

Chapter Two













Elements of Rhythm

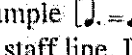
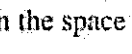
Rhythm

This chapter concerns the time aspect of music—how sounds are notated so that they will occur at a predictable moment and in a predetermined pattern. **Rhythm** is a general term used to refer to the time aspect of music, as contrasted with the pitch aspect.

Durational Symbols

Durations are notated by using symbols that are organized so that each symbol is twice the duration of the next shorter symbol and half the duration of the next longer symbol. The table below lists a number of these symbols.

Value	Note	Rest
Breve		
Whole		
Half		
Quarter		
Eighth		
Sixteenth		

The same series could be continued to thirty-seconds, sixty-fourths, and so on. Durations other than these must be indicated through the use of ties, dots, or other symbols. A tie is a curved line that connects two notes of the same pitch, creating a new duration that is equal to their sum. A dot always adds to the duration one-half the value of the note, rest, or dot that precedes it, for example [] and []. When notated on the staff, a dot is never placed on a staff line. If the notehead itself is on a staff line, the dot is put to the right of the note but in the space *above* it.

Beat and Tempo

The **beat** is the basic pulse of a musical passage. To determine the beat of a passage you are listening to, tap your foot to the music, or try to imagine the way a conductor would conduct the passage—the conductor's arm movement. The resulting steady pulse is called the beat, and the rate at which the beats occur is called the **tempo**.

A composer commonly specifies the tempo of a passage by one of two methods—sometimes by both. The first method uses words, often in Italian, to describe the tempo.

Italian	English	German	French
Grave	Solemn	Schwer	Lourd
Largo	Broad	Breit	Large
Lento	Slow	Langsam	Lent
Adagio	Slow	langsam	Lent
Andante	Moderately slow	Gehend	Allant
Moderato	Moderate	Mässig	Modéré
Allegretto	Moderately fast	Etwas bewegt	Un peu animé
Allegro	Fast	Schnell	Animé
Vivace	Lively	Lebhaft	Vif
Presto	Very fast	Eilig	Vite

The second method is more exact because it shows precisely how many beats are to occur in the space of one minute. For example, if the desired tempo would result in seventy-two quarter notes in one minute, the tempo indication would be $\text{♩} = 72$ or M.M. $\text{♩} = 72$. The M.M. stands for Maelzel's metronome, after Johann Maelzel, who widely promoted the device during the early nineteenth century.

Meter

Beats tend to be grouped into patterns that are consistent throughout a passage; the pattern of beats is called the **meter**. Groups of two, three, and four beats are the most common, although other meters occur. Incidentally, a group of four beats could often also be interpreted as two groups of two beats each and vice versa. In any case, the groups of beats are called **measures** (abbreviated m. or mm.), and in notation the end of a measure is always indicated by a vertical line through the staff called a **bar line**. The words **duple**, **triple**, and **quadruple** are used to refer to the number of beats in each measure, so we have **duple meter**, **triple meter**, and **quadruple meter**. These terms are summarized below, along with the pattern of stresses usually found in each meter (referred to as **metric accent**).

Grouping	Meter type	Metric accent pattern
Two-beat measure	Duple	Strong-weak
Three-beat measure	Triple	Strong-weak-weak
Four-beat measure	Quadruple	Strong-weak-less strong-weak

As you might imagine, most marches are in duple meter because people have two feet, whereas contemporary popular music tends to be in duple or quadruple meter. Waltzes are always in triple meter, as are a number of traditional songs, such as "Amazing Grace" and "Scarborough Fair."

The meter of many passages is clear and easily identified, but in other cases the meter might be ambiguous. For example, sing "Take Me Out to the Ball Game" quite slowly while you tap your foot or conduct, then decide on the meter type. Now sing it again, but very fast. The first time you probably felt the meter was triple, but at a faster tempo you should have identified the meter as duple (or quadruple). Between those extreme tempos are more moderate tempos, which two listeners might interpret in different ways—one hearing a faster triple meter, the other a slower duple meter. Both listeners would be correct because identifying meter in a case such as this is a matter of interpretation rather than of right and wrong.

Self-Test 2-1

(Answers begin on page 565.)

- A. Show how many notes or rests of the shorter duration would be required to equal the longer duration.

ex. $\text{♩} \times \underline{2} = \text{♩}$

1. $\text{♩} \times \underline{\quad} = \text{♩}$

2. $\text{♩} \times \underline{\quad} = \text{♩}$

3. $\text{♩} \times \underline{\quad} = \text{♩}$

4. $\text{♩} \times \underline{\quad} = \text{♩}$

5. $\text{♩} \times \underline{\quad} = \text{♩}$

6. $\text{♩} \times \underline{\quad} = \text{♩}$

7. $\text{♩} \times \underline{\quad} = \text{♩}$

8. $\text{♩} \times \underline{\quad} = \text{♩}$

9. $\text{♩} \times \underline{\quad} = \text{♩}$

10. $\text{♩} \times \underline{\quad} = \text{♩}$

11. $\text{♩} \times \underline{\quad} = \text{♩}$

12. $\text{♩} \times \underline{\quad} = \text{♩}$

13. $\text{♩} \times \underline{\quad} = \text{♩}$

14. $\text{♩} \times \underline{\quad} = \text{♩}$

15. $\text{♩} \times \underline{\quad} = \text{♩}$

16. $\text{♩} \times \underline{\quad} = \text{♩}$

- B. Sing aloud each of the songs listed below. Then identify the meter type of each, using the terms **duple**, **triple**, and **quadruple**.

1. "Silent Night" (slow tempo) _____

2. "Jingle Bells" _____

3. "America the Beautiful" _____

4. "Seventy-Six Trombones" _____

5. "Home on the Range" _____

C. Scale review. Given the key and the scale degree, supply the note name. Assume the **melodic minor** form for each minor key.

ex. f#	$\hat{4}$	B	8. Bb	$\hat{4}$	_____
1. Db:	$\hat{6}$	_____	9. c:	$\downarrow \hat{6}$	_____
2. f:	$\hat{3}$	_____	10. e:	$\hat{4}$	_____
3. A:	$\hat{5}$	_____	11. Ab:	$\hat{7}$	_____
4. B:	$\hat{3}$	_____	12. F#	$\hat{2}$	_____
5. g:	$\uparrow \hat{6}$	_____	13. bb:	$\hat{5}$	_____
6. c#:	$\downarrow \hat{7}$	_____	14. E:	$\hat{6}$	_____
7. Eb:	$\hat{5}$	_____	15. d:	$\uparrow \hat{7}$	_____

Exercise 2-1 See Workbook.

Division of the Beat

In most musical passages we hear durations that are shorter than the beat. We call these shorter durations **divisions of the beat**. Beats generally divide either into two equal parts, called **simple beat**, or into three equal parts, called **compound beat**. Be careful not to confuse beat type, which refers to how the beat divides (simple or compound), with meter type, which refers to how the measure divides (duple, triple, or quadruple). The common beat and meter types can be combined with each other in six possible ways.

BEAT	METER		
	<i>Duple</i>	<i>Triple</i>	<i>Quadruple</i>
<i>Simple</i>	Simple duple	Simple triple	Simple quadruple
<i>Compound</i>	Compound duple	Compound triple	Compound quadruple

For example, sing "Take Me Out to the Ball Game" quickly in duple meter, as you did in the discussion of meter on p. 27. You can hear that the beats divide into thirds, so this is an example of compound duple. Do the same with "I Don't Know How to Love Him" (from *Jesus Christ Superstar*) or "Around Her Neck She Wore a Yellow Ribbon," and you will find that both are simple duple (or simple quadruple).



CHECKPOINT

1. How many 16th notes are there in a half note?
2. Two dots following a quarter note add what durations to it?
3. What is the term that refers to the number of beats in a measure?
4. What term refers to the way that the beats divide?

Self-Test 2-2













(Answers begin on page 565.)

Sing aloud each of the songs listed below. Then identify the beat and meter types of each, using terms such as **simple duple** and so on.

1. "Auld Lang Syne" _____
2. "Pop Goes the Weasel" _____
3. "Silent Night" _____
4. "Jingle Bells" _____
5. "Seventy-Six Trombones" _____

Simple Time Signatures

A **time signature** is a symbol that tells the performer how many beats will occur in each measure, what note value will represent the beat, and whether the beat is simple or compound. A time signature for a simple beat has 2, 3, or 4 as the top number. The top number indicates the number of beats in the measure; the bottom number indicates the beat note ($2 = \text{♩}$, $4 = \text{♩}$, $8 = \text{♩}$, and so on). Some typical simple time signatures are listed in the following table.

Time signature	Beats per measure	Beat note	Division of the beat
$\frac{2}{4}$	2		
$\frac{2}{2}$ or C	2		
$\frac{3}{8}$	3		
$\frac{3}{4}$	3		
$\frac{4}{8}$	4		
$\frac{4}{4}$ or C	4		

Example 2-1 illustrates how some of the songs we have been considering might be notated. The beat values were chosen arbitrarily. "Jingle Bells," for example, could also be notated correctly in $\frac{3}{2}$ or $\frac{3}{8}$ or any other simple duple time signature.

Example 2-1

"Jingle Bells"



"America the Beautiful"



"Home on the Range"



Self-Test 2-3

(Answers begin on page 566.)

A. Fill in the blanks.

	Beat and meter type	Beat note	Division of the beat	Time signature
1.	Simple duple			
2.				$\frac{3}{8}$
3.				2
4.	Simple quadruple			
5.	Simple triple			









B. Renotate the excerpts from Example 2-1 using the specified time signatures.

- $\frac{2}{8}$ "Jingle Bells"
- $\frac{4}{2}$ "America the Beautiful"
- $\frac{3}{4}$ "Home on the Range"













Exercise 2-2 See Workbook.

Compound Time Signatures

If the beat divides into three equal parts, as in compound beat, the note value representing the beat will be a dotted value, as shown below.

Beat note	Division of the beat
	
	
	
	

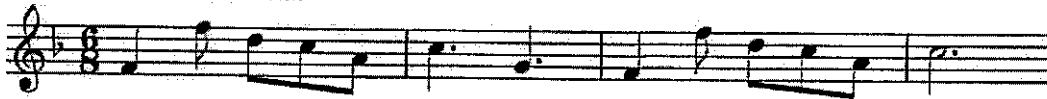
Dotted values present a problem where time signatures are concerned. For example, if there are two beats per measure, and the beat note is ♩. , what would the time signature be? $\frac{2}{4}$? $\frac{3}{4}$? $\frac{2}{8}$? $\frac{3}{8}$? $\frac{2}{8}$? $\frac{3}{8}$? There is no easy solution, and the method that survives today is the source of much confusion concerning compound beat. Simply stated, a compound time signature informs the musician of the **number of divisions** of the beat contained in a measure and what the **division duration** is. This means that the top number of a compound time signature will be 6, 9, or 12 because two beats times three divisions equals six, three beats times three divisions equals nine, and four beats times three divisions equals twelve. Some examples are given in the table below.

Time signature	Beats per measure	Beat note	Division of the beat
$\frac{6}{8}$	2		
$\frac{6}{4}$	2		
$\frac{9}{16}$	3		
$\frac{9}{8}$	3		
$\frac{12}{8}$	4		
$\frac{12}{4}$	4		

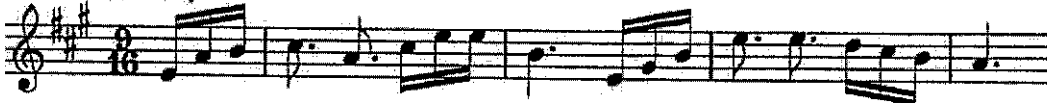
Example 2-2 illustrates some familiar tunes that use compound beat. As before, the choice of the actual beat note is an arbitrary one.

Example 2-2

"Take Me Out to the Ball Game"



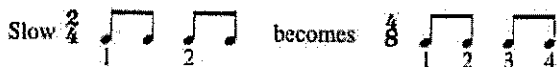
"Down in the Valley"



"Pop Goes the Weasel"



You can see from this discussion that compound time signatures do *not* follow the rule, so often learned by the student musician, that "the top number tells how many beats are in a measure, and the bottom number tells what note gets the beat." Of course, there are some pieces in $\frac{6}{8}$, for example, that really do have six beats to the measure, but such a piece is not really in compound duple. A measure of $\frac{6}{8}$ performed in six does not sound like compound duple; instead, it sounds like two measures of simple triple, or $\frac{3}{8}$. In true compound duple, the listener will hear two compound beats to the measure, not six simple beats. In the same way, a slow work notated in $\frac{2}{4}$ might be conducted in four, which would seem to the listener to be simple quadruple. In both cases, the usual division value has become the beat value.



The reverse also occurs—that is, the usual beat value sometimes becomes the actual division value. For example, a fast waltz or scherzo is almost always notated as simple triple, usually as $\frac{3}{4}$. But the aural effect is of one beat per measure, for which we might use the term **compound single**. If you didn't know the metric convention of such pieces, you would probably assume when hearing them that they were in compound duple because the measures tend to group in pairs.





CHECKPOINT

1. What three numbers are found on the top of simple time signatures?
2. What three numbers are found on the top of compound time signatures?
3. If the top number of a compound time signature is 9, how many beats will there be in the measure?

Self-Test 2-4

(Answers begin on page 566.)

A. Fill in the blanks.

Beat and meter type	Beat note	Division of the beat	Time signature
1. Compound duple			
2.			$\frac{9}{4}$
3.			6
4. Compound quadruple			
5.			9

B. Renotate the excerpts from Example 2-2 using the specified time signatures.

- $\frac{6}{4}$ "Take Me Out to the Ball Game"
- $\frac{9}{8}$ "Down in the Valley"
- $\frac{6}{16}$ "Pop Goes the Weasel"











Exercise 2-3 See Workbook.

Time Signatures Summarized

There are two types of beat, simple and compound, and three common meters, duple, triple, and quadruple, which can be combined in a total of six ways. For each of these six combinations there is a number that will always appear as the top part of the time signature.

Beat type	METER TYPE		
	Duple	Triple	Quadruple
Simple	2	3	4
Compound	6	9	12




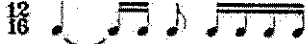
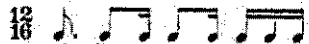


A listener can usually recognize the beat and meter types of a passage without seeing the music. Therefore, you can usually say what the top number of the time signature is (except that duple and quadruple are often indistinguishable). However, to know what the bottom number of the time signature is, you have to look at the music because any number representing a note value can be used for any meter.

Bottom number	Simple beat duration	Compound beat duration
1		
2		
4		
8		
16		

Remember that the bottom number of a time signature (the leftmost column in the table above) stands for the **beat** value in a **simple** time signature and the **division** value in a **compound** time signature.

More on Durational Symbols

When rhythms are notated, it is customary to use rests, beams, ties, and dots in such a way that the metric accent and the individual beats are emphasized rather than obscured. Several incorrect and correct examples are notated below.

Incorrect	Correct
	
	
	
	











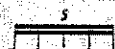
Of course, it is correct to notate rhythms so as to obscure the metric accent when that is the desired result. **Syncopations** (rhythmic figures that stress normally weak beats or divisions) are frequently notated in that way, as below.



More involved figures, such as the following, are especially common in twentieth-century music.

$$\frac{2}{4} \text{ ♩ } \text{ (>>) } \text{ ♩ } \text{ (>>) } | = \frac{3}{8} + \frac{3}{8} + \frac{3}{8}$$

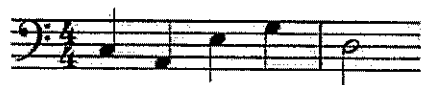
A **grouplet** (or **tuplet**) refers to the division of an undotted value into some number of equal parts other than two, four, eight, and so on or the division of a dotted value into some number of equal parts other than three, six, twelve, and so on, as you can see below.

Original value	Grouplet
	 also  , etc.
	
	
	
	

Of all the possibilities, the superimposition of triplets on a simple beat is the most common. The note value of a grouplet is determined by the next longer available note value. For example, a third of a quarter note is longer than a sixteenth note but shorter than an eighth note, so the eighth note is chosen to represent it.

When a single-stem note is notated on the staff, the stem should go up if the note is below the middle line and down if the note is above the middle line. A note on the middle line theoretically can have its stem point in either direction, but most professional copyists consistently put a downward stem on notes that occur on the middle line (Ex. 2-3).

Example 2-3



Beams are used to connect durations shorter than a quarter note when the durations occur within the same beat. Not all professional copyists follow the same rules for determining the stem direction of beamed notes. Our preference is to decide the direction of the stems on the basis of the note that is farthest from the middle line. That is, if the note that is farthest from the middle line is below it, all the stems that are to be beamed together will point upward (Ex. 2-4).

Example 2-4



Self-Test 2-5

(Answers begin on page 567.)

A. Fill in the blanks.

Beat and meter type	Beat value	Division of the beat	Time signature
1.			$\frac{4}{4}$
2. Compound triple			
3.			$\frac{2}{8}$
4. Compound duple			
5.			3
6.			12

B. Each measure below is incomplete. Add one or more rests to the end of each to complete the measure.



C. Provide the best time signature for each exercise. In some cases more than one correct answer might be possible.




D. Each passage below is notated so that placement of the beats is obscured in some fashion. Without changing the way the music will sound, rewrite each one to clarify the beat placement. This may involve breaking some of the long notes into tied shorter notes or rebeaming groups of notes.

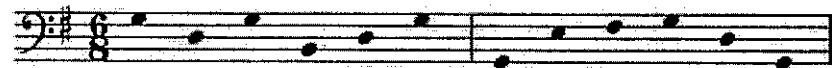
1.  _____
2.  _____
3.  _____
4.  _____

E. Add stems as required.

1. Each duration is a quarter note.



2. Each duration is an eighth note. Beam them in groups of three.



F. Listen to a recording of the beginning of each of the five movements of Beethoven's Symphony No. 6, Op. 68, and identify the beat and meter types of each. Then name three time signatures that *could* have been used to notate the movement.

Movement	Beat type	Meter type	Possible time signatures
I	_____	_____	_____
II	_____	_____	_____
III	_____	_____	_____
IV	_____	_____	_____
V	_____	_____	_____

G. Scale review. Given the scale degree, the note, and whether the key is major or minor, supply the name of the key. Assume melodic minor for all minor key examples.

- ex. $\uparrow \hat{6}$ is C \sharp in e minor
1. $\hat{4}$ is B \flat in _____ minor
 2. $\hat{3}$ is B in _____ major
 3. $\uparrow \hat{7}$ is B \sharp in _____ minor
 4. $\hat{6}$ is F \sharp in _____ major
 5. $\hat{4}$ is E \flat in _____ major
 6. $\hat{5}$ is G in _____ minor
 7. $\hat{6}$ is B in _____ major
 8. $\hat{5}$ is B \flat in _____ major
 9. $\uparrow \hat{6}$ is G \sharp in _____ minor
 10. $\hat{5}$ is C in _____ major
 11. $\hat{3}$ is B \flat in _____ minor
 12. $\downarrow \hat{7}$ is E in _____ minor
 13. $\hat{7}$ is D \sharp in _____ major
 14. $\hat{2}$ is B \flat in _____ major

H. Interval review. Notate the specified interval above the given note.

1 2 3 4 5 6 7 8 9

m2 P4 P5 M2 M7 +6 M3 M6 °7

I. Interval review. Notate the specified interval below the given note.

1 2 3 4 5 6 7 8 9

m3 m6 °5 m7 P5 m2 M7 +2 P4

Exercise 2-4 See Workbook.

Summary

Rhythm refers to the time aspect of music, as contrasted with the pitch aspect. The relative duration of a musical sound is specified by a **durational symbol**, such as a whole note, half note, and so on. One or more dots may follow a durational symbol, each one adding to the duration one-half the value of the note or dot that precedes it; a tie connects two notes, creating a value equal to their sum. Most durational symbols use stems, and there are conventions of notation regarding the direction of the stems. Beams are often used to group together (but not to tie) durations shorter than a quarter-note.

The basic pulse of a musical passage is called the **beat**, and the **tempo** is the rate at which the beats occur. The general tempo may be indicated by one of many terms in English or other languages, or it may be specified more exactly by a metronome marking.

Beats usually group into patterns of two, three, or four beats, referred to as **duple**, **triple**, and **quadruple meters**, respectively. Associated with each meter is its own pattern of **metric accents**. Beats in any meter usually divide into two equal parts (**simple beat**) or three equal parts (**compound beat**), giving rise to such terms as "triple simple" and "duple compound." A **grouplet** is used when a beat divides in a way that is contrary to the prevailing division of the beat.

A **time signature** is a symbol that tells the performer the beat and meter types and what note value will represent the beat. A listener can identify the beat and meter types, but not the note value that represents the beat, just by listening to the music. The beat values for simple time signatures are always undotted notes, whereas those for compound time signatures are always dotted notes.

Variations



For additional review and practice, please see Chapter 2 on our web site at www.mhhe.com/tonalharmony5.