



Dividing Musical Time


Beat, Beat Division, and Meter

 Listen to the opening of Joplin's "Pine Apple Rag" and Handel's "Rejoice greatly"—two lively works in contrasting styles. As you listen, tap your foot in time: this tap represents the work's primary pulse, or **beat**. You should also hear a secondary pulse, moving twice as fast. Tap the secondary pulse in one hand while your foot continues with the primary beat. This secondary pulse represents the **beat division**.

 **KEY CONCEPT** Musical meters are defined by

- (1) the way beats are divided, and
- (2) the way beats are grouped into larger recurring units.





 Beats typically divide into two or three parts. In the Joplin and Handel examples, the beat divides into twos. Now listen to the English folk tune "Greensleeves." Tap your foot along with the slow beat, as before. When you add the beat division in your hand, you'll notice that the beat divides not into twos, but into threes.

 **KEY CONCEPT** There are two principal meter types: simple and compound. Works in **simple meters** have beats that divide into twos. Those in **compound meters** have beats that divide into threes.

There can be quite a difference in character between these two types: simple meters feel like walking or marching, while compound meters may sound lilting, like a waltz.

Try it #1

Listen to each piece below to determine the beat and its division. If the beat divides into twos, circle "simple"; if it divides into threes, circle "compound."

- | | | |
|--|--------|----------|
| (a) Joplin, "Solace"  | simple | compound |
| (b) Gilmore, "When Johnny Comes Marching Home"  | simple | compound |
| (c) Mozart, <i>Variations on "Ah, vous dirai-je Maman"</i>  | simple | compound |
| (d) Schumann, "Wilder Reiter" ("Wild Rider")  | simple | compound |




Listen now to the opening of Sousa's "Stars and Stripes Forever" and Chopin's Mazurka in F Minor. Tap the primary beat for each. In both works, the beat divides into twos: both are in simple meter. But besides dividing, primary beats also *group*—into twos, threes, or fours. As you listen to each piece, try counting "1-2, 1-2" (one number per beat); if the piece doesn't fit that pattern, try "1-2-3, 1-2-3" or "1-2-3-4, 1-2-3-4."



KEY CONCEPT When beats group into units of two, the meter type (either simple or compound) is **duple**. When they group into units of three, the meter type is **triple**; and when they group into units of four, it is **quadruple**.

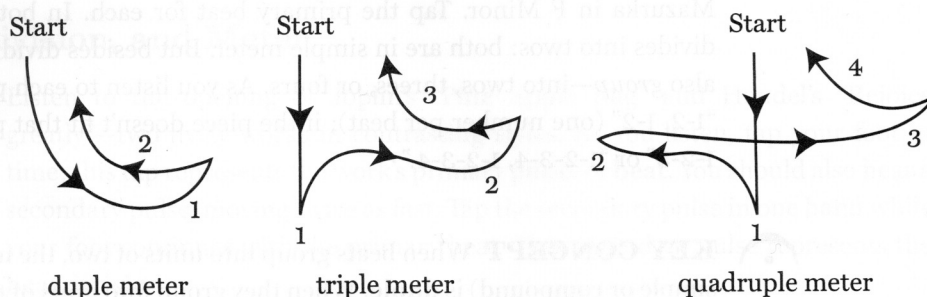
As you may have heard, the meter type for the Sousa march is simple duple, and for the Chopin mazurka simple triple. In music notation, the beat groupings are indicated by **bar lines**, which separate the notes into **measures**, or **bars**. Measures are often numbered at the top, as in Example 2.1, to help you find your place in a score. Listen again to the mazurka while following the notation in the example and the counts written beneath.

EXAMPLE 2.1: Chopin, Mazurka in F Minor, mm. 1-4 

Conducting Patterns

Conductors' motions outline specific patterns for each meter to keep an ensemble playing together and to convey interpretive ideas. The basic conducting patterns for duple, triple, and quadruple meters given in Figure 2.1 are the same whether the piece is in a simple or compound meter (although the conductor may distinguish between them by subdividing the basic pattern).

As you practice each pattern, you will feel a certain physical weight associated with the **downbeat**—the motion of the hand down on beat 1 of the pattern. You will probably feel anticipation with the **upbeat**—the upward lift of the hand for the final beat. Practice these patterns until you feel comfortable with them, and use them to help you recognize meter types by ear.

FIGURE 2.1: Conducting patterns

Tempo





Conductors also use conducting patterns to establish a work's **tempo**, or speed (the plural is "tempi"), which in turn helps to convey the character or mood of a piece. The tempo is often indicated on a musical score with words in Italian or other languages. Following are the most common tempo indications in Italian.

- Slower tempi: *grave, largo, larghetto, adagio*
- Medium tempi: *andantino, andante, moderato, allegretto*
- Faster tempi: *allegro, vivace, presto, prestissimo*
- Increasing in tempo (gradually faster): *accelerando*
- Decreasing in tempo (gradually slower): *ritardando*
- Flexibility within tempo: *rubato*

Meter is considered *hierarchical* because you can perceive it simultaneously at different levels, depending on the tempo. You may have trouble hearing the difference between duple and quadruple meters by ear; you may hear one measure in quadruple meter as two bars of duple. It is also possible to hear two measures of simple triple meter as one measure of compound duple. Don't worry that you are "wrong"—you're simply identifying the meter at a different level of the metric hierarchy of beat divisions, beats, and measures. Tempo can provide an important clue. If you perceive a very fast beat in three, for example, chances are you are hearing the beat divisions in compound meter.

Try it #2

Listen to the beginning of each of these simple-meter compositions. Listen for the grouping and metrical accent, then circle either “duple or quadruple” or “triple.”

- | | | |
|---|--------------------|--------|
| (a) Bach, “O Haupt voll Blut und Wunden”  | duple or quadruple | triple |
| (b) Mozart, Minuet in F Major  | duple or quadruple | triple |
| (c) Mozart, Piano Sonata in C Major, mvt. 1  | duple or quadruple | triple |
| (d) Bach, Passacaglia in C Minor for Organ  | duple or quadruple | triple |

Rhythm and Meter

Rhythm and meter are two different, but related, aspects of musical time. **Rhythm** refers to the durations of pitch and silence (notes and **rests**) used in a piece. Meter provides a framework of strong and weak beats against which the rhythms are heard.

SUMMARY

Music written in a meter has

- a recurring pattern of beats,
- perceivable divisions of beats (simple or compound),
- perceivable groupings of beats (duple, triple, or quadruple).

Rhythm consists of

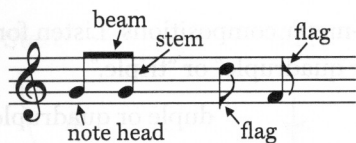
- durations of pitch and silence, usually heard in the context of the underlying meter.

This summary applies generally to tonal music from the common-practice era, roughly 1600 through the early twentieth century. Some music is nonmetric—without meter—especially in early, non-Western, and post-1900 works.

Rhythmic Notation for Simple Meters**Rhythmic Values**

The parts of a note are labeled in Figure 2.2. The wavy line attached to the stem of a single note is a **flag**, and the horizontal line connecting two or more notes is a **beam**.

FIGURE 2.2: Parts of a note



A chart of common note values and their equivalent rests (durations of silence) in simple meters is given in Figure 2.3: a **whole note** divides into two **half notes**, a half note divides into two **quarter notes**, and so on. You can create smaller note values by adding flags or beams to the stem: **eighth notes**, for example, have one beam, **sixteenth notes** two beams (a **thirty-second note** has three flags or beams, and a **sixty-fourth note** four). Flags and beams are notational choices; the rhythms they notate sound the same. In some meters, you will see longer note values, such as the **breve** (H), which lasts twice as long as a whole note, sometimes written as a double whole note (∞).

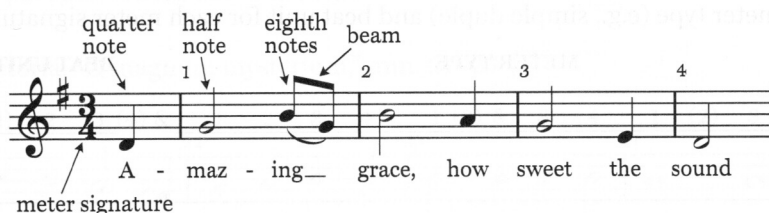
FIGURE 2.3: Note values in simple meters

NOTE VALUE	NAME	REST
	whole	
	half	
	quarter	
	eighth	
	sixteenth	

Meter Signatures

A **meter signature** (or **time signature**) at the beginning of a score establishes the meter type and **beat unit** (the note value that gets one beat). In “Amazing Grace” (Example 2.2), the upper number (3) means that there are three beats in each full measure, while the lower number (4) indicates the beat unit: the quarter note gets one beat.

EXAMPLE 2.2: Newton, "Amazing Grace," mm. 1-4 






quarter note
half note
eighth notes
beam
meter signature
A - maz - ing - grace, how sweet the sound

 **KEY CONCEPT** Meter signatures are written with two numbers, one above the other, as in Figure 2.4. In simple meters:






- The upper number tells how many beats are in a measure; this number is **2, 3,** or **4,** to represent simple duple, triple, or quadruple meter.
- The lower number indicates the beat unit (which note gets one beat): **2** (half note), **4** (quarter note), **8** (eighth note), or **16** (sixteenth note).

FIGURE 2.4: Meter signatures

(a) Quarter-note beat unit:

METER SIGNATURE	BEATS PER MEASURE	BEAT UNIT	METER TYPE
$\frac{2}{4}$	2		simple duple
$\frac{3}{4}$	3		simple triple
$\frac{4}{4}$	4		simple quadruple

(b) Other beat units:

METER SIGNATURE	BEATS PER MEASURE	BEAT UNIT	METER TYPE
$\frac{2}{2}$	2		simple duple
$\frac{3}{2}$	3		simple triple
$\frac{3}{8}$	3		simple triple
$\frac{4}{8}$	4		simple quadruple
$\frac{4}{16}$	4		simple quadruple

Try it #3

Name the meter type (e.g., simple duple) and beat unit for each meter signature given below.

	METER TYPE	BEAT UNIT
(a) $\frac{3}{16}$	_____	_____
(b) $\frac{4}{2}$	_____	_____

Besides numbers, you may see other symbols to represent meter signatures. For example, *c* (called “common time”) represents $\frac{4}{4}$; and C (called **alla breve** or “cut time”), represents $\frac{2}{2}$.

SUMMARY


Meter signatures you are likely to see in simple meters include:

- Simple duple $\frac{2}{2}$ C $\frac{2}{4}$ $\frac{2}{8}$
- Simple triple $\frac{3}{2}$ $\frac{3}{4}$ $\frac{3}{8}$ $\frac{3}{16}$
- Simple quadruple $\frac{4}{2}$ $\frac{4}{4}$ *c* $\frac{4}{8}$ $\frac{4}{16}$

Counting Rhythms in Simple Meters

Look at Example 2.3 to see how to write counts into a score. In this simple-triple meter, each quarter note gets a count. If no new pitch sounds on a given beat (like the half note that extends into beat 2 of each measure), write the count in parentheses. The two eighth notes in measure 1—the **beat division**—are written “3 &” (or “3 +”) and counted aloud as “three and”; the “and” is the **offbeat**. The quarter note D preceding the first full measure is an **anacrusis** (also called an **upbeat**, or **pickup**). Count it as the final beat (3) of an incomplete measure.

EXAMPLE 2.3: Newton, “Amazing Grace,” mm. 1-4 



A - maz - ing_ grace, how sweet the sound
3 1 (2) 3 & 1 (2) 3 1 (2) 3 1 (2)

In Example 2.4, a composition with half-note beat unit, the counts for its soprano part are written above the staff.

EXAMPLE 2.4: Victoria, "O magnum mysterium," mm. 21-25

(1) 2 3 (4) & 1 2 3 4 1 (2) & 3 4 1 (2) 3 (4) 1 (2)

21 22 23 24 25

Soprano
ut a - ni - ma - li - a vi - de - rent Do - mi - num na - tum

Alto
ut a - ni - ma - li - a vi - de - rent Do - mi - num na - tum

Tenor
- a, ut a - ni - ma - li - a vi - de - rent Do - mi - num na - tum

Bass
- a vi - de - rent Do - mi - num na - tum

Translation: And animals saw the newborn Lord.

Try it #4

Write the counts beneath the following melodies. (The final measure of (c) is incomplete.)

(a) Bach, "Schafe können sicher weiden," mm. 24-26

24 25 26

Frie - den spü - ren, und was Län - der glück - lich macht,

1 2 +

(b) Anonymous, Minuet in D Minor, mm. 1-4

1 2 3 4

(c) Bono and U2, "Miracle Drug," mm. 29-32

29 30 31 32

Free - dom has a scent like the top of a new-born ba-by's head.

Beat Subdivisions

In Example 2.5, Variation 19 of Handel's Chaconne in G Major, the stately melody is played in quarter and eighth notes in the right hand, while the left hand accompanies with energetic groups of sixteenths. These sixteenth notes, representing the beat **subdivision**, can be counted as shown.



KEY CONCEPT In simple meters, the beat divides into twos and subdivides into fours. In music with a quarter-note beat, the beat divides into two eighths (♫) and subdivides into four sixteenths (♫♫♫♫), or it may divide into a combination of eighths and sixteenths (like ♫♫).

EXAMPLE 2.5: Handel, Chaconne in G Major, mm. 153-156

1 2 (3) & 1 2 (3) & 1 2 (3) & 1 2 (3) &

153 154 155 156

1 e & a 2 e & a 3 e & a 1 e & a 2 e & a 3 e & a

Stems, Flags, and Beaming

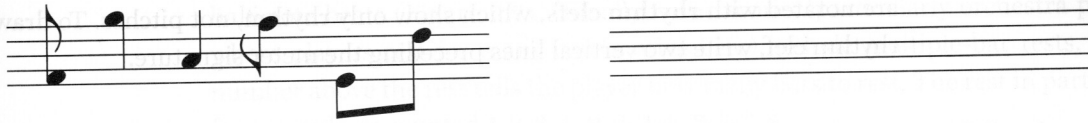
Your ability to sight-read, remember, and write music will be greatly enhanced by learning the typical rhythmic patterns that can occur within a beat and notating them correctly. Look, for instance, at how stems and flags are notated in Example 2.5. In the left hand, the beams group four sixteenths into a single beat, making it easy to see the beat at a glance. Flags are written on the right-hand side of the stem, whether the stem goes up or down. As mentioned in Chapter 1, the stems on notes below the middle line extend up, and those on or above it extend down. When two or more notes are beamed together (as in Figure 2.5), the stem direction corresponds with the note farthest from the middle line.


FIGURE 2.5: Correct and incorrect beaming

correct incorrect

Try it #5

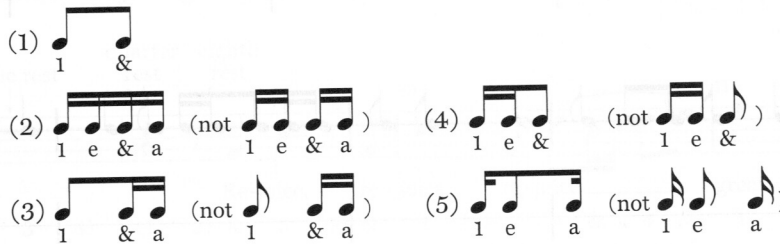
Renotate the pitches below onto the staff at the right. Correct all stems, flags, and beams.



KEY CONCEPT Rhythms should be beamed to reflect the beat unit. For example, groups of eighth and sixteenth notes that span a quarter-note beat unit, such as , are beamed together. (Older vocal scores, though, sometimes beam to correspond with the sung syllables rather than the beat unit.)

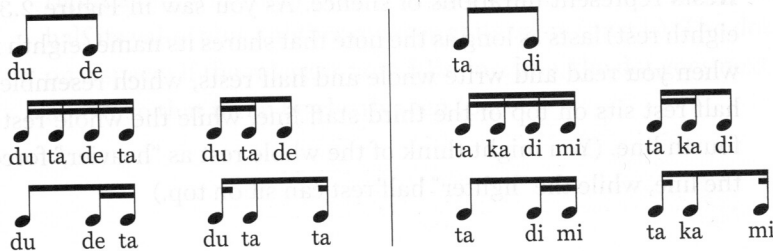
Five rhythmic patterns for the quarter-note beat unit are given in Figure 2.6: learn each pattern with its correct beaming. Familiar patterns like these can be combined and recombined in different ways, just as words can be recombined in a sentence.

FIGURE 2.6: Five common simple-meter patterns



Another Way

Although this book uses the “1 e & a” syllables to count rhythms, teachers have developed other systems as well. Syllables for the five basic patterns in Edwin Gordon’s system are shown on the left, and the “ta-ka-di-mi” system on the right.



Using a counting system can help you remember and identify rhythmic patterns; choose one and use it consistently.

The single-line rhythms that follow in *Try it #6* and elsewhere in the book are notated with **rhythm clefs**, which show only rhythm, not pitches. To draw a rhythm clef, write two vertical lines preceding the meter signature.

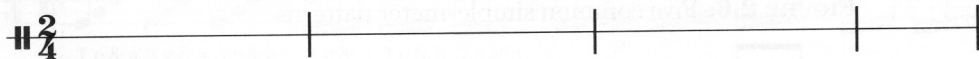
Try it #6

Circle beats that are beamed incorrectly, then renotate the entire rhythm on the second line with correct beaming. Write the beat-level counts beneath the given line, as in (a).

(a) 



(b) 



(c) 

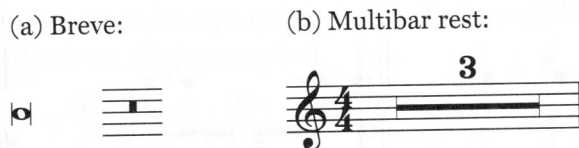


Counting Rests and Dots


Rests represent durations of silence. As you saw in Figure 2.3, each rest (e.g., eighth rest) lasts as long as the note that shares its name (eighth note). Be careful when you read and write whole and half rests, which resemble each other: the half rest sits on top of the third staff line, while the whole rest hangs from the fourth line. (You might think of the whole rest as “heavier,” forced to hang from the line, while the “lighter” half rest can sit on top.)

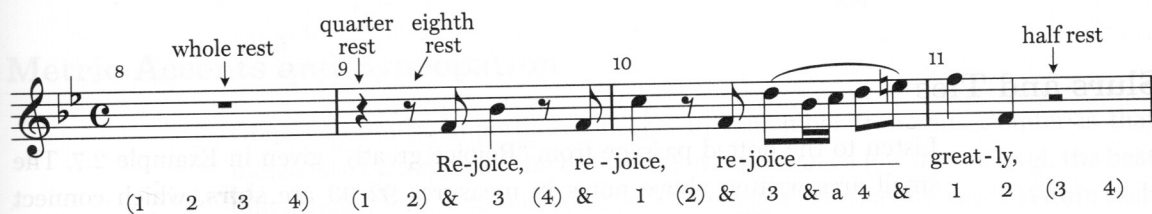
A whole rest may be written to indicate silence that lasts a whole measure regardless of how many beats are in that measure. In music with a half-note beat unit, such as $\frac{4}{4}$, you may see a double whole rest or note (breve), which lasts four half-note beats (Figure 2.7a). Finally, some scores (particularly orchestra parts where players rest for many consecutive bars) include multiple-bar rests. The number above the rest tells the player how many bars to rest. The rest in part (b), for example, is counted 1-2-3-4, 2-2-3-4, 3-2-3-4.

FIGURE 2.7:



When a beat begins with a rest, write the appropriate beat number in parentheses, as in Example 2.6. This helps you count the durations of silence (or accompaniment) as accurately as the pitches.

EXAMPLE 2.6: Handel, "Rejoice greatly" (vocal part), mm. 8-11 



whole rest
quarter rest eighth rest
11
half rest

Re-joyce, re-joyce, re-joyce great-ly,

(1 2 3 4) (1 2) & 3 (4) & 1 (2) & 3 & a 4 & 1 2 (3 4)

A **dot** adds to a note half its own value, as Figure 2.8a shows. That is, a dotted-quarter note equals a quarter plus an eighth, a dotted eighth equals an eighth plus a sixteenth, and so on. Dotted notes are generally paired with another note that completes a full beat or full measure. Some typical patterns are shown to the right, along with their counts in $\frac{4}{4}$. **Double dots** (relatively rare) add to a note half its value plus another quarter of its value (part b). The dot is always written on a space; if the relevant note falls on a line, the dot goes next to it on the space above, so that it can be clearly seen (part c).

FIGURE 2.8: Use of dots

(a) Single dots

(b) Double dots

(c) Notation of dots

Slurs and Ties

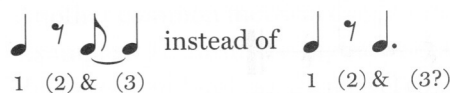
Listen to the dotted passage from “Rejoice greatly” given in Example 2.7. The small arcs written above notes in measures 92–93 are **slurs**, which connect two or more different pitches. Slurs affect performance articulation—bowing or tonguing, for example—but not duration: the notes encompassed by a slur should be played smoothly, or **legato**, rather than detached. For singers, slurs identify groups of pitches sung to a single syllable.

EXAMPLE 2.7: Handel, “Rejoice greatly” (vocal part), mm. 92–96

The small arc above the F in measures 94–95, on the other hand, is a **tie**, which connects two pitches that are the same. The F in measure 95 is not played again; rather the tie adds the duration of the two note values together, so “shout” lasts three and a half beats. Counts for the beats spanned by a tie are written in parentheses; and if an accidental is applied to the first note of a tie, it continues through the tie’s duration.



KEY CONCEPT Ties and dots should be notated in a way that clarifies the meter rather than obscuring it. For example, an eighth tied to a quarter would be clearer than a dotted quarter in the rhythmic context below, because it makes the placement of beat 3 explicit.




Dotted rhythms are made up of well-defined patterns that fit within a beat unit or half measure, and usually begin on the beat rather than on an offbeat. Write a tie when the held duration crosses over a bar line or beat unit, where writing a dot would obscure where the beat falls.

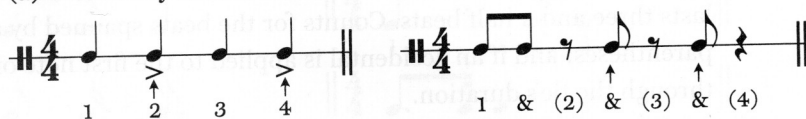
Metric Accents and Syncopation

One of the most important concepts to remember from this chapter is that meters are hierarchical: the beat division represents a low metric level, the beat unit a higher level, and the measure’s downbeat an even higher level. Within each measure, the downbeat (beat 1) is the strongest. In duple meter, the beats alternate strong-weak; in triple meter, the accents are strong-weaker-weakest; and in quadruple meter, strongest-weak-strong-weak. Strong beats in a meter are heard as **metric accents**.

When an expected metric accent is displaced or moved to another beat or part of a beat—by ties, dots, rests, dynamic markings, accent marks, or the rhythm itself—the result is **syncopation** (marked by arrows in Example 2.8). Syncopations may occur at the level of the beat (accents on beat 2 or 4 rather than 1 or 3), the division (on “&”), or the subdivision (on “e” or “a”). Part (d) shows one of the syncopated *clave* patterns from Afro-Cuban music, which has been incorporated into many other popular styles. After the first note, all the notes begin on an offbeat until the last one, which falls on beat 2.

EXAMPLE 2.8: Syncopated rhythms 

(a) Created by accent marks: (b) Created by rests:




1 2 3 4 1 & (2) & (3) & (4)



(c) Created by ties:




1 2 & (3) & 4 1 e & a (2) e & a 3 e (&) a 4

(d) *Clave* pattern:


1 a (2) & (1) & 2

Syncopations can be found in all styles, but they are especially prevalent in popular music, jazz, and ragtime. Within a quarter-note beat, the rhythms  and  are the most typical syncopation patterns, where the longest duration of the rhythm is on the “e” of “1 e & a” instead of the stronger “1” or “&.”


Listen to the beginning of Joplin’s “Pine Apple Rag” (Example 2.9) to hear the syncopations within the beat (mm. 1 and 3) and across the beat (mm. 2 and 4), marked by arrows. Syncopations across the beat are usually notated with ties, as here: the expected emphasis on beat 2 comes earlier, on the first of the tied notes.

EXAMPLE 2.9: Joplin, “Pine Apple Rag,” mm. 1-4 


mf

1 e a 2 e & a 1 e & a (2) 1 e a 2 e & 1 & (2) &

Joplin’s “Solace” (Example 2.10) also includes many syncopations (see arrows above the counts). In fact, every measure of the excerpt shows a tie from the last sixteenth of beat 1 to the first sixteenth or eighth of beat 2, creating a syncopation mid-measure. In measures 10 and 12, syncopations are produced by ties from the last sixteenth of the previous measure. Such devices are highly effective because of the steady accompaniment pattern in the left hand: syncopations can only be perceived if there is a strong sense of the underlying beat for them to play against.

EXAMPLE 2.10: Joplin, "Solace," mm. 9-12 

1 e & a (2) e & a (1) e a (2) & 1 e & a (2) e & a (1) e a (2) &

Hemiola

Another common metrical displacement pattern—the **hemiola**—is illustrated in Example 2.11. Read the rhythm aloud on “tah” or counting syllables while conducting—first level (a), then level (b). As you will discover, the beats in measures 3 and 4 group into twos, implying a temporary duple meter despite the overall triple meter. At level (c), you can hear a larger $\frac{3}{2}$ meter in those measures. You may hear a hemiola as a temporary change of meter, or as both meters (duple and triple) continuing at the same time, creating a type of syncopation.

EXAMPLE 2.11: Hemiola pattern in triple meter 

(a) $\frac{3}{4}$ 1 2 3 | 1 2 3 | 1 (2) 3 | (1) 2 (3) | 1 (2) 3 ||


(b) $\frac{2}{4}$ 1 (2) | 1 (2) | 1 (2) | $\frac{3}{4}$ 1 (2) 3 ||

(c) $\frac{3}{2}$ 1 & 2 & 3 &



KEY CONCEPT A hemiola, often found in Baroque music to signal an important arrival point, is a temporary duple rhythmic grouping in the context of an underlying triple meter. Typically, two measures of meter $\frac{3}{4}$ are heard as three measures of $\frac{2}{4}$. A hemiola may be articulated by rhythmic durations, accents, or melodic patterns.

Example 2.12 shows a hemiola in context. At the beginning of the excerpt, the $\frac{3}{4}$ meter is strongly articulated in the lower three parts, while soprano pitches tied across the bar line add rhythmic and harmonic interest. In measures 88–90, the upper two voices move in half-note groupings against the underlying triple meter—making a hemiola, which might be conducted in $\frac{3}{2}$ as shown. (Note the double-dot notation in the tenor and bass parts in m. 85.)

EXAMPLE 2.12: Vivaldi, “Domine Fili unigenite,” mm. 85–90 

85 SOPRANO Je - su - Chri - ste.

86

87

88 hemiola

89

90

ALTO Je - su - Chri - ste.

TENOR Do - mi - ne Fi - li U - ni - ge - ni - te, Je - su Chri - ste.

BASS Do - mi - ne Fi - li U - ni - ge - ni - te, Je - su Chri - ste.


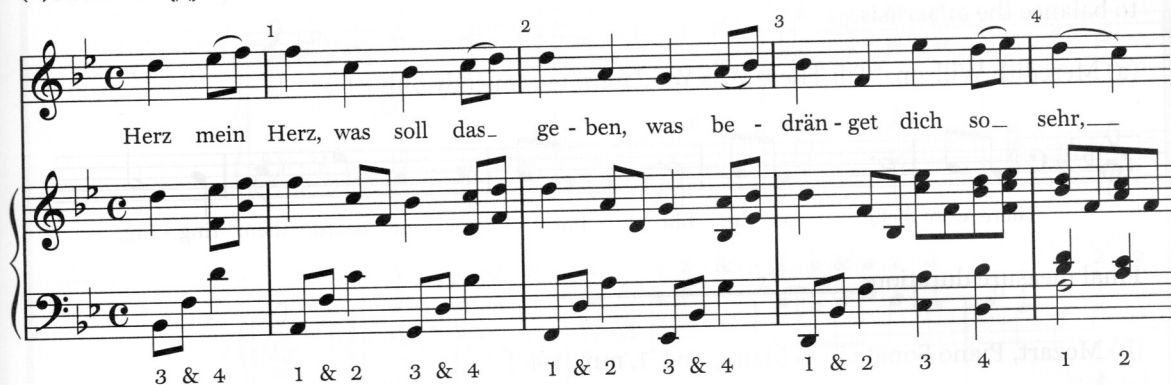
Orchestral reduction

$\frac{3}{4}$ 1 2 3 | 1 2 3 | 1 2 3 | $\frac{3}{2}$ 1 & 2 & 3 & 1

Translation: Lord, the only-begotten Son.

Anacrusis Notation


In music that begins with an anacrusis, the last measure is often notated as an incomplete bar to “balance” the opening incomplete measure. For example, in $\frac{4}{4}$ meter, a quarter-note anacrusis would be balanced by a final measure of only three beats. In Hensel’s “Neue Liebe, neues Leben” (Example 2.13), the two-beat anacrusis at the beginning is balanced by a final bar of only two beats, shown in part (b).

EXAMPLE 2.13: Hensel, "Neue Liebe, neues Leben"(a) Mm. 1-4 


Herz mein Herz, was soll das_ ge - ben, was be - drän - get dich so_ sehr, —

3 & 4 1 & 2 3 & 4 1 & 2 3 & 4 1 & 2 3 4 1 2

Translation: Heart, my heart, what does this mean? What troubles you so much?

(b) Mm. 73-77 (piano postlude) 



73 74 75 76 77

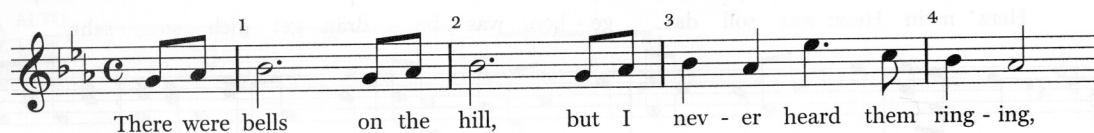
1 (2 3) 4 1 2

If you listen without a score, you might hear the beginning of this song as a downbeat. Why might Hensel have set this text with an upbeat? Perhaps her sensitivity to the accents and meaning of the text suggested that the second "Herz" ("heart"), on the downbeat of measure 1, was the more important word for a metric accent, as was "sehr" ("very") at the end of the phrase.

Try it #7


In the following melodies, identify what the duration of the last measure of the piece should be to balance the anacrusis.

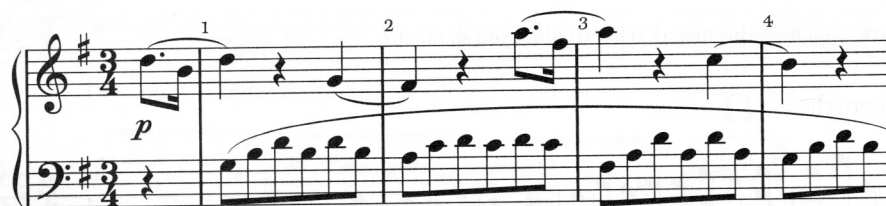
(a) Meredith Willson, "Till There Was You," mm. 1-4 (melody only) 



There were bells on the hill, but I nev - er heard them ring - ing,

Final measure duration: _____

(b) Mozart, Piano Sonata in G Major, mvt. 1, mm. 1-4 



Final measure duration: _____

Beat Units Other Than the Quarter Note

The way you count the rhythm in any passage of music depends on its meter. Even the idea that "a whole note gets four beats" is correct only in certain meters, such as $\frac{4}{4}$, where a \bigcirc gets one beat and a \downarrow two beats; in $\frac{3}{4}$, a \downarrow gets a half beat, a \downarrow one beat, and a \bigcirc two beats. Listen to the opening of "The Stars and Stripes Forever" while following the piano score and counts above the staff in Example 2.14. The C ($\frac{3}{2}$) meter instructs performers to think of these measures "in two" (two beats per measure). To develop good sight-reading skills, practice reading rhythms with half-note or eighth-note beat units, as well as the more familiar quarter-note unit.

EXAMPLE 2.14: Sousa, "The Stars and Stripes Forever," mm. 1-8

The musical score for Example 2.14 shows the piano accompaniment for the first eight measures of 'The Stars and Stripes Forever'. The right hand melody is marked with fingerings (1, 2, a, 1, 2, 3, 4) and accents (^). The left hand provides a rhythmic accompaniment with chords and single notes. Dynamics range from *ff* to *mf*. The piece is in 2/4 time.

There are various reasons why you might see compositions written with a particular beat unit. Sometimes the meter is meant to remind the performer of a specific compositional type or character—such as *alla breve* for marches. Sometimes rhythms are notated with a longer beat unit for ease of reading, so that quick-moving or complex rhythms need not be notated in small note values. In the Sousa march, for example, the *alla breve* signature allows the quick-moving pitches to be notated as eighths rather than sixteenths. And sometimes the reason has historical roots: to eighteenth-century musicians, a signature of $\frac{3}{16}$ would indicate a sprightly jig, while $\frac{3}{4}$ would suggest the slower tempo of a minuet.

One way to gain facility with different beat units is to write equivalent rhythms in different meters, as in Example 2.15.

EXAMPLE 2.15: Equivalent rhythms notated in different meters

The musical score for Example 2.15 illustrates equivalent rhythms in three different meters: 3/4, 3/2, and 3/8. Each staff shows a sequence of notes with corresponding beat counts: 1 & 2 (3), 1 2 3, 1 & 2 & 3, and 1 (2 3). This demonstrates how the same rhythmic pattern can be notated using different beat units.

At an even higher level of the hierarchy, measures themselves group together in what's called "hypermeter": measures 1 and 3 are heard as metrically stronger than measures 2 and 4. This hypermetric grouping of measures is also illustrated in Example 2.16 by the vertical columns of dots; in performance, think of strong and weak measures, just as you might think of strong and weak beats. Measure 4 of the hypermeter, then (which often coincides with the end of a phrase), will be a metrically weak resting point. Carefully studying a work's metric and harmonic organization can help you determine the relative importance of each beat and pitch, and thus shape an effective performance.

You may find it helpful sometimes to think "one to the bar" to create a large-scale hypermetric alternation between strong and weak measures. This can result in a performance with broader sweep, one that is not bogged down by rhythmic detail.

Did You Know?

Baroque musicians sometimes moved their hands down and up to conduct performances, but their patterns were somewhat different from those seen today. German composer and theorist Johann Mattheson (1681-1764), a contemporary of J. S. Bach, describes in one treatise the motions associated with duple and triple meters: both meters are based on a downward and upward motion, but in triple meters the up-stroke lasts twice as long as the down-stroke. Because the hand motion in triple meters was uneven, they were called "uneven" meters; duple meters were referred to as "even."

During this time, ensemble music was led by one of the players, usually the harpsichordist or organist, who signaled the first downbeat, then played with the ensemble. Sometimes opera or large-ensemble conductors indicated the downbeat by banging a large baton or staff on the floor. This proved hazardous in at least one case: Jean-Baptiste Lully, a ballet and opera composer at the French court of Louis XIV until 1687, died from an infection in his foot after energetically striking it with the conducting baton during a performance.

TERMS YOU SHOULD KNOW

alla breve	hemiola	metric accent	slur
anacrusis	hypermeter	note head	stem
bar line	measure	rest	syncopation
beam	meter	rhythm	tempo
beat	• simple	rhythmic value	tie
common time	• compound	• eighth note	time signature
cut time	• simple duple	• half note	upbeat
dot	• simple quadruple	• quarter note	
downbeat	• simple triple	• sixteenth note	
flag	meter signature	• whole note	