Music

I. INTRODUCTION

Music, artful arrangement of sounds across time. This definition is obviously very broad, but a narrower one would exclude too much. Music is part of virtually every culture on Earth, but it varies widely among cultures in style and structure. Definitions of music can change dramatically over a short time, as they have across the world during the 20th century.

Can music exist without sound? Some philosophers argue that music should be defined as a kind of “mental image” and that the physical aspects of sound are simply by-products of this image. If you think you can have a musical experience by imagining the sound of a piece of music, then you think music can exist without sound. But most musical experiences involve producing or listening to physical characteristics of sound such as pitch and timbre (quality comparable to texture or color in sight).

Is the tape-recorded sound of a large metal-stamping machine music? Are 4 minutes and 33 seconds of silence music? Is the activity of reading a list of hundreds of seemingly unrelated objects, activities, and states of mind music? Each of these “works”, as well as many other sounds (or nonsounds), has been copyrighted as a musical composition, performed, and recorded in the 20th century. One of the legacies of 20th-century music is to have blurred the definition of music as never before.

Other experts argue that whether any particular pattern of sounds (or our mental image of this pattern) is or is not music hinges on the musical culture into which we were born and in which we have grown up. In other words, whether sounds are music or not has more to do with learning than with anything about the physical characteristics of the sounds or the inborn characteristics of people. An American or European, hearing for the first time a Javanese gamelan performance or singing by the Ewe people of West Africa, might feel disoriented and disappointed by the unfamiliar and seemingly meaningless sounds of these kinds of music. Similarly, Javanese or Ghanaian listeners might feel every bit as disappointed when they first hear the music of Austrian composer Franz Schubert or the songs of a popular rock group, and they might find these equally meaningless.

Like language, another arrangement of sounds, music is a uniquely human form of communication with well-developed rules of construction much like grammar. Some language experts would say that you can listen to someone speaking a language you do not understand and still know whether the speaker is excited or tired, angry or delighted. You would be making interpretations based upon the speech patterns: loud or soft, high-pitched or low-pitched, rapid and bitten off, or slow and smooth. Corresponding to these elements of speech are musical variables such as dynamics (force and volume), register (range of music or voice), mode (arrangement of a set of tones), and articulation (such as staccato, meaning abrupt and crisp; or legato, smooth and even). On the other hand, most people would agree that a meaningful conversation can only take place when both the speaker and the listener speak the same language. The conversation becomes even more meaningful when the parties are talking about something or someone they both know well.

Although there is no general agreement as to exactly what music communicates or how it communicates it, some individuals and governments have believed that music possesses great powers of communication. Most ancient Greek philosophers believed that listening to music based on certain of the modes in use at the time was beneficial to the development of a young person’s character, and warned that listening to music based on certain other modes would have harmful effects. For centuries Chinese beliefs about music were influenced by the philosophy of Confucius, which music was not to entertain but to purify one’s thoughts.

II. WHEN MUSIC BEGAN
It seems likely that everyday activities, such as the movements in repetitive work and in walking, were rhythmically regular enough to invite some sort of embellishment. Related breathing rhythms, chanting, or other accompaniment, such as the tapping of a walking stick while walking or the transformation of a work tool into an instrument while working, may have been early forms of music. In fact, whether sacred Native American corn-gathering songs or melodies heard in elevators or supermarkets, music still accompanies our ceremonial and everyday activities.

Scholars can only speculate about when music began or which cultures had music first. From ancient times people have told stories of its origins. The so-called music of the spheres was thought by Greek philosopher and mathematician Pythagoras in the 6th century BC—and by later classical and medieval philosophers of the Western world—to be a perfectly harmonious music, inaudible on Earth, produced by the movement of the stars and planets. In many non-Western cultures ancient thinkers understood music as part of a system of cosmological, philosophical, or scientific thought. For instance, the musical scale of ancient China, derived through arithmetic from a basic note, reflected the ancient Chinese conception of the organization of the universe. Each degree of the scale was closely related to the cardinal points (north, south, east, west), the elements, the seasons, the planets, the months of the year, colors, materials, numbers, parts of the human body, animals, smells, and so forth. The Chinese found in nature eight different sources of musical sound: metal, stone, silk, bamboo, calabash, terra cotta, skin, and wood.

Many of the elaborate melody patterns of India, called ragas, are believed to have magical or curative powers. Ragas are traditionally played at specific hours or during specific seasons; it is believed that to depart from this timetable would be harmful to the performer and audience. In some tribal societies, music appears to serve as a special form of communication with supernatural beings, and the prominent use of music in modern Christian and Jewish services may be a remnant of such a purpose. Music has always held an important role in religious rituals.

American jazz great Duke Ellington once stated that there were only two kinds of music—good and bad. Music is pleasing to its loyal audiences who have learned to distinguish nuances of style and may be able to identify their favorite performers by sound. It may be less than pleasing to others, who may comprehend so little of the music that they think it all sounds alike. Music can also be performed well or poorly. These judgments are made within a musical culture, according to what that culture believes about music. It is obvious how important the composer and the performer are in musical communication, but the importance of the audience’s knowledge and active participation in music is often underestimated or ignored.

Most musical cultures divide into so-called art music and music of the people, though these two categories are not always distinct. Art music demands a high level of training on the part of the performer and a relatively high level of sophistication on the part of the audience. Popular and folk styles of music can become equally sophisticated, but they tend to start out being easier to perform and more easily understood by a wider audience. Almost every musical culture has subcultures, and these subcultures often have their own subcultures. Western music is one of the clearest examples of a multi-layered musical culture.

Baroque, classical, romantic, modern, and postmodern are all recognized styles of Western art music that together span the last three centuries. But more specific musical genres, such as religious music, folk music, military music, popular music, film music, and show music, have coexisted with art music during this time period. And within any one of these broader musical styles, we can find other musical subcultures. For example, within the broad musical range of styles called popular music, we find blues; within the subculture of blues, we find field blues and urban blues, among others.

Two pieces of music within the same musical culture, and even within the same musical subculture (for example, rock music), can sound very differently and can appeal to different groups. Compare, for example, two examples of music that some people would group together as rock music, David Bowie’s “Changes” (from *Hunky Dory*, 1972) and “Fortunate Son” (from *Willy and the Poor Boys*, 1969) by Creedence Clearwater Revival.
Although these two songs were recorded and released within a few years of one another, they have distinctly different styles, and they tended to attract different audiences. Creedence Clearwater Revival was one of several back-to-basics American rock groups that revisited the traditional blues and country-western musical heritage of rock. This was at least in part a reaction to the influence of British rock singers like Bowie and other groups that had gained a huge international following during the 1960s and 1970s.

Similarly, jazz styles vary not only between early forms (Dixieland, ragtime) and newer styles, but also between different schools of jazz that exist at essentially the same time. For example, the understated, classical style of the Modern Jazz Quartet differs from the spontaneous, free improvisational style of saxophonist Anthony Braxton.

Both Symphony No. 4 in G Major by Austrian composer Gustav Mahler and Suite: Pour le Piano by French composer Claude Debussy can be thought of as European art music, and both were completed in 1901. Once again, however, we find music with clearly different sounds. The most obvious difference is in performance medium: orchestra and voice in the Mahler work; piano in the Debussy composition. The two works also differ in pitch structure. The Mahler symphony is still organized around a set of harmonic relationships among pitches and would be described as tonal. It also represents a familiar distribution of notes in Western music known as major mode, based on the relationship of whole and half tones to one particular tone. Fundamentally different, the Debussy suite approaches the atonality (absence of tonality) of a whole-tone scale, a sequence in which no one tone functions as center. Although these pieces come out of the same musical culture, there is a more profound difference between the two pieces than just these characteristics. Mahler was extending the German-Austrian musical tradition, composing within a subculture that included predecessors such as Beethoven, Brahms, and Bruckner. Debussy's so-called impressionist style was meaningful as a reaction to this same subculture.

These examples of subcultures within musical cultures also begin to suggest how a group can adopt music as a symbol of its identity. In and of themselves, the colors green and orange are not really about anything. But in Europe these colors have been invested with strong religious and political meanings over the past several centuries. In many parts of western Europe and especially in Ireland the colors are associated with religious division: green for the Catholics, orange for the Protestants. In a similar way, music can become part of the glue of a subculture: an intangible but extremely strong identifying and binding element.

IV. VOICE AND MUSICAL INSTRUMENTS

Before mass media made it possible to share music worldwide, most musical cultures could be identified through several practices. These included the instruments used in musical performance, the structural components of the music such as scales, and recognizable performance practices such as bending notes in a certain way. The many technological developments in musical recording and delivery systems during the 20th century have helped to blur the boundaries between these cultures.

The voice is the most important element in the music of some cultures, while instrumental sounds are more important in others. According to some historians, Western music has steadily changed in this regard. Before the 17th century, vocal music was the predominant performance medium. Vocal and instrumental music coexisted on essentially an equal basis during the next century. Instrumental music has predominated during the 19th and 20th centuries. See Singing.

A. Percussion

Instruments of the percussion family are undoubtedly found in the greatest number of musical cultures. Percussion instruments are referred to as membranophones if they produce sound through the vibrations of a stretched skin or other membrane. They are called idiophones if they produce sound through their natural resonance when struck, rubbed, plucked, or shaken. Drums are membranophones; hollowed logs, bells, gongs, xylophones, and pianos are examples of idiophones.

B. Wind
Wind instruments, or aerophones, produce sound in several ways. The performer’s lips may produce the vibration, as with brass instruments. The vibration may be produced by a column of air split across a sharp edge (flutes, pipes, whistles). Or the vibration may be produced by one or two reeds, as with instruments such as the clarinet, saxophone, oboe, bassoon, or the Korean oboe called a piri.

C. String

The string, or chordophone, family has several branches. In one branch, which includes the zither, dulcimer, and Japanese koto, strings are stretched across a flat body. In a second branch, each instrument has a neck, for example the lute, guitar, Indian sitar, Arabic ‘ud, or violin. A third branch includes plucked instruments with multiple strings, such as the lyre or the harp, where each string produces only one pitch.

D. Electronic

Electronic instrument, or electrophone, refers broadly to any means of generating, modifying, or amplifying musical sounds electronically. Thus any instrument played through an amplifier becomes an electronic instrument. The term most often refers to instruments that generate sound electronically.

Although there were experimental electronic instruments in the early 20th century, sound synthesizers and computer-based music composition, arrangement, recording, and distribution have only in recent years become accessible to a broad segment of the population. See Musical Instruments.

V. FORM

The overall shape or architecture of music is referred to as its musical form. We will begin with a brief discussion of form in Western art music, and then compare this with an example of form in non-Western music.

A. Classical Form in Western Music

There are several possible reasons why composers of Western art music, which is also called classical music, have tended to pay so much attention to musical form and to build relatively complicated formal structures. One reason is that the widespread use of Western musical notation came to influence the composition of the music itself. The basis of this notation is a staff of five parallel lines. Each line and space between lines represents a different pitch, so the arrangement of notes on the staff allows musicians to take in the entire piece and to compare different sections of the music at a glance. This kind of formal art music has tended to serve as the focus of an event, as in a concert hall or salon, or as a means of directing focus, as in a royal court or church. Given its importance in these settings, the music must hold the audience’s attention. Imbuing music with the repetitions and variations of a story is a standard way of doing this.

Audiences familiar with traditional Western tonal music will resist music that is too repetitive or too complex. A balance in between keeps the listener absorbed in fresh material, at the same time reassuring the listener of the coherence of the piece through the repetition of earlier parts. Variety may be introduced by contrasts in musical elements such as melody, the prominent musical sequences within a piece; rhythm, the durations of patterns and notes that create forward movement; harmony, the combination of notes sounded at the same time; and key, in Western music, the tonality produced by seven tones in a recognizable relationship to a central tone. Repetition of these elements may make the music more unified or coherent, as with the return of a melodic or rhythmic pattern heard earlier in the piece.

Beethoven’s Sonata in C major op. 53 (1803-1804) is a clear example of the simultaneous use of old, new, and modified material in music. Throughout the piece there is a repetitive pattern of longer and shorter notes: long-short-short-long-long. The first 19 notes fall into a pattern of 5+5+5+4, based on this long-short pattern.
The first five notes of this melody descend, establishing the melodic pattern, or motif (also called motive). The next five notes are similar to the first in rhythm, but different melodic direction: something old, something new. The third set of five notes is identical to the first set except that it is heard in a lower octave, or register, tilting the balance more toward repetition. The final four notes are similar, but not identical, to the second set, creating again a counterbalance of old and new. The same melody can be heard again in the first and second halves of the piece, in a lower register than the ornamental tones that first and with greater embellishment accompany it. At first hearing the melody may not be recognizable, but it is definitely there beneath the surface, helping to unify the music.

Musical form can and usually does exist on more than one level in Western classical and popular music. The sequence of the statement of a musical idea, or exposition, the competing statement of a contrasting idea, or development, and the return of the original or a variation of either idea, or recapitulation, constitutes the primary pattern of form in Western classical and popular musical cultures.

B. Beyond Western Classical Form

The formal processes described above are found to some extent in music worldwide, but they are not universal. One reason for this is that not all music is intended for the concert stage. For example, music has been used throughout the ages for important rituals, and some cultures carry on these traditional rituals today. In many rituals the music acts as a powerful lens, focusing and uniting the emotional and spiritual energies of the assembled people. Rather than having sections of contrasting or varying ideas, music with this communal function is often purposefully repetitive so that the group members' voices and movements can join together in an intense, and sometimes even trancelike, union.

Much ritual music contains subtle repeated and varied melodic ideas, but the most obvious and powerful characteristic tends to be a strong, repetitive rhythm. For example, in one instance of healing music of Malawi, the first thing heard is an exciting, driving beat produced by wooden sticks being struck together, represented in the figure below as red squares. This beat is joined by a drum playing at triple the rate of the struck sticks; this triplet is represented in the figure by the small gold diamonds.

The Malawi example contains a formal element similar to one in the Beethoven sonata discussed earlier, but it is quite subtle. In the vocal part of this ritual music a slightly varied version of the melody returns. The percussive rhythmic foreground of the music, however, is definitely prominent.

VI. THE ELEMENTS OF MUSIC

At its simplest, music consists of a short, unaccompanied melody, known as monophony. But even the simplest melody consists of many important components. Some of the most obvious of these are the varying heights or pitches of the tones, their durations, their loudnesses, their tone colors or timbres, and their articulations.

A. Pitch
Although most musical cultures share the concept of highness and lowness of pitch, awareness of this concept is not inborn. Psychological studies have demonstrated that few five-year-olds understand the concept of high and low pitch, whereas most nine-year-olds do. Pitch depends on the rate of vibration, or frequency, of sound waves that produce a particular tone. Higher pitches have a higher frequency (greater rapidity of vibrations) than lower pitches. Most musical cultures recognize the octave, a unique relationship of two pitches. Two pitches are an octave apart when their rates of vibration form an exact 1:2 ratio. Tones an octave apart blend together so smoothly that listeners often confuse the two tones or think they are hearing a single tone. Pitch-naming systems reflect this similarity by giving notes an octave apart the same name (A, B, C, for example, in Western music). Most musical cultures recognize the concepts of pitch and octave, but not all. For example, there is no Japanese word for octave although what Westerners call octave is found in traditional Japanese music.

Each musical culture has one or more sets of tunings that define the gaps or intervals between pitches in that group’s music. By the 18th century, most Western music was based on 12 equivalent intervals per octave. This system is represented by the chromatic scale. Its 12 equally spaced tones per octave, called half-steps or semitones, can be heard by playing the tones that correspond to 12 adjacent frets on a guitar fretboard, or to 12 adjacent keys on any modern Western keyboard instrument. The semitone is the smallest gap in traditional Western music, but smaller intervals (collectively referred to as microtones) are used in some modern Western music, as well as in some other musical cultures. Again, learning plays an important role in what pitch relations are considered pleasing. In a psychological study early in the 20th century, participants spent several months becoming familiar with the sound of a scale based on such small intervals that all 12 scale members fit within a standard half-step. By the end of the learning period, many participants stated that this microtonal scale sounded very natural, and they could recognize melodies composed with this scale. Some participants even stated that the top note of the scale seemed twice as high as the lowest note—the description Western musicians typically give to the octave. See Scale (music).

For the past several centuries, the preferred underlying pitch structure in Western art music has been the diatonic scale. This scale consists of seven tones related by a total of five whole-steps and two half-steps, arranged in the sequence from C to C of the white keys of a modern piano or organ. Depending on the pitch relationships among whole-steps and half-steps, scale systems are referred to as either major or minor, or as a specific kind of ecclesiastical or church mode. See Mode (music).

B. Scale

A great deal of Western folk music, along with much folk music and art music around the world, conforms to a five-tone, or pentatonic, scale. The best-known form of the pentatonic scale contains no half steps. Instead, it is made up of three whole-steps and two step-and-a-half intervals. The black keys on a modern piano or organ keyboard produce a pentatonic scale.

There are many scale systems in the world, and not all are based on dividing the octave into 12 equal parts. For example, the Javanese Sléndro scale contains five tones, but tunings of these five tones do not correspond to twelve steps in an octave scale as with other pentatonic scales. Scholars have measured several different tuning versions of the Sléndro scale, including some that approximate dividing the octave into five equal intervals. When comparing the sounds of Javanese and Balinese gamelan performances, listen carefully to the tunings of the gongs (see Indonesian music).

C. Time

Musical rhythm is defined broadly as everything having to do with the way music uses time. More specifically, this includes characteristics such as durations of tones and silences, and patterns of durations, both of which can focus attention on certain tones making them more prominent than others. These more-prominent or accented tones often mark regular patterns that enable listeners to perceive tones as members of larger groups. We can illustrate this sort of perceptual grouping with a simple visual example. Look at the string of numbers in the first line and the string of letters in the second line for a minute, and see if you can see any patterns:
The numbers form a simple sequence that repeats itself every three numbers. Rather than saying this is a string of 12 integers, we can recognize that this is a group of three elements each repeated four times. Since the numeral 1 is the first member of each new group, we may pay a little more attention to it. The recurring pattern that enables us to think of these numbers in groups is similar to musical meter (the grouping of beats). In this case, the three-element repetitions are analogous to a common pattern in Western music, triple meter, represented by the metric signature $\mu$. See Musical Rhythm.

The string of letters is also fairly simple, because the pattern repeats every four letters. This repeating pattern of four is analogous to quadruple meter, represented by the metric signature $^1$. As with the repetition of sets of numbers, the first element in each new pattern claims attention and is more accented and emphatic. But in this sequence a second pattern of emphasis is added by the capital letters. This pattern draws attention away from the expected pattern of accents by shifting the stress to a normally weak beat. This device, known as syncopation, is found in music of many cultures.

D. Harmony

In most music, and especially in Western music, important and style-defining patterns are formed by pitches that overlap in time, producing a chord, or harmony. Two or more tones that occur at the same time form a harmonic relationship called a block chord. These tones are called broken chords or arpeggios when heard separately but in sufficiently rapid succession that the listener perceives them as part of the same harmony.

Composer Scott Joplin used block and arpeggiated chords in his ragtime style. The higher-pitched notes in the ragtime piece “The Cascades,” for example, are played by the pianist’s right hand. These pitches form the same harmonies as do the lower-pitched notes played by the left hand. But the higher chords played by the right hand sound more melodic because they are broken or arpeggiated, while the block chords played by the left hand form the accompaniment.

Two or more tones heard simultaneously may belong to separate melodies that fit well together, but which occupy different octave registers, have distinct rhythmic patterns, or otherwise have different shapes or contours. Music composed of multiple independent but related parts is referred to as polyphony or, when the parts are distinct melodies, counterpoint. Two very different forms of polyphonic music with contrapuntal melodies may be heard in the early 20th-century jazz piece “Dippermouth Blues” and in the 16th-century Missa De Beata Virgine by Palestrina.

VII. THE DEVELOPMENT OF WESTERN MUSIC

When most people speak or write of Western music, they are referring to Western tonal music, composed mostly in the 18th, 19th, and early 20th centuries, and based largely on European folk tunes. Western music is actually much broader than this, spanning many centuries and encompassing many other ways of constructing music.

Music, like language, continually evolves within its culture. Western music, for example, was predominantly vocal monophonic music (music with a single melodic line), and was based upon a scale or scalelike formula until well into the Middle Ages. Around the 9th century AD, the first forms of polyphony were written down and discussed, and vocal polyphony predominated in music through the beginning of the 17th century. During the 17th century, both instrumental music and homophonic music—music in which voice and chordal accompaniment produce a single melody—became increasingly common. The well-documented stylistic eras of classical music (about 1750 through 1820) and romantic music (about 1820 through 1900) represent the height of major-minor tonal music that emphasized clarity of form. This preference was in turn followed by increasing individuality of expression, accompanied by an even greater exploration of the limits of both tonality and formal design.

The pace of musical evolution has accelerated in the 20th century. New compositional styles include...
chance, the random use of noise and electronically produced sounds in compositions, and serialism, the repetition of sequences of established rhythms, levels of loudness, and pitches. Along with these developments in compositional styles, the 20th century has seen an immense exchange of music that has led to new developments in many music cultures. Both the rapid pace of change and the multicultural cross-pollination of music can be traced directly to improved global communications and the explosion of technologies such as sound recording, radio and television, and computers. See Western Music.

VIII. THE WORLD’S MUSICAL CULTURES

Music scholars identify Western music as one of several major musical cultures of the world. Other musical cultures include, but are by no means limited to, East Asia (China, Korea, Japan); Oceania (Australia, New Zealand, and the islands of the South Pacific); Southeast Asia; Central Asia; South Asia (India and Pakistan); the Middle East and North Africa; sub-Saharan Africa; and Native American. Some of these musical cultures, such as the Middle East, are quite unified, while others, most notably sub-Saharan Africa, are incredibly diverse. Even within relatively unified cultures, such as the Middle East, there are complex subcultures. For example, since its establishment as a state in 1948, Israel has been populated to a great extent by Europeans, Middle Easterners, and North Africans, and as a result its musical culture comprises a mixture of many imported music cultures. Musical subcultures or communities are often readily identifiable, by distinctions in performance and the education, age, or ethnicity of the audience.

Some musical cultures have been passed down through the generations orally (by singing for example) and aurally (by listening). The lack of a musical notation system or other historical records in these cultures makes discussion of historical traditions guesswork. Other musical cultures have a long and rich written history. Chinese music, for example, has been written about for many centuries, although relatively little of the music itself was notated for posterity. Historical documents indicate that Japanese music has undergone many changes over the centuries, as a result of political and military interactions with both China and Korea. Especially since Japan opened its society to Western influences in the late 19th century, concert and popular musical activities there have become truly multicultural.

IX. THE 20TH-CENTURY GLOBAL MUSIC CULTURE

During the 20th century, most music has become accessible worldwide through a technological revolution that has produced high-quality sound and video recording, radio and television, and computers. It is difficult to overstate the importance of these innovations on musical cultures around the world. It has become possible to record music of the many musical cultures in the world, including music that has traditionally been learned and passed on orally or aurally. On the other hand, the boundary lines among many cultures, and between subcultures, have shifted dramatically and in some cases have disappeared. There has always been some cross-fertilization among musical cultures, and this is often a sign of healthy cultural and artistic growth. One well-known example is the musical mixture of Hispanic and Germanic cultures in the American Southwest during the 19th century, which produced the conjunto or Tex-Mex style still popular in the region today. Traditional conjunto bands perform at social dances and consist of a virtuoso accordionist, a bajo sexto (12-string bass-rhythm guitar), bass, and drums.

It has been almost impossible for at least the past few decades to find a folk-level musical culture within which listeners are exposed to only the music of their own culture and no other. In the early 1980s, an Australian music scholar traveled through the Australian outback for two days looking for a remote Aboriginal village where he could study non-Western music listening habits, only to find that most of the villagers regularly listened to Western popular music on their portable tape cassette players. Our global culture is producing a musical multiculturalism that takes a number of forms. Hybrid musical forms cross the boundaries between classical and folk or pop subcultures within the various cultures they bridge. For example, South Indian cine, or motion-picture music, combines Indian and Western musical instruments and mixes classical Indian melodies with Western rock- and jazz-influenced accompaniments. Popular benga music of Kenya and juju music of Nigeria illustrate how Western instruments such as the electric guitar and electric bass have been employed in place of traditional instruments of the region.

With all of the cross-fertilization among musical cultures, some people worry that music will eventually drift toward a single, global music that is bland and unvaried. Others argue that there is a growing
countermovement to preserve the diversity of cultural heritages, including traditional musical genres.

See also African Music; African American Music; Arab Music; Chinese Music; Greek Music; Indian Music; Japanese Music; Jewish Music; Latin American Music; Cajun Music; Popular Music; Folk Music.

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