

## chapter three

# how **music** **works**, part I: rhythm



Having explored the questions of what music is and how music lives in Chapters 1 and 2, we turn our attention in this chapter, and also in Chapters 4–6, to another fundamental issue: how music works. Collectively, this set of four chapters provides a general introduction to music sounds and to the way they are organized; in other words, to the basic *elements of music*. We want to know what the building blocks of musical sound, structure, and form are; to develop a shared vocabulary for describing and comprehending them; and to be introduced to them in a way that is accessible yet prepares us well for the diverse world music journey ahead.

Moreover, we want to engage with the elements of music not as mere abstractions, but rather as identifiable components of sound that we are able

to *actually hear*. In working toward this goal, we employ examples of two kinds to illustrate the main terms and concepts introduced. These are

- Well-known songs that are likely to be familiar, such as “The Alphabet Song,” “Mary Had a Little Lamb,” and “The Star-Spangled Banner” (the national anthem of the United States).
- Recordings covering a wide range of world music traditions and cultures.

With respect to the first of these two categories, some of the examples (especially the children’s songs) may strike you as overly simplistic, even a bit silly, but they have the advantage of being straightforward and recognizable. With regard to the world music recordings, the main emphasis is not on learning and memorizing all of the different names of cultures, styles, and instruments that come up. Rather, it is to become acquainted with general aspects of how music works with the aid of examples that will likely *not* be familiar to you. In the process, you will have an opportunity to sample some of the world’s rich musical diversity as a prelude to the more focused case studies of the chapters in Part II.

This chapter explores the element of rhythm specifically, but we begin on a more general level with a brief introduction to the four basic properties of tones that were first mentioned in Chapter 1.



## The Four Basic Properties of Tones

Every sound we hear in a piece of music—and indeed every sound we hear in our world—is defined by four basic properties: duration, frequency, amplitude, and timbre. Such terms may sound technical and intimidating to the musical novice, but their essential meanings relative to music are not so complicated. **Duration** relates to *how long or short* a tone is. It is the basis of *rhythm* in music. **Frequency**, which becomes manifest in music as *pitch*, corresponds to *how high or low* a tone is. **Amplitude** relates to *how loud or soft* tones are. The relative loudness and softness of different tones (with silence at one extreme of the loudness-to-softness continuum) are what define *dynamics* in music. **Timbre** is analogous to the *actual sound quality* or “*tone color*” of tones, to what they “sound like”: tones played on a trumpet are timbrally distinct from tones played on a saxophone, even if both instruments are heard playing the same frequency (pitch) for the same duration (rhythm) at the same amplitude (dynamic level).

Duration, frequency, amplitude, and timbre, then, are the four basic properties of tones, the building blocks of musical sound. Their respective musical correlates—rhythm, pitch, dynamics, and tone color, respectively—are the foundational elements of music. (See Table 3.1.)

## Rhythm

When we speak of **rhythm**, we are dealing with *how the sounds and silences of music are organized in time*. In understanding rhythm, two terms used in Western music provide a good start-

**TABLE 3.1** The four basic properties of tones and their musical correlates.

Property of Tone	Musical Correlate
Duration	Rhythm
Frequency	Pitch
Amplitude	Dynamics
Timbre	Tone color, sound quality

## Mozart and “The Alphabet Song”

“The Alphabet Song” may be known to you only as a simple, children’s song that was used by your parents or kindergarten teacher to help you learn the alphabet, but it has a rather interesting history. The tune of “The Alphabet Song” is identical to that of at least two other popular children’s songs, “Baa, Baa, Black Sheep” and “Twinkle, Twinkle, Little Star.” This tune descends from a very old French children’s song that the great Viennese composer Wolfgang Amadeus Mozart used as the basis of a piano piece he composed in 1778. The piece is usually referred to today as Mozart’s *Variations on “Twinkle, Twinkle, Little Star”* and remains a popular work for solo piano.

ing point: note and rest. An individual musical tone may be referred to as a *note*. A pause between notes is a *rest*.

Try performing “The Alphabet Song” by tapping it out on your desk, *without* actually singing “the tune.” The result is a performance of *the rhythm of that song*. You will notice that some of the notes are longer than others; in other words, that the notes have different *durations*. The notes for the first few letter names—“a, b, c, d, e, f”—are shorter by half than the note on the letter “g” which follows them. A little further on, you get to “l, m, n, o,” which turn out to be twice as short as “a, b, c, d, e, f” were, and four times shorter than “g” was. (See Figure 3.1.)

Thus, we find that there are three different lengths of notes in the opening section of “The Alphabet Song.” In Western music terminology, the faster-moving notes are usually called **sixteenth notes**, the medium-speed ones **eighth notes**, and the slower ones **quarter notes**. Figure 3.2 shows how these different-length notes appear in Western music notation.

Many types of music in the world, including several explored in this text, use rhythms that “translate” quite well into sixteenth, eighth, and quarter notes. These terms will therefore be used in connection with the discussions of musical rhythm in various chapters, though it should be understood from the outset that they do not necessarily reflect how people in other cultures conceive of or describe their *own* rhythms.

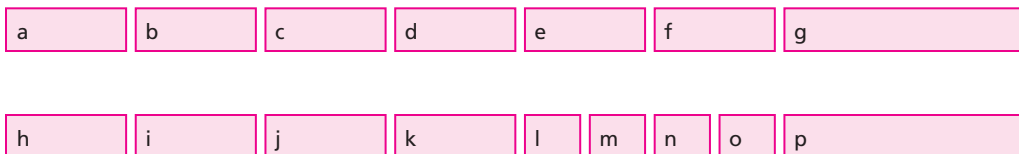


FIGURE 3.1

Notes of different duration in “The Alphabet Song.”



FIGURE 3.2

“The Alphabet Song” rhythm in Western notation.



A common type of rhythm in music with triple subdivision is the one in which *only the first and third note of each three-note grouping is actually sung or played*, with the second (middle) note being “left out.” The rhythm of “**gent**–ly **down**–the **stream**” in “Row, Row, Row Your Boat” is a good example (see Figure 3.5). This 1 (2) 3 1 (2) 3–type rhythm (Figure 3.6) is also a signature feature of popular dance rhythms in many world music traditions, such as the blues shuffle (CD ex. #1-19) and the Celtic hornpipe (CD ex. #1-20).

Many other types of rhythmic subdivision beyond the duple, triple, and quadruple forms illustrated here exist as well. In some instances, beats may be divided into 5, 7, 11, or even 13 smaller units (subdivisions); or the basic level of beat subdivision may represent some multiple of twos or threes (e.g., 6, 8, 9, 12, 16). For the most part, however, these more complex types of subdivision are beyond the scope of how we will explore the musics we encounter on our journey, so we need not examine them further here.

## Meter

Moving in the opposite direction from rhythmic subdivision of beats, we discover that beats themselves are often grouped together in a systematic way. In Western music, each group of beats is called a **measure** (or bar), and the number of beats in a measure defines the music’s **meter**. To clarify the difference between subdivision and meter, subdivision is what results when smaller units of rhythm are inserted between beats, whereas meter is what results when series of successive beats are grouped together in patterned ways.

Meters of two (duple meter), three (triple meter), and four (quadruple meter) are very common in the West, and indeed in many parts of the world. Meters based on other kinds of beat

“Row, Row, Row Your Boat,” a song with triple subdivision.

**FIGURE 3.5**

Shuffle/hornpipe triple subdivision rhythm.

**FIGURE 3.6**

groupings—with 5, 7, 11, 13, or even 31 beats per measure—also occur, and there are instances where the meter *changes* from one measure or section of a piece of music to the next as well. For the moment, though, we will limit our discussion mainly to relatively simple kinds of meters.

“The Alphabet Song” is an example of a piece with a meter of four. A consistent, four-beat pattern—strong beat (**S**)–weak beat (w)–medium beat (M)–weak beat (w)—is repeated over and over throughout the entire song. Using Figure 3.7 as a guide, try singing the first part of “The Alphabet Song” as you mark out the meter with handclaps and waves. Use a loud clap for the strong beats (**S**), a silent wave of the right hand for the weak beats (w), and a light clap for the medium beats (M).

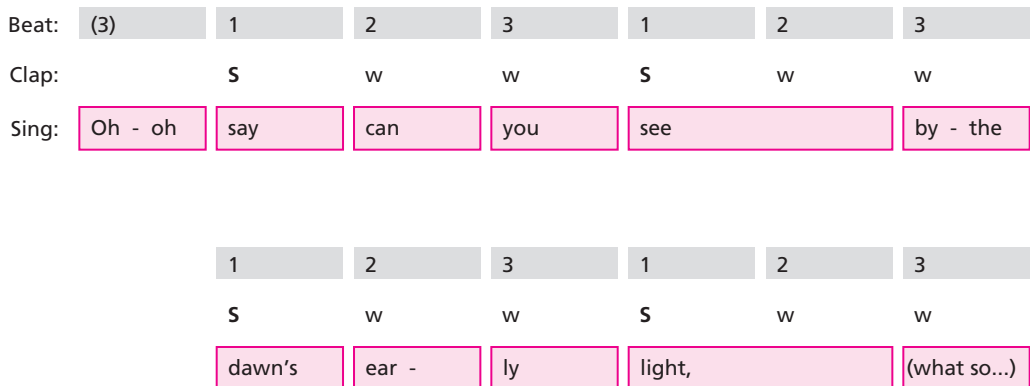
“The Star-Spangled Banner” is a song in a meter of three, that is, in triple meter. With the aid of Figure 3.8, try singing the first part of this song as you mark out the beats of the standard triple-meter pattern—strong beat–weak beat–weak beat (**S** w w **S** w w, etc.)—using handclaps for the strong (**S**) beats and silent waves for the weak (w) beats.

Let us now turn our attention to a couple of recorded world music examples in which the meters are relatively straightforward and easy to identify. The Egyptian dance rhythm heard on **CD ex. #1-11** is in a duple meter; each of the low-pitched “Dum” strokes on the drums marks one beat; higher-pitched “tek” strokes fall in-between the main beats (i.e., subdividing the beats) at different points (Figure 3.9). Try marking out the main “Dum” beats with handclaps as you listen to this piece.



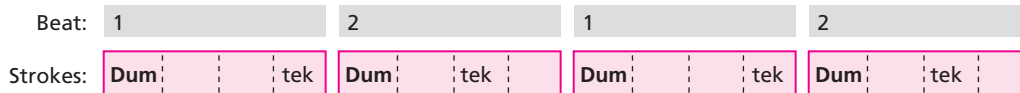
Four-beat (quadruple) meter in “The Alphabet Song.”

**FIGURE 3.7**



Triple meter in “The Star-Spangled Banner.”

**FIGURE 3.8**



Egyptian dance rhythm in duple meter.

**FIGURE 3.9**

The famous Mexican *mariachi* tune “Cielito Lindo” (Pretty Cielito), featured on **CD ex. #1-21**, is a triple-meter song with the characteristic triple-meter structure (again, **S** w w **S** w w, etc.). Each strong (**S**) beat is marked by a low, bass note; each weak (**w**) beat by a strummed guitar chord (we will learn about chords in Chapter 4), as is charted out on page 38 in Figure 3.10. As you listen to “Cielito Lindo,” try to mark out the pattern of the meter with claps on the strong (**S**) beats and silent waves on the weak (**w**) beats.

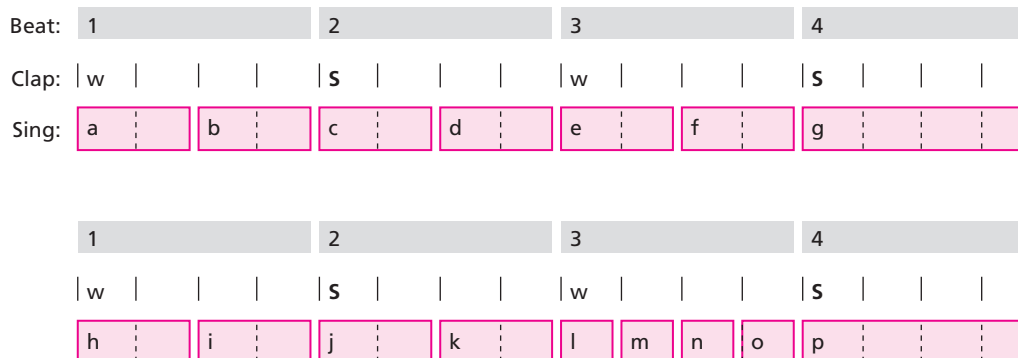
**“Cielito Lindo” (See-el-ee-toe Lin-doe)**

## insights and perspectives

Four-beat meters also can employ different patterns of strong and weak beats than the standard one illustrated in Figure 3.7. In styles such as rock, blues, funk, and hip-hop, the second and fourth beats (or *backbeats*, as they are called in such contexts) typically are given *more* emphasis (strength) than the first and third beats. This entirely changes the feel of the rhythm, that is, the music’s *groove*. You can get a sense of this difference by performing “The Alphabet Song” as you mark out the meter in a way that emphasizes the backbeats. Use a silent wave of the hand to mark each weak beat (**w**) and a loud clap to mark each strong beat (**S**).



Charles Atkins.



Just with this simple shift of emphasis on beats, the groove acquires a bit of a rock music feel.

In rock, funk, and blues (the latter exemplified by **CD ex. #1-19**, “A Funny Way of Asking,” by Charles Atkins), a “thwack” on the high-pitched snare drum of the drumset is often used to emphasize the backbeats.

Beat:	1	2	3	1	2	3	1
Clap:	S	w	w	S	w	w	S
Music:	Bass	strum	strum	Bass	strum	strum	Bass

Triple meter in “Cielito Lindo.”

**FIGURE 3.10**

Mariachi band.



## insights and perspectives

### Three Beats or Seven?



In Eastern European countries like Bulgaria and Romania, music with meters of 5, 7, 11, or 13 beats is common. **CD ex. #1-22** features a Roma brass band from Romania playing a dance tune with a meter of seven fast beats per measure (2+2+3). That is how Western music analysts describe this meter, in any case. Roma themselves would say this is essentially a *triple* meter, with two “short” beats followed by a “long” beat every measure. The “shorts” and “longs” correspond to different dance steps.

This is a good example of the difference between cultural insiders’ and outsiders’ perceptions of music. In this case, as in many (e.g., the music versus nonmusic status of Qur’anic recitation discussed in Chapter 1), there is validity to both perspectives. Each sheds light on the subject at hand in a different way.

In musical traditions of India, Indonesia, China, the Middle East, and other parts of the world, meters are sometimes very long and complex. Rather than consisting of two, three, or four beats, or even five or seven beats, a “measure” may consist of as many as 68, 108, or 256 beats! For these longer types of meters, we usually speak of a **metric cycle** rather than a measure or bar when describing how the beats are grouped and organized. In later chapters, we will encounter music with metric cycles of 8 beats (Bali—Chapter 7), 16 beats (India—Chapter 8), and 68 beats (China—Chapter 13), among others.

### Accent and syncopation

The notes of rhythms that are given special emphasis and a little extra “oomph” during a musical performance are called **accents**, or accented notes. Usually an accent is produced by simply playing one note more loudly than the notes surrounding it.

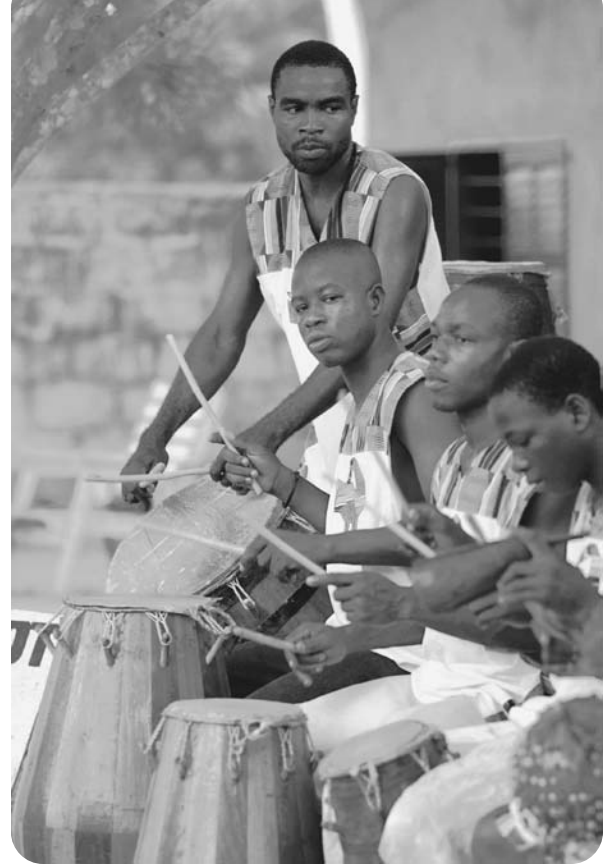
Accents often fall directly with the main beats, but they may fall in-between the beats as well. An accented note that falls between beats is called a **syncopation**. Some music features little syncopation (the Beethoven’s Ninth Symphony excerpt of **CD ex. #1-1**) or none at all (a conventional rendition of “The Alphabet Song”). Other music features an abundance of syncopation, in which case it may be described as highly syncopated music (James Brown’s “I Got You [I Feel Good]”). Listen to **CD ex. #1-23**, focusing on the rhythm of the vocal shouts. This is an example of *bhangra* music from India. The rhythmic accompaniment of the drums outlines a strong, steady beat in quarter notes. Against this, the shouts of “Hoi!” create syncopated accents.

The term *syncopation*, like most Western music terminology, is culturally loaded. Much West African music is described by Western listeners as “highly syncopated” (for illustrations, listen to **CD ex. #1-41** or **CD ex. #2-22**) but the majority of West Africans do not think of it that way at all. From their perspective, the “syncopation” designation is simply not relevant because they hear and feel the music in a different way.

### Tempo

The element of **tempo** is one of the easiest aspects of rhythm to comprehend. The word *tempo* (Italian for time) simply refers to *the rate at which the beats pass in music*. Tempos range from very slow, to slow, medium-slow, medium (moderate), medium-fast, fast, and very fast. Try singing “The Alphabet Song” at several different tempos (just alter the speed of the beats to change the tempo). Note how the feeling and character of the music seem to transform as the tempo changes. Tempos may be *constant* (steady, unchanging, metronomic) or they may be *variable* (speeding up and/or slowing down within the course of a performance). They may *accelerate* or *decelerate*, suddenly or gradually.

A gradual acceleration in tempo is used as a device to heighten musical excitement in many music traditions. An



West African drum ensemble.

**bhangra**  
(BHAHNG-rah)

The Athenians, a Greek syrtaki group.



A South Indian music performance, featuring vina (right) and mrdangam.



### syrtaki (seer-tah-kee)

example of this effect may be heard in the excerpt of the popular Greek *syrtaki* song “Zorba the Greek” on **CD ex. #1-24**. As you listen to the selection, try clapping along with the beat and notice how dramatically the tempo increases.

### Free rhythm

Thus far, our discussion of the elements of rhythm has related specifically to music in which there is a discernible beat, and, in turn, usually a discernible meter and tempo as well. Such music is called *metric music* (i.e., measured music). Not all music is metric, however. Much of it is *nonmetric*, or in **free rhythm**. Music in free rhythm does not have a discernible beat. It tends to float across time rather than march in step to it. **CD ex. #1-25** begins with music played in free rhythm on an instrument from South India called the *vina*. Then, just before the drum (called a *mrdangam*) enters, a beat is established and the drum part marks out a metric cycle (of eight beats). Note the difference between the nonmetric and metric sections, and see if you can “find the beat” once the drum part begins.

vina (VEE-nah)

mrdangam

(mir-DUNG-ahm)

## Summary

Rhythm was the focus of this chapter. Our examination of rhythm followed a brief overview of the four basic properties of tones—duration, frequency, amplitude, and timbre—with rhythm defined as the fundamental musical correlate of duration. We explored rhythm through both participatory exercises based on familiar songs and discussions of recorded examples representing diverse world music traditions. Elements of rhythm including beat, subdivision, meter, metric cycle, accent, syncopation, tempo, and free rhythm were introduced.

## Key Terms

duration  
frequency  
amplitude  
timbre  
rhythm  
sixteenth notes

eighth notes  
quarter notes  
beat  
subdivision  
measure  
meter

metric cycle  
accents  
syncopation  
tempo  
free rhythm

## Study Questions

- What are the four basic properties of tones and how is each defined?
- What is rhythm?
- What is the relationship of quarter notes to eighth notes, eighth notes to sixteenth notes, quarter notes to sixteenth notes?

- How is the rhythm of a piece of music defined by its relation to elements such as beat, subdivision, meter, accents, syncopation, and tempo?
- What musical examples used in this chapter were in duple meter? Triple meter? Other meters? Which illustrated duple subdivision? Triple subdivision?
- What is a backbeat, and in what types of music are you likely to find backbeat accents?
- What is the difference between metric music and music in free rhythm?

### Applying What You Have Learned

- Listen to a variety of songs and pieces from your personal music collection (focusing especially on ones with which you have the greatest familiarity) and try to identify different elements of rhythm present in them. Locate the beat of the song, then see if you can determine the level of subdivision (e.g., duple, triple, quadruple, other) and the meter (again, duple, triple, quadruple, other) by using the listening skills you have developed in this chapter.
- Listen to two or more pieces of music from your personal collection that are representative of the same musical style (e.g., two hip-hop tunes) and identify as many elements of rhythm as you can; next, listen to one or two other pieces in a contrasting musical style (e.g., country and western) and do the same. Compare your findings. What does this reveal about *general* similarities and differences in rhythmic approach between the two styles?
- Take a familiar song (“Mary Had a Little Lamb” will do) and sing it several times in a row, each time at a different tempo—slow, medium, fast, very fast, variable. How does changing the tempo change the feeling and spirit of the song overall? What does this tell you about the significance of tempo in music?
- Get together with a friend or two and play a rhythm game. Clap out the rhythm of a familiar song (e.g., “The Alphabet Song,” “The Star-Spangled Banner”) without actually singing the tune and see if your friend(s) can identify the tune on the basis of that rhythm performance alone. Then switch roles and have someone else clap out tunes while you try to identify them.

### Resources for Further Study

Visit the Online Learning Center at [www.mhhe.com/bakan1](http://www.mhhe.com/bakan1) for additional learning aids, study help, and resources that supplement the content of this chapter.