pitch may be adjusted, they use "pure" intonation, that is, they place each tone as closely in tune as possible. The perfect fifth will be very close to the 3:2 ratio. The sensitive musician makes constant adjustments to keep each successive chord and interval in tune. But when one tries to tune all twelve pitches at once, as on a keyboard instrument, one is faced with the decision of whether to have the fifths in tune or the octaves, but one cannot have both at the same time. Obviously, out-of-tune octaves would be intolerable, and so we must resort to a system of *temperament,* which is a process of accommodating various intervals to the unavoidable conflict between a human tuning system and the intervals as they appear in nature.

Many attempts were made to solve the dilemma. The final compromise, gradually adopted in the eighteenth and nineteenth centuries, is known as *equal temperament.* In equal temperament, the octave is the only interval that is truly in tune; the Pythagorean comma is equally divided between all twelve tones. Each fifth is slightly smaller than the "pure" perfect fifth. To get a useable picture of how the pitches in the Pythagorean tuning system compare with equal temperament, it will be easiest to use the *cent* system, in which the equal-tempered half step is divided into 100 parts. Thus, an interval of a minor second would be 100 cents; a major second, 200 cents; and so on.

Table A-1 shows the Pythagorean method of calculating each interval. The perfect fifth in the Pythagorean scale is equal to 702 cents, slightly larger than the perfect fifth in equal temperament (700 cents). As one adds fifths above C the discrepancy or comma increases until one reaches 24 cents, the full Pythagorean comma. It will appear that the equal-tempered scale is more regular and "correct," but in fact neither scale can resolve the dilemma of good intonation and regular-sized intervals.

Tone	Adding perfect fifths (3:2) in the Pythagorean system P5 = 702 cents	Corresponding tone in equal temperament	Difference in cents
A♭	0	0	0
E♭	0 + 702	700	2
B♭	702 + 702 = 1404 − 1200 = 204	200	4
F	204 + 702 = 906	900	6
C	906 + 702 = 1608 − 1200 = 408	400	8
G	408 + 702 = 1110	1100	10
D	1110 + 702 = 1812 − 1200 = 612	600	12
A	612 + 702 = 1314 − 1200 = 114	100	14
E	114 + 702 = 816	800	16
B	816 + 702 = 1518 − 1200 = 318	300	18
F♯	318 + 702 = 1020	1000	20
C♯	1020 + 702 = 1722 − 1200 = 522	500	22
G♯	522 + 702 = 1224	1200	24

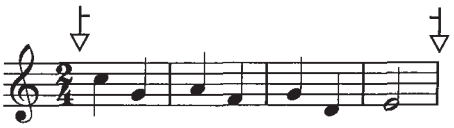
TABLE A-1. Comparison (in cents) of pitches in the Pythagorean and equal-tempered scales

APPENDIX B

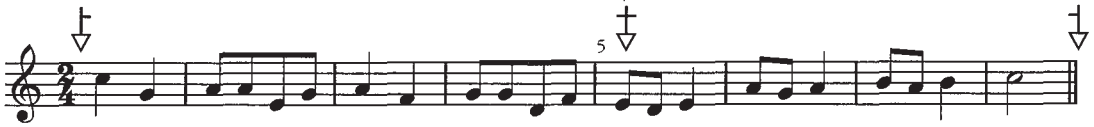
Guide to Analytical Symbols

Structural Analysis

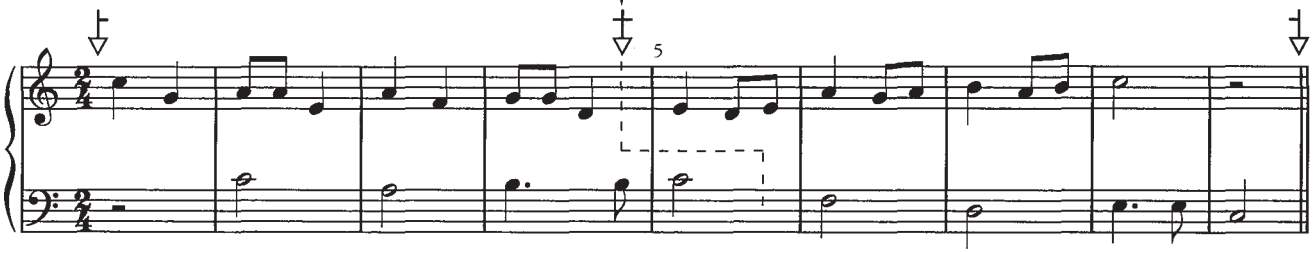
First-level unit (phrase) — Chapter 3



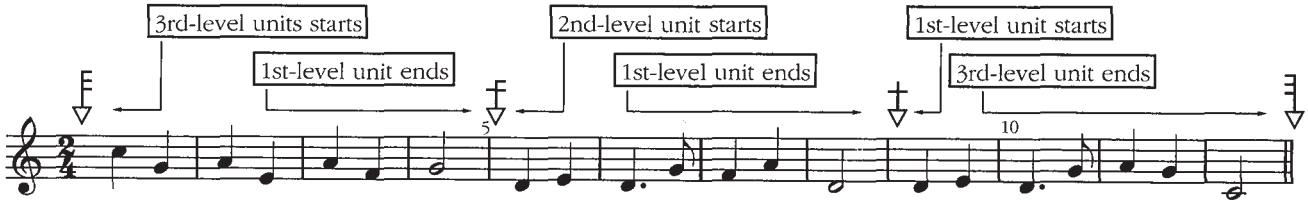
Interlocking phrases — Chapter 3



Overlapping phrases — Chapter 21

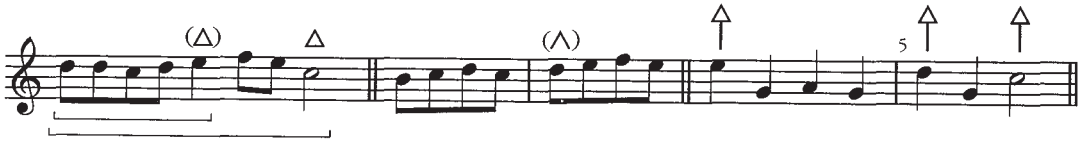


Higher-level units — Chapter 21



Rhythmic and Melodic Analysis — Chapter 2

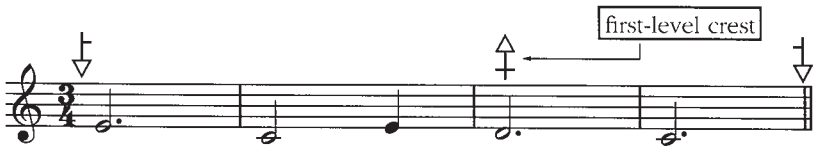
Agogic accents — Metric accents — Emergent tones



Tension Analysis

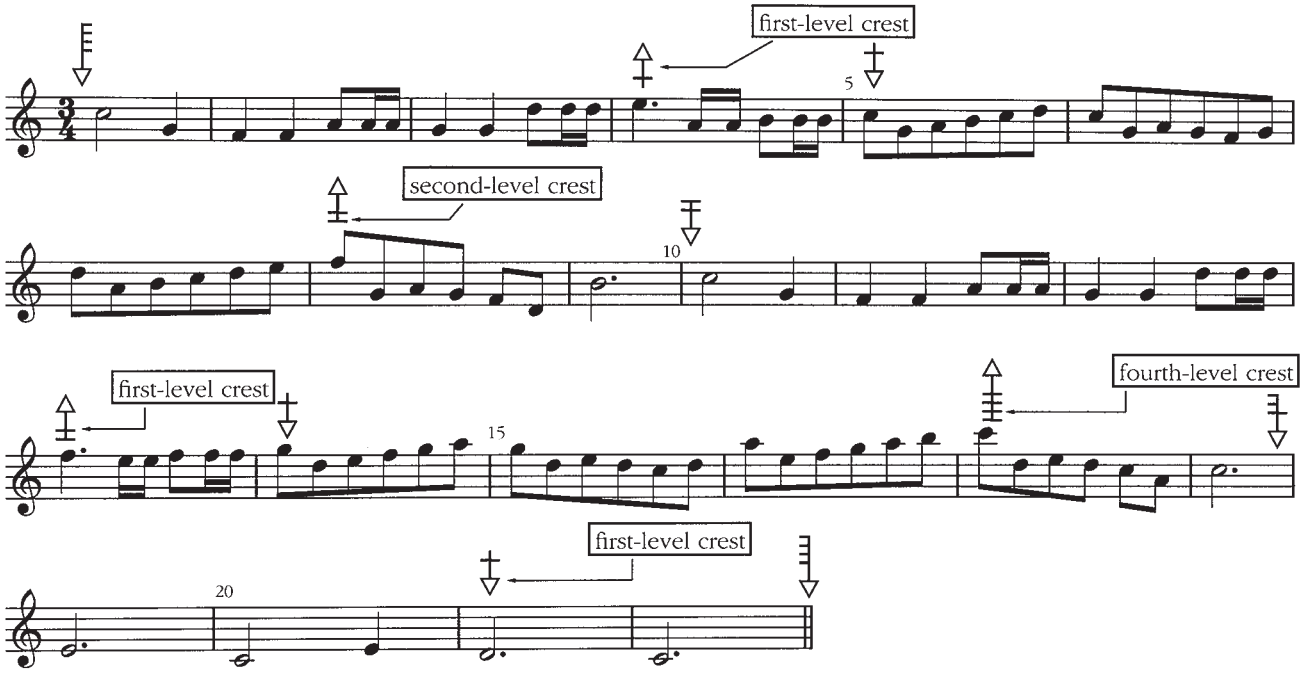
Crests of phrase at first level

Chapter 3



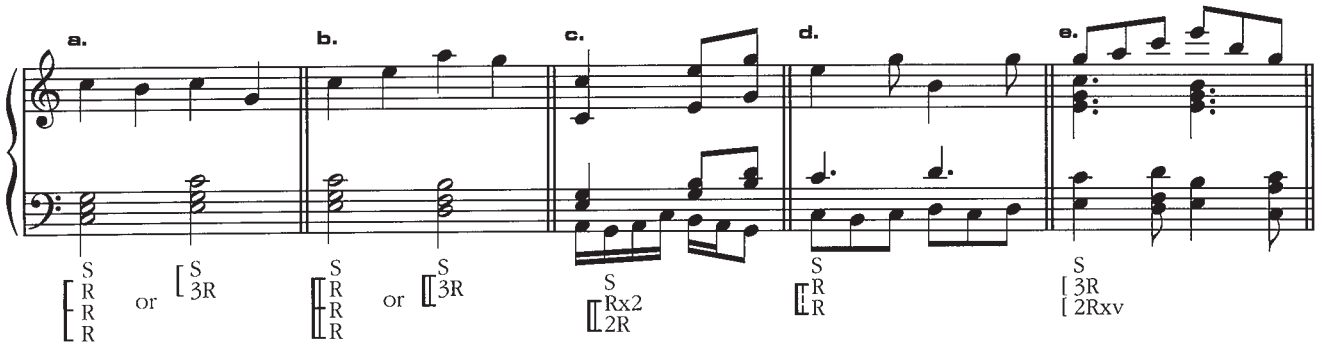
Crests of higher-level units

Chapter 24



Textural Analysis

Chapter 15



GLOSSARY

This glossary includes the most important terms from the lists of new terms given at the beginning of each chapter. Not included are terms that are assumed to be already in the students' vocabulary from previous training but only reviewed in this text, terms that are synonymous with other more commonly used terms, terms of incidental interest, and terms whose meanings are not limited to usage in music.

AGOGIC ACCENT: The psychological emphasis that accrues to a tone that is preceded by one or more shorter tones.

AGOGIC PATTERN: A group of durations ending with the longest and including all the preceding shorter durations. The last tone is called the thesis; the shorter note or notes are termed the arsis. Agogic patterns within an arsis are called subordinate agogic patterns.

ALTERNATE PROGRESSION: A progression that does not appear in the table of normal progressions but that occurs with such frequency that it cannot be considered irregular, that is, IV–I, V–vi, vi–V, iii–IV.

ANTECEDENT: The first of a pair of phrases that group to form a period.

ARSIS: See agogic pattern.

ATONALITY: Absence of tonality; implying that a tonal center has not been established.

AUGMENTATION: The reappearance of a motive with the note values increased by a specific amount, often doubled.

BASIC DURATION (BD): The duration of a beat considered as the time elapsing between pulses.

BEAT GROUP: A group of two or three beats (basic durations) in which the first beat is either a primary or secondary accent within a meter. In meters with two or three beats, the whole measure is a beat group, and meters with four or more beats contain two or more beat groups of two or three beats each.

BORROWED CHORDS: Chords that contain tones borrowed from another mode, for example, in a major key, a chord that uses one or more tones found in the parallel minor key, such as minor iv.

CHORD: A simultaneous sounding of three or more different tones. Certain combinations of tones produce chords that are heard as consonant, while others are heard as dissonant. Chords may be implied when the tones are played in arpeggiated fashion, so that the tones are sounded successively, not simultaneously.

CHORD GROUP: In the table of normal progressions all chords are assigned to a group that bears a particular relationship to the tonic. Chords within a particular group usually progress to a chord in the next lower-numbered group.

CHORD TONE: A tone that is a member of the chord sounding at a particular moment.

CONJUNCT MOTION: Melodic motion in which each tone moves to the nearest available tone in the scale, avoiding any skips (disjunct motion).

CONSEQUENT: The second of a pair of phrases grouped to form a period.

CONTINUO: In ensemble music of the Baroque era, the bass part, which was usually played by a bass instrument along with a keyboard player who improvised the chords normally indicated by figures (Arabic numbers) written by the composer.

COUPLING: Two or more simultaneously sounding parts with identical melodic contour or rhythmic content. The coupling may be rhythmic, meaning the lines have identical rhythms, or the coupling may be full, in which case the lines have identical rhythm and contour. The contours may be any interval apart except unison or one or more octaves, in which cases the relationship is termed doubling.

CREST OF TENSION: The point in a phrase or higher structural unit at which the tension reaches its highest level and the release of tension begins.

DA CAPO: The Italian instruction ("from the head") to return to the beginning of the piece and perform the first section again. Between the first and second performances of the first section lies a middle part, producing the overall unit relationship ABA. Da capo forms are common in dance and dance-influenced pieces.

DELAY: In imitation, the time elapsing between the initial statement by the leader and the appearance of the follower. The delay is usually measured in beats or measures.

DIATONIC MODES: Any of the seven patterns that are possible within the diatonic system, that is, the patterns that arise if one begins on a particular tone in the system and includes all diatonic tones within an octave.

DIATONIC SYSTEM: The pattern of tones with relationships as represented in the white keys of the piano keyboard. A scale may begin on any of the seven tones within an octave. All such scales are called diatonic, and may be transposed to any pitch.

DISJUNCT MOTION: Melodic motion by skip, that is, motion in which the melody does not move to the nearest available tone, but leaps to a more distant tone. Most melodies combine disjunct and conjunct motion.

DISSONANCE: A sounding of two or more tones that are not heard as part of the same chord. The result is a perception of disagreement or tension. A dissonance in traditional music requires a resolution, a movement by one or more of the tones to a tone perceived as consonant with the surrounding tones.

DYNAMIC ACCENT: The psychological emphasis brought to a tone by playing or singing it louder than surrounding tones.

EMERGENT TONE: A tone in a melody that achieves special prominence through its rhythmic location, duration, contour, or other feature.

FIGURED BASS SYSTEM: In the Baroque era, a method of indicating along with the bass line through Arabic numbers the appropriate chords to be improvised by a keyboard player. This shorthand system has been used for teaching harmony up to the present time.

FIRST-LEVEL UNIT: A phrase, which is the basic unit of musical form. The analytical method used in this text indicates the point between phrases by a downward arrow with single slashes.

FORMAL UNIT: A unit of musical structure. The smallest such unit is the phrase. Phrases combine to form periods, which group to form ever-larger units, allowing the creation of huge musical works. Each unit is set off by the ending (cadence) of the preceding unit. Sometimes called structural unit.

HARBINGER CHORD: In a modulation, the first chord that is clearly not in the original key. This harbinger signals the approach of the new key.

HARMONIC CADENCES: The harmonic characteristics at the end of a phrase. Conventionalized types are used to achieve varying degrees of conclusiveness and inconclusiveness at the end of the phrase.

HARMONIC CYCLE: A chord progression extending from one appearance of the tonic chord to the next. It may include one or many intervening chords.

HARMONIC RHYTHM: The rhythm created by the changes of harmony.

HETEROPHONY: The simultaneous sounding of two differing versions of a melody.

IMPLIED LINE: The perceived division of a melodic line into two or more component lines, creating the illusion of simultaneous parts. Monophony can be heard as polyphony through this device. Usually the lines are projected through disjunct motion.

INTERVAL ROOT: In any interval, one tone is perceived as dominating. This is the root of the interval.

MELODIC DOUBLING: The reinforcing of a melodic line by another voice or instrument sounding the same melody in unison or octaves.

MELODIC INVERSION: The reappearance of a melodic line with the directions reversed, that is, those intervals that at first were ascending are later heard descending, and vice versa.

METRIC ACCENT: Accent points ascribed to the meter.

MODULATION: A change of tonal center or of key. The establishing of a new tonic.

MUTATION: A change of mode, as from major to minor or vice versa, without a change of tonic.

NONHARMONIC TONE: A tone that is not a member of the chord sounding at a particular time.

NORMAL PROGRESSION: A progression that has been traditionally used so often that it can be considered normal or expected. These are reflected in the table of normal progressions. Harmony that uses predominately normal progressions is said to be functional.

QUASI-CADENCE: A cadence effect created by any of various elements, such as contour or rhythm, but not reflected in the harmony.

RECAPITULATION: The return of a section of music heard earlier, usually the first part of a piece returning toward the end.

RECESSIVE LINE: A melodic line that is perceived as secondary or less important than the salient line or lines.

ROUNDED BINARY FORM: A binary form in which the opening material returns toward the middle of the second part. The return is in the tonic key.

SALIENT LINE: A melodic line that captures the primary attention of the listener.

SECONDARY DOMINANT: A chord (other than V) that has been altered to have the relationship of dominant to a chord that is not tonic, for example, the dominant of the supertonic chord (V/ii).

SEQUENCE: In melody, the repetition of a motive on a new pitch level. In harmony, a progression that presents chords in recurring interval relationships, such as a progression with the bass moving by thirds: I–vi–IV–ii.

STEP PROGRESSION: Step-wise relationship between emergent tones of a melody. Other emergent and non-emergent tones may intervene.

SUBPHRASE: A structural unit that forms a component division of a phrase. Not all phrases have subphrase units. In the Classical period subphrase units were often two measures in length.

TERNARY FORM: A formal pattern consisting of the unit relationship ABA. This pattern is often used in shorter works and in numerous da capo forms.

TONAL ARCH: A pattern of key organization in which the initial key of a work returns at the end after modulating to other keys.

TRIAD: A particular type of chord, consisting of three tones, or members. The basic form of the triad is built on a tone called the root. A third above the root lies a second tone, and a fifth above the root lies the last tone. The members of the triad need not appear in this order at all times.

UNIT RELATIONSHIP: The thematic relationship of one formal unit to another. These relationships are expressed by letters of the alphabet. Two phrases that are identical would have a unit relationship of aa or, if quite different, ab. If they were similar they might be called aa′. Unit relationships are also seen in higher structural levels, in which case capital letters are used, for example, ABA.

Vol	Book	Page	Change
	Text		
1	tx	10	ex.1-13c 2/2 not 2/4
1	tx	41	ex.2-20 add an up-arrow above the 5^ so it is an emergent tone.
1	tx	52	ex.2-38 m.3 1st note is C, not B
1	tx	63	2nd from last paragraph, line 2: change p.000 to p.399
1	tx	76	in parag. under "Types of Triads" line 5, change "minor third" to "major third".
1	tx	82	table 4-1: vii^{7} needs slash on the o = vii$^{\emptyset 7}$.
1	tx	83	table 4-2: ii^{7} should have slash on the o: = ii$^{\emptyset 7}$.
1	tx	106	ex.7-5b 1st note in alto = G, not F
1	tx	116	ex.11-9 should be "bin ich nit"; "mit" is wrong.
1	tx	200	ex.14-2b in m.8 down-arrow belongs between 1st & 2nd 8ths, HC; rest of bar in next phrase.
1	tx	200	ex.14-2b m.5 LH has C on top.
1	tx	222	ex.15-14d in m.1 & 3 the brackets with vR should be [vR], not including the Sx2 or S. [See extra sheet]

m.1 m.3

Sx2 S

[vR [vR

1	tx	223	ex .15-15 m.6 bracket with vR should not include the S, hence [vR
1	tx	223	ex. 15-15 m.12 the bracket with vR should not include the S, hence [vR. See corrected version below.

m.6 m.12

Sx2 S

[vR [vR [Also, see extra sheet.]

1	tx	242	ex.16-10 m.1 L above the bass part in LH
1	tx	283	ex.19-5 key is C: not G:
1	tx	296	ex.20-3 m.7 last note in sop. = D, not E
1	tx	298	ex.20-6 m.5: vii$^{\emptyset 7}$ not ii$^{\emptyset 7}$
1	tx	309	ex.21-2 title incomplete:
1	tx	310	ex.21-4 change caption to read: Symmetrical and asymmetrical units
1	tx	320	ex.21-16b Key is c: (minor)
1	tx	353	fig.23-5 meas.no. don't match score arrows. See list of 13 erroneous numbers, from m.14 to m.50:

15,19,23,29,33,43,(50) should be replaced with 14,18,22,32,38,42,(48) respectively as below (in bold & underlined): [See extra sheet]

1 5 9 **14 18 22 28 32 38 42 (48)** (54) (58) (63) (67) (71) (77) (81)

1	tx	401	m.13 under "Crest of higher-level units. The 1st level crest (uparrow) must have 1 slash, not 2.
1	tx	401	m.21 arrow must point up, not down.

Workbook

1	wb	38	exr.3-8d, missing symbol after "with": add triangle in parentheses.
1	wb	111	exr.10-6f The set of "643" numbers belong under the 2nd note, not the 1st.
1	wb	130	exr.12-4 m.6 V --omit 4 and the 3
1	wb	150	Sonata in A major, Hob. XVI:5, not in G!
1	wb	163	exr15-1, line 6, change p.000 to p.234
1	wb	248	exr.20-2e key sig. of voice OK,but piano must be one flat, pp248-249
1	wb	280	exr.22-1j m.14 LH beat 3 should be D#, not D natural
1	wb	306	exr.23-1f sys 7 key sig. missing in piano part: must have one flat.

INDEX

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U

V

W/X/Y/Z