

Music Appreciation (Georgia Gwinnett College)

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Georgia Gwinnett College



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Music Appreciation

Module 1= Universals

What is Music?

In order to gain an appreciation for music we must first define what “music” is. Picture a concert hall with a grand piano sitting in the center of the stage. The pianist enters the stage dressed in formal clothes typical of a Western Art musical performance. The audience acknowledges the performer who sits at the piano, opens a sheet of music and then waits for the audience to settle. To begin the piece the pianist starts a silent timer that only he/she can see. The pianist then sits while listening, not playing a note on the piano. This takes place for 4 minutes and 33 seconds until the timer indicates the end of the piece. The pianist then takes a bow (hopefully to applause) and leaves the stage. John Cage wrote his seminal work 4’33” to highlight that all noise could be music. His philosophies were grounded in the concepts and teachings of Zen Buddhism. Is it inappropriate to call the ambient sounds of the space that one is in music? If it is music to someone, then it is music.

Now imagine someone you know who is so sure that the music that they listen to is “real music” that they discount all unfamiliar musical styles, genres, and artists. Growing up in the American South I knew many people who listened to Country music. In the late 1980’s and 1990’s rap music and hip-hop culture had escaped from the boroughs of New York and was appreciated by audiences in a majority of communities across the USA. On more than one occasion I heard a young country music enthusiast rail against rap music. The situation was also reversible. Just as many rap fans would rail against country music. The criticism that they had in common was that, “It all sounds the same.” They might follow that with, “I like music that means something.” Music does mean something to those who like it. Just like 4’33” meant something to John Cage and to millions who have enjoyed it both aurally and philosophically.

There are many ways that humans express themselves through sound. The examples above demonstrate the breadth of musical possibilities within one culture. Now multiply this by the varieties of musical expression found throughout the world’s cultures and throughout history. It is hard to think of all of the possibilities and to believe that one could “appreciate” them all. Do you know why

Gamelan is important to those who make it? Do you know what it feels like to “be in the moment” at a Hindustani musical concert? Do you know the feeling of turning off your conscious thought during an uplifting praise and worship song or at an Electronic Dance Music (EDM) festival? It is important to try to find out why others appreciate music before passing an aesthetic judgment.

The first key is to broaden your concept of what music is. In this course we define **music** as sound organized by humans (Blacking 1973, 4). Because neuroscience is in a time of great discoveries we are learning more and more about music and its biological benefits (reasons). Music is important to humans and has been for at least the last 40,000 years. We know this because the oldest instrument (that has been found) is a bone flute found in Hohle Fels Cave in southwest Germany. The level of sophistication that it took to make the instrument indicates that it took much effort. This is not a primitive instrument.

The ways to listen to music are as varied as the genres. A **genre** is a group of musical pieces that are characterized by similarities. At the beginning of the 21st century humans are surrounded by music and noise. Much of this noise is ambient music. We hear more music than anyone at any other time in history. It is nothing special for many of us. It accompanies our driving, walking, studying, shopping, riding an elevator, etc.... We do not have to pay attention to most of the music that we hear. In fact, much of it is not created for people who are paying attention. Instead it is created for passive listening. **Passive listening** simply means hearing without an intention to experience what one is hearing. Examples of music for passive listening would include ambient music heard in a department store, theme park, or yoga studio. Music played in a commercial and often times in a video game, television show, internet post or movie may also be ambient. Active listening is required to develop an appreciation for a majority of the genres of music. **Active listening** is listening with a purpose. That purpose may simply be to enjoy the sounds, or it may be to analyze the music to find out what makes it unique.

There are as many ways to analyze music as there are varieties of ways to make music. In this class we will utilize five elements of music to gain a greater understanding of the **composition (work of art)**. **The five elements of music are: rhythm, melody, harmony, texture, and form**. Module three will require active listening and analysis of

rhythm. Module four will include melody, harmony, and texture. Module five will cover form. In addition, this course will analyze differences in human musical expression by surveying instruments from around the world (Module 2). This will include a discussion of **timbre**. **Timbre** is a French word that we use to describe the unique quality of the sound of an instrument.

The word “music”

For the purpose of this course we are defining music as sound organized by humans. While this works well in appreciation courses in the Western world it does not always work when talking about the “humanly organized sound” of other cultures. The word “music” is a construct of Western culture and does not translate to all cultures. In the Arabic Islamic world the translation for music is *musiqaa*. While this word refers to much of what westerners would call music it does not refer to melodic recitation of the Qur’an. Recitation of the holiest book in Islam is artful melodic and rhythmic presentation that is done with much passion (soul). Even though this recitation is “sound organized by humans” it is not appropriate to refer to it using the word music. This is because it is a spiritual presentation that Muslims consider to be different (above) secular “music”. This is not to say that all religious recitation is different than music. In Europe the oldest notated music is religious chant called **plainchant** (6th through 9th centuries). This is often referred to as **Gregorian chant** because of a legend that claims that Pope (Saint) Gregory I was responsible for gathering the musical practice of all of the Roman Catholic lands into a notated set. Saint Gregory certainly did much to canonize the Catholic worship documents but the **plainchant** that has his name most likely evolved in the three hundred years after his death. Plainchant, or Gregorian Chant, is melodic recitation that is called music. Many cultures do not limit music to organized sound. In India, *sangita* refers to both music and dance. For people who tie music into their way of life there is sometimes no word for music because it is not separated from “life”. This is true for many indigenous North Americans and Africans.

Who makes music?

The concept of who, or what, a musician is also varies between cultures. In the same indigenous North American and African cultures there is not a designation for someone who specializes in music. This is because all members of the community make music. The concept is comparable to the act of speaking in our communities. Everyone takes part in speaking. We recognize that some “speakers” or “preachers” have developed the skill but that does not mean that others do not speak. In our own culture the definition of “musician” is a moving target. What level of proficiency or professionalism does one have to achieve before being considered a musician? Is it not true that one who sings in church or at a birthday party is making music and therefore a musician? For the purposes of a world survey of music it is important to broaden the definition of a **musician** to be anyone who is taking part in music. This can be a virtuoso violinist, a dancer in India, a producer of Hip-Hop or a shower singer.

Why do people make music?

Humans use music for a variety of reasons that vary from culture to culture. Music signifies different things for different people. Some mainly use it for entertainment and marketing while for others it is a part of **everyday life** akin to speaking or walking. As [Cathy Kilroe-Smith writes in *Musical Journeys*](#):

On the continent of Africa, music is used in a number of practical ways. In many cases, it is used while doing everyday tasks so that the mind can rest while the rhythm takes over. Fishermen along the coast of Mauritania use song to help them communally pull in their heavy fishing nets. The songs help them to synchronize their movements so that as the rhythm increases so does the effort put into hauling in their catch. Known for their craftsmanship, the Senofu people of the Ivory Coast use combinations of rhythms to create communal rhythmic patterns. Each action or task has a rhythm, and when combined the effect is of one complex musical tapestry. This ensures that everyone keeps working at a good pace and helps the time pass quicker. Once the workday is over, the music and rhythms change and

evenings are spent dancing and singing. Music is very much part of the fabric of daily life in Africa. Singing and movement accompany many aspects of daily life; even while waiting in line people sing. (Kilroe-Smith 2013, 14)

This passage also illustrates the use of music to increase productivity of **labor**. **Work songs** come from all ways of life. Some examples are sea shanties, field hollers, street cries, lumberjack tunes, prison songs, railroad songs, mining songs, and cowboy tunes. Another kind of work music is traditional military music from times when music was used to organize and motivate troops on a march or on a battlefield. Military music still accompanies important ceremonies and events.

When people **gather together** there is often music. This can be simply to enjoy the company of others like at a picnic or a party. It can also be a gathering that focuses on the music like a concert or a dance. Music is used for celebrations ranging from life's most important events (weddings, graduations, funerals, birthdays) to the most inane (competitive victories, arrival of the weekend). Lullabies are used to put children to sleep and songs help wake people up with tenderness.

The **expression of ideas and emotions** is a reason for much of the Western World's popular music. Listeners relate to the messages in pop tunes. Songs and works about emotions that are generated by love are a common example of emotional expression in music. In this way, music is often used to identify and express who we are as musicians and listeners. This expression can be personal or it can be used for group identity. National Anthems are used to unify members of a society under a common musical theme. In international gatherings like the Olympics music provides national unity and pride. Protest songs can unify many people behind a common goal. These songs often give people strength and courage to carry on.

Music is a profession for many. There is much money to be made by performing and composing music. Think of all of the commercial uses of music. Music is heard in stores, in parks, on television, in the movies, in airports, and in restaurants. Often times people compose, perform, and record this music primarily for money. Professional Western classical musicians play concerts year round. Many of these concerts do not contain music that every member is passionate about.

One of the most striking and profound uses of music is in worship. A majority of humans use music in **religious practices**. This is evident in hymns and choral singing of Christianity. It can be found in the Sufi Whirling Dervishes and in the devotional aspect of Hindustani and Carnatic music from India. In the shamanistic cultures of the world communication with the spirit world is facilitated through musical practice with shaman often singing and drumming. Religious trance accompanied by music can be found across the globe, from Tibetan Buddhism to Alabaman Pentecostal Christianity.

The spiritual or religious aspect of music is a reason that many musicians give for wanting to devote their life to the art. Because science cannot yet explain the transcendent power of music we say that music has **metaphysical** power. Metaphysics is a term that is used to explain concepts or ideas that cannot be scientifically proven (yet). This can be felt in the solitude of a prayerful chant or in the common “vibe” of thousands dancing at an electronic dance music festival or club.

Dance is a form of human expression that is almost inseparable from music. Because of this much music is created to accompany, or facilitate dance. This dance can be formal, like in a European ballet or Egyptian *zaar*. Dance music can also be informal, like at a concert or club.

What is aesthetic preference?

In a limited sense aesthetics are the judgments and preferences that humans place on art and cultural works. Aesthetic judgments are not made from only one area of our understanding. They are philosophical, scientific, and theoretical. In simpler terms aesthetic judgments are emotional, intellectual and sensory all at once. It is important to recognize differing aesthetics as the result of the culture from which they arise. Many American students have an aesthetic preference for music that has extra-musical meaning heard in words that are sung. In this case **extra-musical** refers to aspects of the music that are in addition to arranged sounds. In Western music history **musicologists** (people who study music as an academic subject, mostly used for describing scholars of European Art music) divide works into two categories that indicate the meaning of a piece. The category in which the works contains extra-musical meaning is called **programmatic music**. Programmatic music can tell a story or simply

relate an idea with or without words. As a side note: Music with words can generally be called songs while music without words is usually referred to as a piece or work. The other category is **absolute music**. Absolute music refers to music that contains no extra-musical story or idea. There is not currently a strong aesthetic for absolute music. The Classical Style Period (1750-1820) is a time in European Art Music when there was emphasis on absolute music. This is when the sonata, string quartet, concerto, and symphony became important genres.

Music that has words can relate any idea, story, or emotion that the songwriter and/or musicians want to convey. Some songs are narrative. This means that they tell a story. Some simply relate an emotion or idea. Sometimes the words that are sung do not have literal meaning to the listeners/performers. Instead, performance of the piece holds the actual meaning. This is the case with many patriotic songs or protest songs. In some music, the syllables being sung are meaningless. Meaningless sung syllables are called **vocables**. Many indigenous American songs utilize vocables. They are also a part of England's rich madrigal and carol tradition ("Fa-la-la-la-la") and American Do Wop music from the late 1950's.

Some listeners prefer music without direct meaning. A prime aesthetic of the absolute music of the Classical style period was emphasis on form and proportion in music. The works of Wolfgang Amadeus Mozart epitomize this aesthetic goal. Understanding much of Mozart's music necessitates understanding the forms and melodies of the late 18th century in Austria. More recently ambient music has found an audience. Pure dance music (without lyrics) might also be absolute. Absolute music is only "about" the arrangement of sounds.

Aesthetic preference can also manifest in the way that a performer interprets a piece of music. In much of the world's cultures there is a strong aesthetic for hearing traditional, recognizable pieces. Each new performer of these traditional pieces is expected to add their own musical identity to the piece. This is an opposing aesthetic to cultures in which each subsequent performance of the piece tries to approximate the original sound, aesthetic, and intent of the piece. Students in America often reveal aesthetic preference by considering how they would like to hear an artist play a song that they like. Would they rather the artist interpret in a new way or do they want to hear it "like it was on the album"?

Transmission of Music and Knowledge

The process by which music moves from between one person to another, between generations, and between communities is called musical transmission. Since Edison's first recording in 1877, recording technology has transformed music performance and transmission. The process of change from recording sound on tin foil, wax cylinders, vinyl, magnetic tape, to the digital revolution that brought about compact discs and now streaming has drastically changed how music is transmitted. In the current world (2016) it is possible to hold more music on a device small enough to keep in one's pocket than a major library could physically contain in 1976. This has changed how much humans consume and value music. When combined with video recording and the Internet, recording has become the primary way to transmit music between people, cultures, and generations. The technical revolution has facilitated cross cultural exposure and exploration that is unparalleled in human history. This has ramifications that are yet to be discovered and/or understood.

Before modern recording technology the only ways to pass down a work in an original state were to notate it on paper or to pass it down orally. Many cultures continue traditions that have been ongoing for centuries of passing down music orally/aurally. While new performers are part of a continuing lineage and tradition it is likely that the music that they inherit continually evolves. The oldest extant written notation that gives complete instructions on how the music is to sound originated with Medieval European monks. This is now the staff notation that is fast becoming a global standard for music notation.

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Module 2- Musical Instruments

What are instruments?

Musical instruments are any sound producing medium used in the creation of music. This includes the human body (voice) and all electronic and chance production of musical sounds.

Musical instruments are amongst the earliest evidence of humans creating art. The oldest extant instruments are flutes found in Hohle Fels cave in Southwest Germany. These flutes are made out of the leg bone of a swan and woolly mammoth ivory. These flutes reveal musical activity at the end of the “stone” age. Visual representations of musical instruments can be found in most of the World’s ancient cultures (Egyptian sistrum, Persian ney, Chinese xun, Greek “Pan” flutes, aboriginal Australian bullroarer, log drums of the Aztecs, and so on). We also learn about instruments from myths, legends, and in art. Although there is much evidence left of musical instruments there is little information left on how they were played. Because of this ethnomusicologists must make many deductions and assumptions about how music sounded.

Perhaps the first musical instruments were used for communication. **Signaling instruments** are common even today. **Trumpets** and **drums** have a long tradition of signaling in military units both on and off of the battlefield. **Shofars** and **Kudu horns** uphold this same tradition in various older cultures. Gongs and church bells have long signaled many events. In Tibetan Buddhism monks blow into **conch shells** to signal times and call people to prayer. The drum beat of a Turkish Janissary band was used to strike fear into Christian crusaders. Electronic musical tones now signal the arrival of text messages, phone calls, the completion of a download, and any number of achievements on video games. Determining the use of an instrument helps to give insight into the meaning of it to the people who use it.

When looking into the instruments of any culture it is helpful to use a classification system. The most common used classification system for musical instruments (used in Western academia) is called the Hornbostel-Sachs instrument classification system (published in 1914). This system is based off of a Hindu system used by Belgian curator Victor Mahillon in the late 1800s. There are five categories of instruments in the Hornbostel-Sachs classification:

- Idiophones- instrument in which primary sound producing medium is the vibrating body of the instrument itself.
- Membranophones- instrument in which the primary sound producing medium is a vibrating stretched membrane (skin)
- Chordophones- instrument in which the primary sound producing medium is a vibrating chord (string)
- Aerophones- instrument in which the primary sound producing medium is a vibrating column of air
- Electrophones- instrument where the sound is differentiated electronically

Some notable examples from each category that can be used for your project:

Idiophones: cymbal, triangle, zils, slit drums, wood blocks, chimes, bells, glockenspiel, marimba, balaphone, xylophone, mbira, gongs, (Gamelan has: kenong, ageng, kempul, kempli, gansa, ugal, jublag, panyacah, jegogan), steel drums, jaw harp, shakers, rattles, guiro, bones, castanets, udu, Hang drum

Membranophones: drums of all kinds= djembe, ashiko, talking-drums, tar, tabla, mrdangam, taiko, powwow drum, bass drum, snare drum, timpani, surdo, repinique, cuica, conga, bongo, frame drums, tambourine, rik, kanjir, bodran

Aerophones: flutes (dizi, western, piccolo, shakuhachi, Native American, ocarina, recorder), trumpets and horns (French horn, bugle, shofar, kudu, trombone, trumpet, baritone, bugle, conch), pan pipes, didgeridoo, reed instruments (oboe, bassoon, clarinet, saxophone, harmonica, bagpipes, accordion, concertina), bullroarer, sirens, organ

Chordophones: zithers (autoharp, qanun, uhadi, berimbau, dulcimer), harps, kora, lutes (guitar, banjo, mandolin, ukulele, violin, viola, 'cello, double bass, bouzouki, sitar, oud, charango, guqin, koto, balalaika, ngoni, molo), piano, harpsichord

Electrophones: telharmonium, theremin, ondes Martenot, synthesizer, computer, midi-instruments, electric aerophones/ chordophones/ membranophones/ idiophones, turntables, magnetic tape, sequencers, samplers

Extra-Musical Associations:

Many instruments have **extra-musical associations**. These are ideas that people have about the instruments that are supplemental to musical notes produced by the instrument. Many of these associations highlight what these instruments mean to the people who listen to them.

Associations of location and culture are found with instruments. The didgeridoo is typically associated with Australia. More particular knowledge of the instrument evokes thoughts of the aboriginal Australians who created and perform on it. The Brazilian **berimbau** is a chordophone associated with slaves who used the instrument to accompany capoeira. Capoeira is a martial art that is disguised as dance. Because of this the berimbau is associated with rebellion and resistance. **Steel pans/drums** are the national symbol of Trinidad and Tobago. They are 55-gallon oil "drums" that have musical notes hammered into one end. They are idiophones. Across the globe many people associate the sounds of the steelpan with idyllic island settings.

Gender Associations can be made about instruments when the instruments are designated to be played by either males or females. In many traditional African cultures many instruments are to be played only by males. The **mbira** is a plucked idiophone from the Shona people of the Zambezi valley in southern Africa. It is commonly associated with the country of Zimbabwe but has become a popular instrument across the continent and into the diaspora. In many cultural traditions this instrument is only to be performed by males. In ancient Egyptian society this

gender bias was not generally the case. The sistrum was an instrument only to be played by females. In American society traditional associations with regards to gender preference for instrumental performance exist, but are fading. The tradition used to have smaller instruments like the flute and clarinet being assigned to girls while larger instruments like the tuba and double bass were played by boys. The second way that instruments can take on gender associations is if the instrument itself is considered to be male or female. The Afro-Cuban bongos are a set of two drums where the larger drum is female (hembra) and the smaller drum is male (macho). This can be seen in American society with harps that are considered to be female.

Many instruments evoke **spiritual associations**. This can mean that the instrument is associated with prayer and worship. Examples of this include the **organ** (associated with traditional Christian worship), the **Shakuhachi flute** (associated with Zen Buddhist meditation), **kangling and conch shell** (Tibetan Buddhism=voice of Buddha), and the **mrdangam** drum (South Indian/Carnatic=association with Hindu deity Ganesh). Sometimes instruments help communication between the spirit world and the physical world. The Australian **didgeridoo** facilitates passage to “Dream Time” in Aboriginal practice. The **Bata** drums help to call down Orishas in Cuban Santeria. This is a religious practice of Afro-Cubans that combines African and European religious traditions. The **powwow** drum helps to cleanse/refresh the spirit of Native American males who play it while singing. Spiritual associations can also be generic associations of instruments with good or evil. This can be seen in American culture with the Harp association with Angels and the violin and guitar association with the devil.

When musical instruments have aesthetic associations they are often used as **visual works of art**. When instruments carry strong visual aesthetic value people often obtain them not to play music but instead to enjoy their look. Many instruments are carved or decorated in ways that make them valuable. The Tibetan conch shell is traditionally carved and encrusted with jewels. Gamelan instruments are ornately carved and become visual showpieces in temples where they are performed. Instruments can often be found on display in museums. Instruments valued for differing aesthetics can be found mounted on the walls of restaurants in the USA. Aesthetic value does not always mean “fine-art”.

Cultural status can sometimes be indicated by the music that one listens to or the instrument that one chooses to play. In pre-television America a favorite pastime was music making. In hollers and farmhouses of less affluent people instruments like the guitar, **banjo**, and harmonica were common because of their cost and availability. People who owned more complex and expensive instruments could show their cultural status by playing the genres associated with these instruments. To this day many Americans have pianos in homes where no one performs on them. The Korean **komungo** is a plucked zither that has fretted and non-fretted silk strings. It is traditionally associated with aristocratic courts and high-class status.

Often instruments are thought of **primarily as products to sell for profit**. If the instruments are manufactured poorly or not up to the standards needed to make music then they have an extra-musical association of being **substandard or cheap**.

When large department retailers sell musical instruments like guitars, drums, and keyboards they tend to have this association. In America inadequate versions of **West-African djembe** drums are commonly sold in import stores as “African” themed decorations. To the seller these are a marketable product. To the buyer these are generally an aesthetic visual accent.

Sometimes instruments retain (or increase) in value as time passes. If this is the case then the instruments can be thought of as **investments**. The European violin family of instruments became standardized in design and construction during the Baroque style period (1600-1750). The luthiers (violin builders) of that time (Amati, Guarneri, Stradivari) built instruments that remain renowned and sought after. These instruments have been valued for so long that often the **historical associations** add much to the value. These instruments now sell for millions of dollars at auction.

Ensemble basics/ranges:

When two instruments perform together it is generally referred to as a duet or solo (instrument) with accompaniment. It is a common practice to accompany a melody on another instrument. In American Pop music there are many examples of artists accompanying their own singing by playing harmony and rhythm on guitar or piano. For this to be a duet there have to be two musicians.

When more than two instruments perform together the group is called an ensemble. Two musicians make a duet, three make a trio, four make a quartet, and so on. Instruments in an ensemble generally differ in **register** or in **timbre**.

Register and range refer to the “height” of a note or the height of an instrument’s **range** of notes. **Range** is the distance from the lowest to the highest notes that an instrument can play. In Western musical practice ensembles generally contain instruments that can cover the notes in four standard ranges: soprano, alto, tenor, and bass. These registers are associated with basic registers of the human voice. The basic vocal registers are:

Soprano: the high-female vocal range

Alto: the low-female vocal range

Tenor: the high-male vocal range

Bass: the low-male vocal range

Western vocal music is traditionally composed in a way that limits singers to their natural range. For western aesthetics each range is roughly two octaves. Choral music is commonly composed with four musical lines: sopranos, altos, tenors, and basses. Singers sing the line that fits their vocal range.

Instruments are also given these designations based on the ranges that they play. Some use the actual terminology of the vocal ranges to show the differing registers. An example of this is the saxophone (sax) family of instruments. Saxophones are single reed instruments of the woodwind family that are usually made of brass. The common high-pitched saxophone is called a soprano. The alto saxophone has the same timbre as a soprano sax but it plays a lower pitch range.

The tenor saxophone plays lower notes than the alto sax with the baritone playing even lower. Baritone indicates a pitch range in-between tenor and bass. There are several in-between and extended ranges. A common saxophone quartet includes a soprano sax, alto sax, tenor sax and baritone sax. These instruments all have similar timbre but they differ in range. Western bowed-lutes are also differentiated by the register of each instrument. The high-pitch instrument is called a violin. A viola is slightly larger and has a lower range. The violoncello ('cello) is lower still with the double-basses playing the lowest range of notes. A common string quartet consists of two violins, a viola, and a violoncello.

Because the aforementioned ensembles were all made of the same instruments they all had similar timbres. Ensembles in which all of the instruments have similar timbres are referred to as **homogeneous** ensembles. While this is certainly an apt description for ensembles of instruments that differ only in register (like choirs, saxophone quartets, and string quartets) it can also be true of ensembles that contain different instruments. Usually these different instruments are from the same family (but not always). Examples of this include woodwind ensembles (oboe, flute, French horn, bassoon, clarinet) and brass ensembles (trumpet, trombone, baritone, French horn, tuba).

Ensembles in which instrumental timbres vary are called **heterogeneous**. There are many genres of contemporary popular music that exemplify this concept. The basic band used in much instrumental pop contains a rhythm section (drum-set/kit, bass guitar, guitar, keyboard). In itself a rhythm section is a heterogeneous ensemble. The timbre of the drums is not meant to blend with the timbre of the guitar or piano. The drum kit itself is a heterogeneous instrument. The standard components of a drum set are:

- High-hat= two cymbals played together with foot pedal or a stick
- Ride cymbal= large cymbal that is meant for consistent patterns instead of accenting important moments
- Crash cymbal= smaller cymbal that is used to accent important moments
- Snare Drum= drum that has wires (snare) stretched across the bottom head
- Tom Toms- drums of various sizes
- Bass Drum- Lowest pitched drum

The cymbals have a different timbre than the drums. The high-hat has a different timbre than the cymbals. A snare drum has a different timbre than the other drums. Add to the rhythm section a lead instrument playing a melody and the timbres vary even more. This instrument is often the human voice but it can be a melodic instrument like trumpet, saxophone, or flute as well.

Often an ensemble has aspects that are both heterogeneous and homogeneous. Symphony orchestras are the large ensembles that play many popular genres of Western Art Music (symphony, concerto, opera, soundtracks for films/games, ballet). Orchestras are made up of four sections of instruments grouped by timbre (strings, woodwinds, brass, percussion). The art of orchestration refers to how a composer (or orchestrator) creatively uses the

varying timbres. Sometimes the composer will write for only one section, creating a homogeneous ideal. This can be contrasted with sections where the entire orchestra is playing, creating a heterogeneous ideal. Orchestration can also be heard in marching bands, wind ensembles, Chinese orchestras, Brazilian samba groups, Japanese gagaku, and in Indonesian gamelan orchestras.

Musicians in ensembles practice individually and then come together to rehearse. These rehearsals require coordinated efforts by the musicians to achieve a common goal. Often this necessitates a leader. In many large ensemble genres the leader is someone who organizes activities, conceptualizes musical goals, rehearses the group, and performs with the ensemble. Many drumming groups from around the globe are led by a master drummer who preforms cues and signals that guide the ensemble and dancers through the music. Jazz bands are usually led by a prominent band member who rehearses the group, and counts off (starts) tunes. The musical leadership role of symphony orchestras has evolved from a violinist who led the group while playing (much like a jazz band director). As the music became more demanding there was a greater need for the leader to lead without performing on an instrument. The result is a conductor who rehearses the group, starts and stops the ensemble, guides them through tempo changes, and inspires the best efforts of the musicians (and the audience).

Digital music:

Perhaps the most important development in the history of musical instruments was the invention of digital audio production (computers). The computer has put the sounds of all acoustic instruments in the hands of the music producer. The computer allows producers the ability to create new timbres and instruments that are not limited by physical ability to perform. As with most musical innovations of the past we currently hear these innovations in dance music and in experimental genres. There is no end to the sonic possibilities of this relatively new instrument.

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Bakan, Michael B. 2012. *World Music: Traditions and Transformations*. 2nd ed. New York: McGraw-Hill.

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Module 3=Rhythm

In order to gain a better understanding of music it is important to know the technical differences between works. The study of the unique treatment of sounds to create a piece necessitates breaking the music down into “elements”. There are many different opinions as to what an exhaustive list of elements should include. In this text we will use **The Five Elements of Music**. These are rhythm, melody, harmony, texture and form. Module 3 will cover rhythm; Module 4 will cover melody, harmony and texture while Module 5 will cover form. As you learn to analyze music utilizing the five elements it is also important to recognize the four properties of a tone: duration, frequency, amplitude and timbre (Bakan 2012, 34). Duration refers to the length of the sound. Frequency refers to the physical wavelength of the tone, which manifests as the height of the tone (pitch). Amplitude is the volume of a musical tone. Timbre is the particular quality of sound that a tone has. This module will deal mainly in discussions about the duration of the tone.

Rhythm is the element of music that deals with the arrangement of sounds and silences in relation to time. In the Western music tradition the sounds are called notes and the silences are called rests. Rhythm is also a noun that refers to specific arrangements/sequences of notes and rests within time. This use is evident when discussing a specific rhythm that is heard in a piece of music (like the clave rhythm found in West-African music and music of the diaspora). A diaspora is the reestablishment of culture outside of the homeland of the people within that culture. In this case it refers to the reestablishment and evolution of African musical traditions in the Americas.

It is useful to analyze rhythm by listening for the three levels of musical time: background, middleground, and foreground (Valdez 2006, 10).

Background Time

To find the background time in any piece of music tap your hand or nod your head or move in whatever way allows you to match the music. If this is a consistent pulse then it is most likely the background time. The background time is a pulse or beat around which other rhythms are organized. A **pulse** or “**beat**” happens when there are regular equal-length durations. A **metronome** is a tool that provides a pulse at specific beats per minute (BPM). In some genres/cultures there is an aesthetic for strict adherence to metronomic pulse. In some music the preference is to let the pulse push or pull. Modern popular music that utilizes computers for performance or “tracking” would most often be metronomic. “Tracking” refers to performing on a live instrument while staying with a digital track that keeps both audio and visual aspects of the song steady, choreographed and synchronized. This could range from the music of Bollywood, hip-hop, electronic dance music (EDM) and American country. Some people prefer for the beat to “push and pull” (slightly speed up or slow down) as the artist is feeling the music. This can be heard in Hindustani music, Western art music, and classic rock. Often the shift in speed/tempo is so subtle that it is not noticeable to the untrained ear.

The background pulse sets the **tempo** of the music. **Tempo** refers to the speed of the background pulse in music. In the Western musical world Italian terms are utilized to describe music because composers traveled to Italy to study Opera composition for two centuries (1600s-1700s). Other Italian terms used when considering a background pulse are:

<i>Accelerando</i>	gradually speeding up
<i>Ritardando</i>	gradually slowing down
<i>Ritard</i>	slow down
<i>Presto</i>	very fast
<i>Allegro</i>	fast and lively
<i>Andante</i>	at a walking pace
<i>Adagio</i>	slow and stately
<i>Grave</i>	very slow

In “classical” music that is absolute (see Module 1 for definition of absolute) the tempo indications are often given in lieu of titles for the movements of a multi-movement genre (symphony, string quartet, concerto, sonata). For example, Beethoven’s Piano Sonata No. 14, Opus 27 No. 2 (*Moonlight Sonata*) has three movements. In a program the piece would be listed with the movement titles as tempo indications.

Piano Sonata No. 14, Op. 27 No. 2	Beethoven, Ludwig van
I. Adagio sostenuto (slow and sustained)	
II. Allegretto (moderately fast)	
III. Presto agitato (very fast and agitated)	

Another example of this would be the String Quartet, Opus 11 written by American composer Samuel Barber in 1936-43. This work has four movements listed:

String Quartet, Op. 11	Barber, Samuel
I. Molto allegro e appassionato (very fast and passionate)	
II. Molto adagio (very slow)	
III. Molto allegro (very fast)	

The success of this work is widely attributed to the second movement. Barber arranged this movement as a stand alone work for a larger string orchestra. It is entitled Adagio for Strings. In a world of descriptive titles this title might seem too minimal but it effectively allows the listener to bring their own meaning to this *slow piece for strings*.

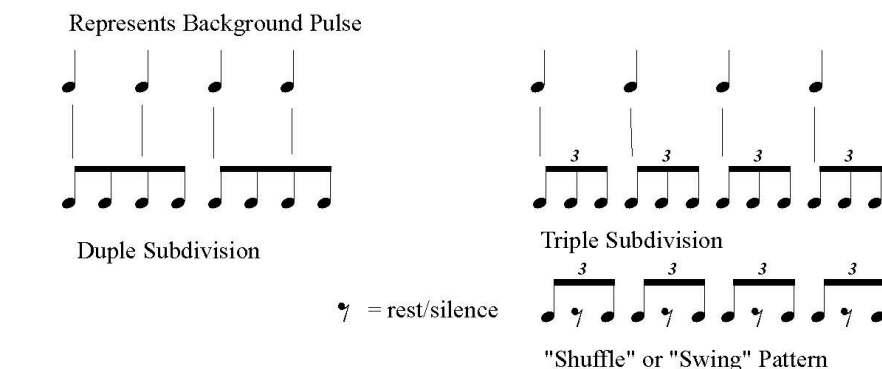
When the background pulse of a work speeds up and slows down in an effort to express emotion this is referred to as **rubato**. Rubato is dramatic and intentional and is generally associated with dramatic emotional expression that became an important aesthetic for Romantic era performance of Western Art Music. The piano music of Frédéric Chopin is often associated with this rhythmic practice.

Another Western Art technique that frees the performers to interpret tempo in a loose way is associated with Opera. In opera when composers must advance the plot through the presentation of dialogue but do not wish to compose “songs” they use recitative. **Recitative** is singing that follows the natural flow of speech. In a recitative section of an opera or a cantata there is often much rhythmic freedom given to the performers.

When a piece has no consistent background pulse it is **non-metric**. Music without a discernable pulse can also be referred to as **Free Rhythmic**. From the perspective of those who listen primarily to American Pop genres this is not a common rhythmic approach. It is; however, evident in much music spanning many genres. Non-metric music can range from works performed on shakuhachi flute, Japanese gagaku, ambient music, aleatoric/chance music, sections of Balinese Gamelan, plainchant, recitative in Opera, sections of Indian classical music, and signaling music. While it is important to note that not all music has a steady pulse, all music has rhythm.

Another important aspect of the background pulse is the subdivision. The two most common subdivisions of the background pulse are duple and triple (see Figure 1). A duple subdivision of the background pulse divides the space between each beat evenly in two. In America the colloquialism to indicate a duple subdivision is to say that the music is “straight”. A triple subdivision of the background pulse divides each beat by three. The colloquialism for this approach is to say that the music “swings”. Most American pop music can be classified as “straight” or “swinging”. This simply refers to a duple or triple subdivision of the background pulse. Each approach has a “feeling”. Most American pop music prior to the 1950’s “swung” or had a triple subdivision. From the 1960’s to present the aesthetic preference has been for music that is “straight”. The aesthetic pendulum will, no doubt, swing back to “swing” someday.

Figure 1: Subdivision of the background pulse



Middleground Time

Middleground time is an oft-analyzed aspect of rhythm. This is the level at which the background pulse is organized into patterns of **accented** (emphasized through louder volume) and unaccented notes. In Western music the middleground

time is called meter. **Meter** is a regular grouping of the background pulse. Most Western popular and art music is composed utilizing a simple meter. The three main simple meters are duple, triple, and quadruple.

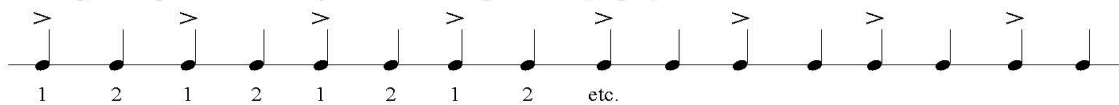
Music that is in **duple meter** groups the background pulse into a pattern of alternating strong and weak beats. The 2/4 in Figure 2 is a **time signature** that indicates a duple meter. The top number of a time signature tells how many beats are in a measure (2=duple). The bottom number indicates what kind of note gets the beat (4=quarter note). It is standard contemporary practice to assign the background pulse to the quarter note. Figure 3 shows the relationships between several commonly used notes. It starts with the whole note and subdivides it with all notes up to the sixteenth notes. All of the notes in [Figure 2](#) are quarter notes. If these quarter notes are organized into measures of three then the music is in **triple meter**. Likewise, groupings of four are in **quadruple meter**. Quadruple meter is the most common middleground grouping of the beat.

Figure 2: Simple Meters

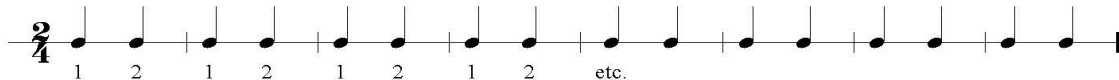
Background pulse with no meter/no emphasis:



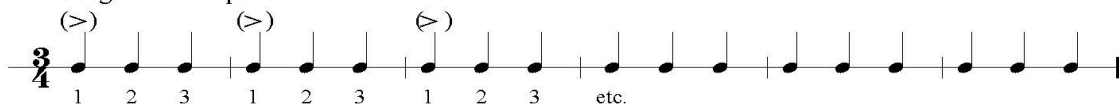
Background pulse with every other note emphasized (duple):



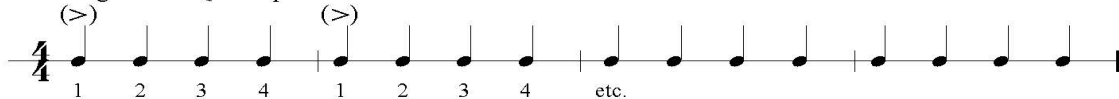
Background pulse organized into duple meter (middleground):



Middleground= Triple Meter

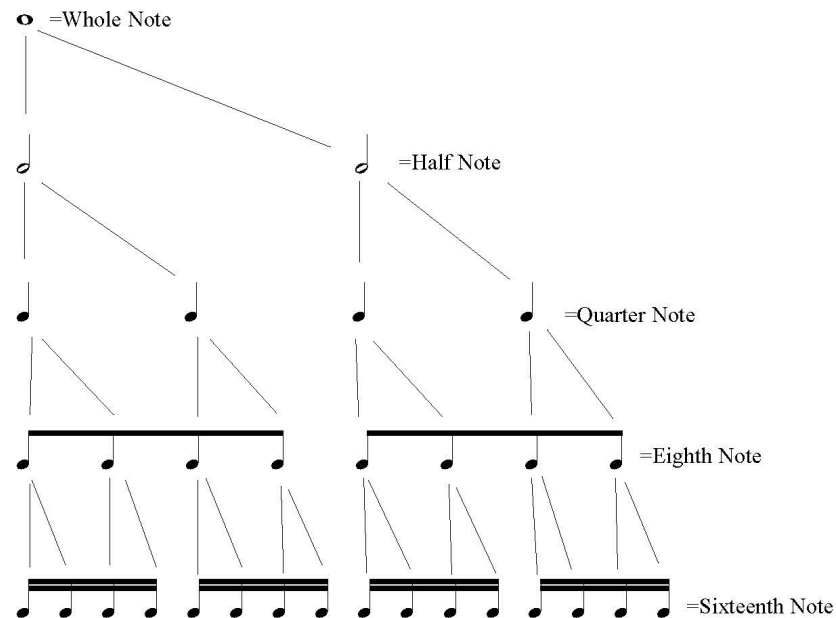


Middleground= Quadruple meter/common time



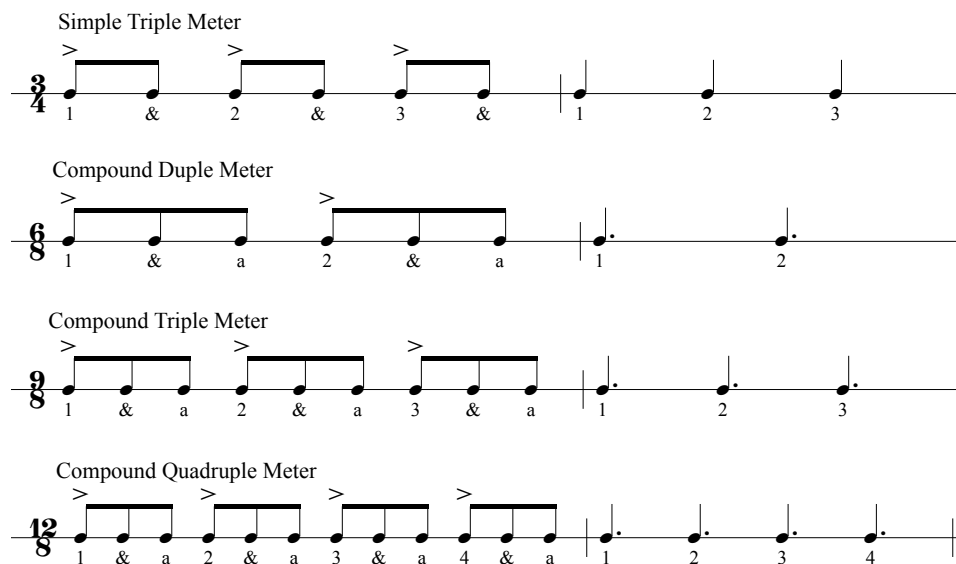
In Western Art music **simple** duple, triple, or quadruple meters have a duple subdivision of the background pulse. (This is not the case in popular and world music genres). **Compound meter** is the Western terminology for meters when the subdivision of the pulse is three instead of two. As with simple meters, compound meters appear in duple, triple, and quadruple groupings. In compound time signatures the top number does not indicate the background pulse. A duple

Figure 3: Basic notes and subdivisions



compound time will always have a six as the top number of the time signature. The “compound” aspect is that the 6 notes can be given a background pulse of three or two (See Figure 4). In compound time the eighth note most often gets the beat designation so the signature’s lower number is usually 8. 6/8 is a duple compound meter, 9/8 is a triple compound meter, and 12/8 is the signature for a quadruple compound meter. Compound meters are also utilized to create poly-metric music.

Figure 4: Compound Meters



Polymetric music can be heard in more than meter at the same time. This is a complex concept that is heard in drumming from Africa and the diaspora. The effect of polymetric music is a shifting in the listeners understanding of where the emphasized beats occur.

Although Western Art music is mainly composed using the simple and compound meters listed above there are many other possibilities for meter in music. When duple and triple meters are combined it is known as **additive meter**. The most common additive meters are combinations of 2 and 3 that add up to 5 (2+3 or 3+2) and 7 (2+2+3, 3+2+2 or 2+3+2). Meters like these are not as common in Western Art and Popular music though they are often used in rhythmically adventurous genres like progressive rock and 20th century ballet. They are more common in traditional music of places like the Balkans (Eastern Europe) and India.

When music stays in the same meter throughout a song it is considered regular. When music shifts between meters it is called **irregular**. This can happen when a work is in quadruple meter for a few measures and then shifts into triple or quintuple meters. In lengthy works this is a common occurrence.

Foreground Time

Foreground time encompasses all of the complex rhythms that happen on top of the meter and pulse of the music. This is all of the surface rhythms of the music. This is where most syncopations occur. **Syncopation** is a rhythmic emphasis where it is not expected. Syncopations are common in most genres of music. A common syncopation is to accent offbeats. **Offbeats** are the spaces between the background pulses. Reggae and its parent genres of *rock steady* and *ska* all contain heavy syncopation by emphasizing the offbeats.

Cultural Approaches to Rhythm:

Western Art Music- downbeat emphasis

In Western Art music the aesthetics for preferred rhythmic emphasis have evolved and devolved for over a millennium. It is important to note that the aesthetics for music of the 20th century were often experimental. Composers like Karlheinz Stockhausen or Igor Stravinsky stretched the rhythmic norms by creating music that was extreme in rhythmic complexity. This is to say that, at the beginning of the 21st century it is hard to imagine music becoming more rhythmically complex. This represents a polar opposite reality from the lack of rhythmic emphasis in Western Art music that is evident in the first 1000 years of Christian practice. Perhaps it was an attempt to keep out pagan practice or it was because the venues for performance were extremely resonant; either way rhythm was not emphasized as much as the other elements in Medieval and Renaissance music.

In the Baroque style period rhythm became more of an emphasis with steady background pulse being felt in a majority of the works. From the Baroque through the Romantic era emphasis was generally placed on the strong beats/downbeats of measures. The **downbeat** emphasis in Western Art music can be felt on beat one of triple meters and on beats **one and three of quadruple meters**. In some orchestral genres like waltzes or marches downbeat emphasis is heard played on

drums. In other genres, and in contrast to popular music, there is often no instrument dedicated to strictly emphasizing the rhythm of Western Art music.

American/World Pop Music- backbeat emphasis

Since the early 20th century American Popular Music have been influencing world popular music styles. Elements of American pop can now be heard in the pop music of many other cultures. Examples of this are found in Bollywood music, K-pop, J-pop, Russian rock and various African pop styles (amongst others). One of the main elements that can be heard in all of these styles is a backbeat emphasis. The **backbeat** is beats 2 and 4 of a 4/4 measure. In many contemporary popular genres beats 2 and 4 are actually articulated by the snare drum (or an electronic version of this instrument). The backbeat is also a rhythmic emphasis in older pop genres including the blues and jazz.

Southeast Asian Colotomic Meter

In Thai piphat, Japanese gagaku, and Indonesian gamelan ensembles the concept of colotomic meter is used to indicate the metric foundation of the music. A **colotomic meter** is a cyclical pattern played by various instruments that reveals the rhythmic structure of the work. In colotomic meters specific instruments play on specific beats to form a rhythmic cycle or the western equivalent of a meter. These instruments are often gongs. In gamelan the higher-pitched generally play at a faster rate than the lower-pitched instruments. This means that the lowest pitched gongs will often mark important beats in a cycle. For instance in the colotomic cycle called ketawang the largest gong only plays on one beat. When this gong is played it indicates the beginning of the piece and each subsequent cycle. In Figure 5 we see that this gong (gong ageng) plays on the 16th beat of the cycle. It is interesting to note that the most important beat is the last beat of the cycle. This is a differing aesthetic to downbeat emphasis. The instrument that splits the 16 beat cycle by playing on beat 8 (and sometimes 16) is called the kenong. This is a gong that is played on its side (not hanging). Beat 12 is performed on a hanging gong called kempul. This gong is not as big as the gong ageng and therefore is higher in pitch. Filling in the rest of the spaces are the kempyang and ketuk. The only beat with a silence is beat four. The other melodic and rhythmic parts happen on top of this foundational pattern.

Figure 5: Ketawang Colotomic Meter

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
p	t	p		p	t	p	N	p	t	p	Pul	p	t	p	N G

Gong ageng= G Kenong=N Kempul= Pul Kempyang=p ketuk=t

According to Michael Bakan, an ethnomusicologist at Florida State University who specializes in Gamelan music of Indonesia, Kilitan telu is an interlocking rhythmic pattern that forms the basis of many melodies and rhythms in gamelan

genres (Bakan, 2012). The main rhythm in kilitan telu is played by three instruments/voice groups that each start on a different beat. This kind of pattern is often heard in a vocal based gamelan style called Ketak. The interlocking of the kilitan telu pattern reflects the interdependence in Indonesian society. A typical Kecak-style exercise using the interlocking kilitan telu rhythm is listed in Figure 6.

Figure6: Kecak style rhythm

	1	2	3	4	5	6	7	8
“chak” 1	C		C	C		C	C	
“chak” 2		C		C	C		C	C
“chak” 3		C	C		C	C		C
“pung” 1	P				P			

Southwest Asia/North African Rhythmic Modes/Iqa'

In the region of the world that Westerners have traditionally called the “Middle East” secular music practices are rhythmically anchored by rhythmic modes known as iqa'. There are hundreds of variations of iqa'. Each one has subtle differences that give it particular expressive meaning. The iqa' are referred to as rhythmic modes instead of “meters” because of the expressive capacity of each mode (root word mood). Each iqa' is a particular arrangement of accented and unaccented rhythms. Several iqa' are commonly heard. The most common percussion instruments that play the qi' are the dumbek (also known as the darabukkah or darbuka), tar and rik. Much like a drum set in Western pop plays in beats, iqa' consists of low pitch and high pitch sounds played on the dumbek or other instruments. The low sound is called *dumm* while the high-pitched sound is called *takk*. Some common iqa' are diagramed in Figure 7.

Figure7: Rhythmic modes/iqa'

Masmoudi rhythmic mode/iqa'							
dumm	dumm		takk	dumm		takk	
Maqsum rhythmic mode/iqa'							
dumm	takk		takk	dumm		takk	

Indian Tala

In traditional Indian music the rhythmic foundations are called talas. **Tala** is the Indian equivalent of Western meters. Talas are made up of combinations of smaller groupings. Sometimes the end results are very complex talas. Because there are many ways to group beats together there are literally over 100 different talas. This is notable when compared to the primary use of less than ten meters in most Western music. When listening to the tala knowledgeable listeners often mark

the parts of the tala by using a series of claps and waves of the hands known as kriyas.

Theka is a vocal pattern that indicates the patterns of a tala. Vocalizing the theka is a common way to learn talas. See Figure 8 for a guide to tintal (a common taal).

Figure 8: Tintal

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Dha	Dhin	Dhin	Dha	Dha	Dhin	Dhin	Dha	Na	Tin	Tin	Ta	Ta	Dhin	Dhin	Dha
Clap				Clap				Wave				Clap			

In many Hindustani performances there is a form that grows from a calm introduction and slowly builds until it reaches a rapid, and intense, conclusion. These pieces involve much virtuosic performance. Often there will be no tala or pulse in the beginning. At the point that the table (drums) enter there will be a new focus on rhythmic development.

African Polyrhythm

Rhythm is the element of music most commonly associated with African (particularly Sub-Saharan) music. The rhythms of African music accompany activities ranging from day-to-day chores to complex ceremonies. Drumming and dancing are two common forms of African music. As is the case with music that accompanies dance there are often ostinato drumming parts. An **ostinato** is a repeating pattern or motive. When differing rhythmic ostinatos combine they become a polyrhythm. Simply put a **polyrhythm** is multiple rhythms performed simultaneously. Polyrhythmic drumming is the musical manifestation of an aesthetic that values separate “small” parts combining to form a greater whole. This can be seen as a musical reflection of cooperation for the better of all (Stone, ?).

A typical dance-drum piece of music from West Africa contains many polyrhythms. They are not conceptualized within a meter but instead are thought of as complementary rhythmic components of one flow. The rhythmic pattern that holds all of the differing ostinatos together can be called a timeline pattern. This pattern is typically played on a metal idiophone (gonkogui=bell). The phrase played on the bell is cycled/repeated and is used to place all of the other drum parts. The other parts are generally fixed with the exception of a master drum. This drum generally leads the ensemble (including dancers) by playing differing patterns that signal the timing of changes. The master drum is generally the only part free to improvise at will. For an example of a polyrhythmic piece see Figure 9. The effect of listening to polyrhythmic music is that tempo and phrase perception can shift between parts dependent upon the vantage point of the listener (Locke, 2010).

Figure 9: Atsiagbekor (generic)

count	1	2	3	4	5	6	7	8	9	10	11	12
Bell/gonkogui	•		•		•	•		•		•		•
Shaker/axatse	d		u	d	u	u	d	u	d	u	d	u
High drum/kagan		•	•		•	•		•	•		•	•
Mid drum/kidi	•			•			•			•		
Low drum/sogo		•	•	•				•	•	•		
Clap 1	•			•			•			•		
Clap 2	•		•		•		•		•		•	

Latin (American) Clave

African polyrhythmic drumming made its way to the diaspora in the Caribbean, South, and North America. To the untrained ear the differences in Afro-Caribbean drumming and African drumming are sometimes hard to perceive. The most helpful signifier of Latin American drumming is its reliance on clave. **Clave** is the timeline pattern that works within a meter to hold Afro-Caribbean music together. Clave has a direct link to West-African (Yoruba of modern Nigeria) timeline patterns. Clave can be heard in much Latino music as a foundational pattern. The influence of Afro-Cuban styles of the mid 20th century has much to do with the appearance of Clave in styles of music like rumba, conga, cha-cha, son, mambo, samba, salsa, songo, timba, bossa-nova, bolero, bachata, candombe, bomba, plena, and reggaeton. While not always present in sound the feeling of clave is a necessary aspect of most Latin music. Clave patterns have a three side and a two side. This means that in every two measure pattern one measure contains three notes of the clave and one measure contains two (See Figure 10).

Figure 10: Clave Patterns

Meter/Count	1	&	2	&	3	&	4	&	1	&	2	&	3	&	4	&
2/3 son clave			•		•				•			•			•	
2/3 rumba clave			•		•				•			•				•
3/2 son clave	•			•			•				•		•			
3/2 rumba clave	•			•				•			•		•			
Brazil 2/3 clave			•			•			•			•			•	
Brazil 3/2 clave	•			•			•				•			•		

Salsa is an Afro-Cuban genre that originated in the 20th century in New York combining Cuban, Puerto Rican, Dominican, and American sensibilities and styles. The polyrhythms in salsa are heard in the rhythms of all of the instruments, not just the drums (See Figure 11).

Figure 11: Salsa Patterns

Meter/Count	1	&	2	&	3	&	4	&	1	&	2	&	3	&	4	&
2/3 son clave			•		•				•			•			•	
Cascara/timbale,piano	•		•		•	•		•	•		•	•		•		•
Tumbao/Bass, conga				•			•					•			•	
Martillo/ bongo, bell	•				•				•				•			

Modern music in genres such as plena, soca, bomba, merengue, cumbia, timba, tango, and reggaeton often have a heavy emphasis on repeated three side of the clave or the tumbao pattern. Sometimes the two side is not heard (but it is often felt by players and dancers). This is often heard in styles that use bass drum emphasis on beats one and three of a quadruple measure (“four on the floor” across two bars)(See Figure 12).

Figure 12: Three-Side Emphasis on Drumset

Meter/Count	1	&	2	&	3	&	4	&	1	&	2	&	3	&	4	&
Three side repeated	•			•			•		•			•			•	
Hi hat	•		•		•		•		•		•		•		•	
Snare Drum				•			•					•			•	
Bass Drum(4 on floor)	•				•				•				•			

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Module 4- Melody, Harmony and Texture

Pitch in music refers to vibrations of sound waves. These vibrations are measured in hertz (cycles per second). Therefore a musical **pitch** is a sound produced at a certain number of cycles per second (Wade, 2013). The faster the vibration, the higher the resulting pitch. Likewise, the slower the rate of vibration, the lower the pitch. Musical tones can be divided into two categories: determinate and indeterminate pitch.

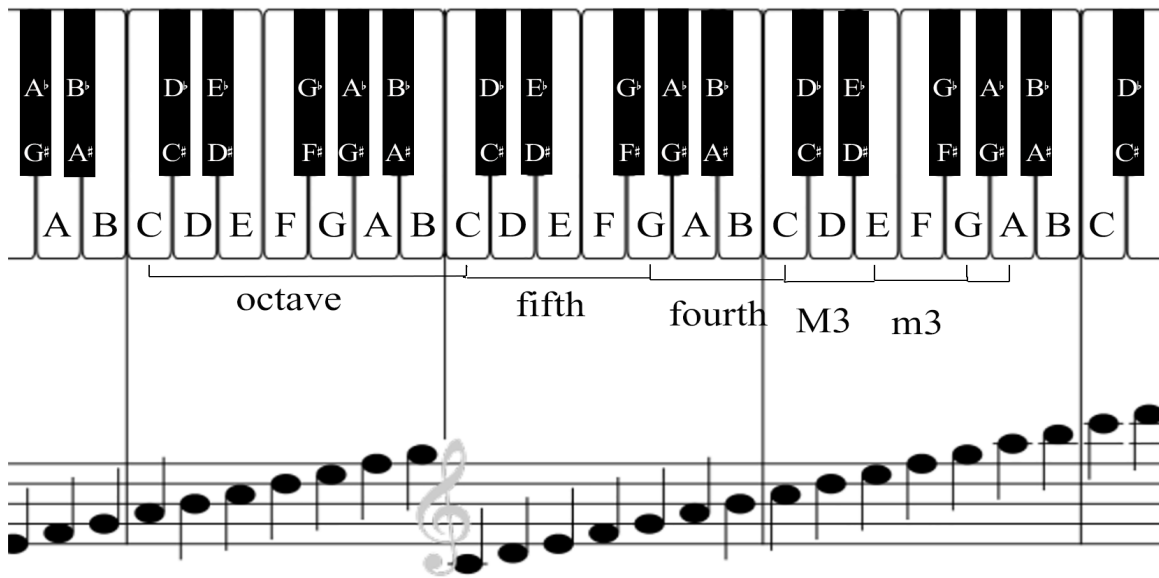
Musical pitches contain a mixture of sound waves. The one that dominates the sound is referred to as the “fundamental” pitch. All of the other waves that are produced by a pitch are referred to (in the music world) as overtones. When a pitch has a set of overtones that allow a fundamental note to dominate the sound it is a determinate pitch. Indeterminate pitch happens when the overtones of a note are not in alignment or there are conflicting fundamentals and therefore no “one” vibration dominates the sound. Another way to think about this concept is to know that instruments that have determinate pitch play notes that are typically given names (letter, number or solfege). Determinate pitch instruments include (but are not limited to): voice, piano, guitar, marimba, woodwinds, brass, chordophones, etc.... Indeterminate pitch instruments are instruments like gamelan gongs, snare drums, cymbals, triangle, etc... These instruments are generally used to keep a rhythm, to accent, or to add color.

When a pitch has a set of overtones that vibrate along with the fundamental in simple ratios (see Figure 2) then it makes a harmonic pitch. Most musical instruments that have determinate pitch are harmonic (chordophones, aerophones, most electrophones). When the overtones of the pitch are mostly inharmonic (not in simple ratios) then the pitch is discernable but the timbre is unique (timpani, mallet percussion, singing bowls, tuned gongs). Figure 2 illustrates the harmonic overtones. The wavelengths pictured also illustrate the possible notes that can be played on fixed length aerophones (bugle, bottle, conch shell, etc).

Tuning

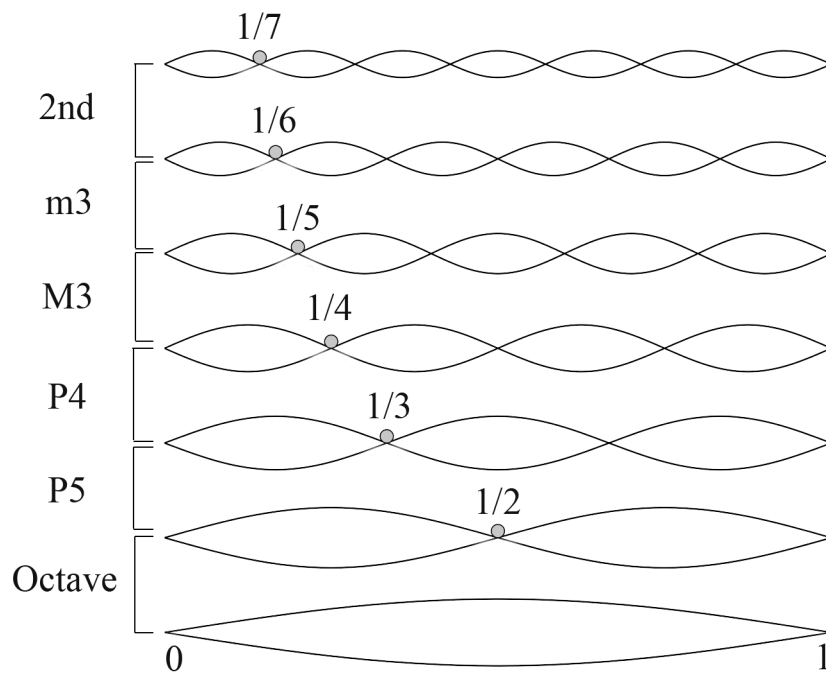
Pythagoras of Samos (of the Pythagorean theorem) described why some musical notes vibrate well together (harmonize) and others do not. We use lengths of string to illustrate his findings. If two strings were physically proportioned in a 2 to 1 ratio (one string is exactly two times the length of the first) and all other factors are equal then the vibrations of musical notes produced by these strings will also exist in a 2 to 1 ratio. For instance: if the long string produced a pitch at 110 hertz then the shorter one would produce a pitch at 220 hertz. This 2 to 1 ratio is so harmonious that we call these two separate notes the same pitch name. The difference between two pitches of the same note name (or 2 to 1 ratio) is called an octave. Simply put and **octave** is the interval between two pitches having the same note name. A musical **interval** is the distance between two notes/pitches. In Figure 1 the distance between any two notes of the same letter name is called an octave.

Figure 1: Piano keyboard with letter note names



This 2/1 octave ratio is also illustrated in Figure 2 in bottom two wavelengths.

Figure 2: Harmonic Partial/Overtones Series



All instruments are not tuned the same or even to the same pitch sets. When instruments are tuned to make the ratios scientifically pure (in the manner of Figure 2) this is called **just intonation**. While the ear prefers pure intervals they are not practical for much Western music. In the Western world most instruments are not tuned to just intonation. Instead, Western instruments are typically tuned to equal temperament. In **equal temperament** the octave is divided into twelve equidistant pitches. When this is done the purity of the scientific ratios is lost. This means that fixed pitch instruments like keyboards and guitars are not completely “in tune” according to **just intonation**. This “impure” tuning is necessary to play music that moves between differing scales/key areas. In Western music some genres of music utilize just intonation. This is primarily the case when instruments do not have fixed pitch (fretless chordophones from the violin family, human voice). Some genres that utilize scientific tuning/just intonation are barbershop harmony, choir music, and string quartets. Some highly produced modern pop and electronic dance music utilize **just intonation**. The computer is now used to produce much music that has “pure” intervals. Indian music also utilizes **just intonation**. Even though there are several fixed pitch and fretted instruments (like the sitar) used in Indian music intonation is not a problem because there is not movement between differing key areas.

In the Western world emphasis is placed on tuning to a standard pitch set. This allows musicians to play their instruments in differing genres and ensembles. The use of the piano in various genres illustrates this. Most American instruments are nowadays tuned to A 440 standard (A 442 in Europe and Asia). This is often referred to as “concert pitch”. In recording studios and music clubs digital tuners are used to help keep instruments in tune. These tuners can be clipped onto instrument, plugged into electrophones or downloaded to smartphones. Prior to the use of electronic tuners tuning forks and pitch pipes were common. Large acoustic ensembles typically tune together before playing music. In orchestras an oboe player plays “concert pitch” (A 440) for each section of instruments to match prior to the conductor “taking the podium.” Most instruments can make slight adjustment to either raise the pitch if it is too low (flat) or lower the pitch if it is too high (sharp). When all of the instruments have matched pitch (are in tune) then the concert begins. The act of playing many instruments causes them to go out of tune. Continual plucking or bowing of strings loosens the tension on them, making them go flat. Temperature and humidity also affect the pitch of many instruments. Brass and woodwind instruments tend to play sharp in hot weather and flat in colder conditions. This affects marching bands, which often perform in extreme weather conditions ranging from the hot sunshine of a late summer football halftime show to the cold air in a holiday parade.

In other cultures having a standard pitch is not prioritized. Where the pitch lies can depend on cultural norms. As Cathy Kiroe-Smith states in *Musical Journeys*, 2013, “In many African countries, for example, pitch is more of an approximation than a science and performers will play on instruments regardless of whether they are perfectly in tune with the instruments played by fellow performers or not.” In Indonesia each gamelan ensemble is tuned only in relation to the instruments within. This means that no two gamelan ensembles have the same tuning. Because

of this individual instruments from one gamelan cannot be performed with another gamelan. This was also the case with traditional sikuri pan-pipes where communities would develop their own tuning. Contemporary siku pipes are often tuned to Western pitches. Other traditional instruments that are played alone are often not subjected to standardized tuning. This is true of solo flutes found around the globe. Church organs in Europe are tuned to a variety of concert pitches ranging from A 425 through A 456. Singers can make the adjustments to these pitches with ease while fixed pitch instruments like pianos, keyboard percussion, and fretted chordophones are limited in organs with which they could perform.

Intonation

Having a good sense of **intonation** means that one can recognize if a pitch is produced at the proper frequency. This is a skill that almost all can develop given time and practice. In American culture the term “tone deaf” is often applied incorrectly to one who has yet to develop a good sense of intonation. Tone deafness is a musical disorder called amusia. The opposite of tone deafness is **perfect pitch**. **Perfect pitch** is a rare condition through which someone having it can recognize exact vibrations without a reference. Researchers estimate that perfect pitch occurs in roughly 1 in 10,000 people (Sachs et al. 1995, 621). Instruments with indeterminate (drums) and/or fixed pitch (piano, guitar, computer) do not require development of intonation to the level of other instruments. Development of intonation takes much time and is part of the reason for the separation of string programs from wind, percussion, and choir programs in American schools.

Melody

Melody is a collection of pitches that are played in succession. Melody is often the focal point of the listener when experiencing music. Although there can be abstract melodies, in most genres melodies are a “tune” that is used to identify the piece of music. If you are going to tell someone about a song or piece that you heard you would probably start by singing the melody for them.

When listening to music with an ear for analysis of the melody the first step is to identify the instrument(s) that are performing it. In popular genres the melody is often the set of notes that are performed with lyrics by the human voice. In large ensembles the melody often shifts to differing instruments and timbre groupings. In some cases the melody is sung in harmony (or harmonized). This means that instruments play the melody at differing pitches but similar intervals and rhythms. The result is often chords/ harmony.

The second consideration when listening for melody is whether or not the melody is pre-composed or improvised. **Improvisation** is the process of composing and performing music at the same time. While some music is spontaneous invention (free jazz) most improvisation is the product of much disciplined training and practice (Bakan 2012, 29). Some genres (Jazz, Blues) have sections of melody that are improvised and others that are pre-composed. Another practice that often is improvised onto pre-composed melodies is ornamentation of the melody. Ornaments are cultural “decorations” of the melody in stylized ways by adding small

twists, turns and extra notes to the melody. This is a common practice in Arab, Indian, East Asian, Celtic, and West African traditions.

Scales and Melodic Modes

The third consideration when analyzing melody is to consider what collection of pitches is in the melody. Most often melodies are built upon scales. A **scale or melodic mode** is a series of pitches that are presented in ascending and descending order. Scales are used to build musical pieces. When these scales hold more rules for performance and extra-musical associations they are called modes.

As mentioned above **intervals** are the distance between two musical notes. Some intervals are more important than others. This is because some intervals are more consonant/pleasing to the ear than others. The wavelengths in Figure 2 show a relationship moving upward away from consonance on the bottom. The octave is the most important interval. Next in importance are the “perfect” intervals of a fourth and a fifth. The Major third, the minor third and then Major second follow the perfect intervals. The most dissonant/least important intervals are the minor second and the tritone. In Western practice the octave is divided by twelve equal half-steps or minor seconds (also called semitones). On Figure 1 there are twelve notes between each pitch of the same letter name. When all twelve pitches are played in ascending and descending order it is called the **chromatic scale**. Because the chromatic scale contains only one interval ($\frac{1}{2}$ step) there is not sense of one note being more important than the others. This means that the chromatic scale is often used to express an un-settled or shifting quality.

Diatonic Major and Minor scales

The scales that are used for a majority of Western music are the two forms of the diatonic scale. **Diatonic scales** are seven note scales that contain a series of whole and half steps. Because they have differing intervals there is a home pitch that is the resting pitch or “home” pitch within the scale. This note is called the **tonic**. In the C diatonic scale the note C is the tonic pitch. Diatonic scales can be built on all twelve notes as the tonic. There are two forms of the diatonic scale called diatonic major and diatonic minor. They each consist of a series of whole and half steps as illustrated in Figure 3. One whole step equals two half steps.

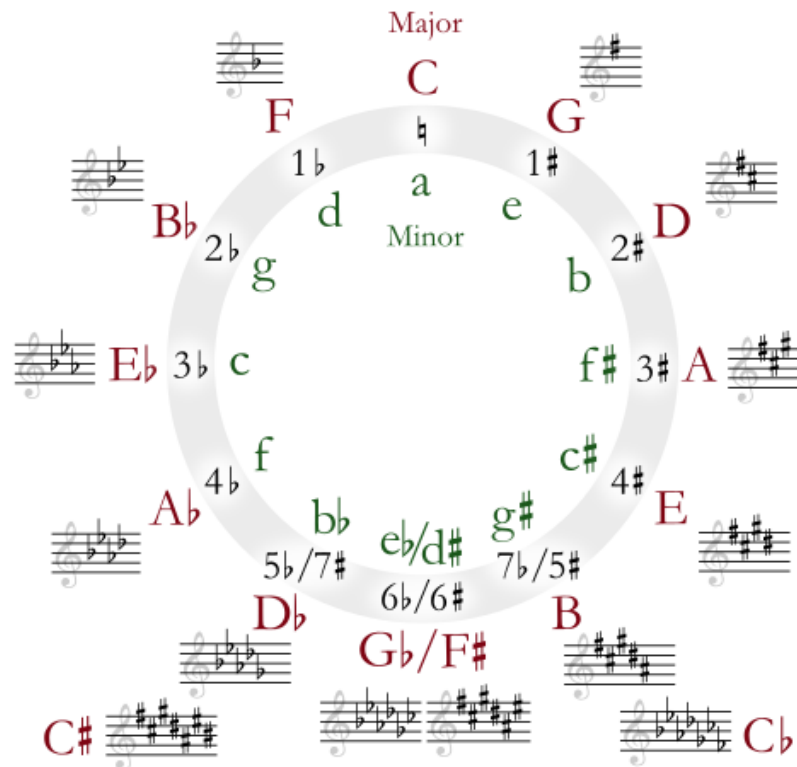
Figure 3: 3 Diatonic Major Scales, 3 Diatonic Minor Scales

Major	Whole		Whole	Half	Whole	Whole	Whole	Half
C major	C	D	E	F	G	A	B	C
G major	G	A	B	C	D	E	F#	G
F major	F	G	A	Bb	C	D	E	F

Minor	Whole		Half	Whole	Whole	Half	Whole	Whole
C minor	C	D	E♭	F	G	A♭	B♭	C
G minor	G	A	B♭	C	D	E♭	F	G
F minor	F	G	A♭	B♭	C	D♭	E♭	F

The melodies of most songs in the Western tradition are built using the notes of the major or minor scales. Generally the notes of the major scale are culturally understood to sound “happy” or “light” while the notes of the minor scale sound “sad” or “down”. If one plays all of the white keys (naturals) of a piano from C to C then it will be a C major scale. C Major is the only major scale that can be played without playing the accidentals (black keys). Likewise the A minor scale is played on all of the naturals from A to A. Figure 4 gives all of the major and minor keys with corresponding key signatures (number of sharps or flats).

Figure 4: The Circle of Fifths



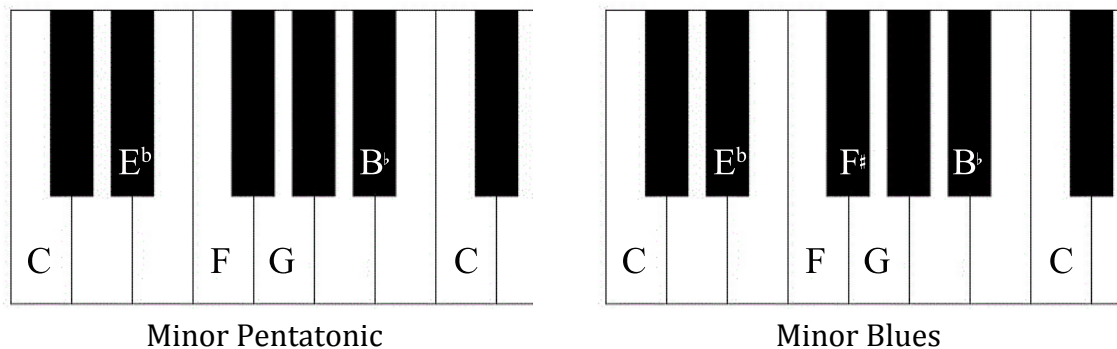
Pentatonic Scale

The pentatonic scale is a scale that has been used by many cultures. The pentatonic scale has five notes. The minor form of this scale has a minor 3rd, whole step, whole step, minor 3rd, whole step. This scale can be played on all of the black keys of a piano starting and ending on E-flat. The major form of this scale contains the notes of a major diatonic scale without the fourth and the seventh scale degrees. In differing forms the pentatonic scale is utilized as a primary scale in much sub-Saharan African music, far-East Asian music, and Gamelan music from Indonesia. The gamelan systems of tuning pelog and slendro utilize pentatonic scales that have nothing to do with the Western division of the octave.

Blues Scale

The most common blues scale is a minor pentatonic scale with an added note. This scale can be played over any chord in a “blues chord progression”. This makes it essential to both the blues and jazz genres. See figure 5.

Figure 5: C Minor Pentatonic and C Blues Scales



Melodic Modes of Southwest Asia, South Central Asia, North Africa

In many Middle Eastern cultures there is an aesthetic emphasis placed on the presentation of words. This is evidenced by the poetic legacy the region. This can also be heard in the melodic presentation of poetry. Singers use ornamentation and embellishment to add to the emotional content and meaning in performance. Melody is a primary element in music from this part of the world. Traditional music has no harmony and sometimes, as is the case with recitation of the Qur'an, has no steady background pulse. The expression of the emotions in a melody is a highly developed skill.

Instead of dividing the octave into 12 semitones, Middle Eastern music has 24 microtones to choose from. This allows for more nuanced melodic variation than in the Western musical world. It also causes much music from this tradition to sound “out of tune” from a Western perspective. These microtones (or quartertones) exist between the notes of a piano and other Western instruments. Therefore much Middle Eastern music cannot be represented or recreated using Western instruments and notation. For instance: The notes of Maqam Rast melodic

mode and the C major scale can be seen in Figure 6. Note that a piano cannot produce the quarter flat E and B.

The term for the scales of the Arabic, Persian, Jewish, and Turkish musical world is maqam. Maqam are not simply scales like in the west. Instead they are melodic modes that have extra musical/emotional associations. Like Western scales maqam usually divide the octave into seven notes (heptonic). Unlike in the Western musical world, maqam are not thought of as one grouping of seven but instead they are most often two four-note tetrachords that are stacked on top of each other. The lowest note in the lower tetrachord is an octave below the highest note in the upper tetrachord. The most important note (tonic) is the first note of the lower tetrachord and the second most important note (dominant) is the first note of the upper tetrachord. In any one piece there may be a variety of tetrachords used for differing sections. Each tetrachord has its own expressive qualities and extra-musical associations. Categories of maqam are based upon their lower tetrachords (regardless of the variety of upper tetrachords). The Figure 6 shows two of the more common maqam using western letter names with the tetrachords.

Figure 6: Maqam rast and Maqam hijaz

Maqam rast in C

C	D	E _(microtone flat)	F	G	A	B _(microtone flat)	C
Lower tetrachord				Upper tetrachord			

Maqam hijaz in D

D	E-flat	F-sharp	G	A	B-flat	C	D
Lower tetrachord				Upper tetrachord			

Indian Raga

In India the set of pitches from which a piece is conceived is known as a raga. There are many Hindustani (north Indian) and Carnatic (South Indian) ragas. Each of them dictates both the notes that performers will choose for the melody and also rules for how the performer will perform these notes. Most ragas contain seven ascending pitches with a differing seven descending pitches within an octave. Like music from the Arabic world extra-musical associations, microtones and ornamentations are important components of the performance of ragas. Specific ragas are associated with times of the day and seasons of the year. In addition to having a “road map” for improvisation each raga also has a repertoire of pre-composed melodies that are passed down orally through the tradition. Aside from these small “compositions” no two performances of a raga will be exactly alike.

Much Indian “classical” music is based on a long improvisation of melody on the given raga and rhythmic tala being performed. In Hindustani culture a common ensemble performing a raga would consist of a sitar, a tambura, and tabla. In Carnatic traditions the ensemble would also be a trio but the common instrumentation would include a vina, tambura, and mrdangam. In each of these ensembles the main chordophone instrument performs the raga (sitar, vina) while

the drums and drones accompany. In the Carnatic tradition the human voice plays a more prominent role in the music. When the voice sings a raga it usually uses a solfege system called sargam in which the singer uses the following syllables: sa, ra/ri, ga, ma, pa, dha, da/ni, sa. Like in other examples of scales there is a hierarchy of notes with sa acting as the equivalent of the Western tonic. To someone not familiar with the practice or the language it might appear that the singer is speaking words with meaning. That is not the case, the syllables simply indicate pitch height.

Analyzing melody:

1. What instrument is performing the melody?
2. Is the melody pre-composed or is it improvised? Is it ornamented?
3. What scale or melodic mode serves as the foundation for the melody?
4. Describe the range, direction, and motion of the melody.

Harmony

Melody is a collection of pitches played in succession. **Harmony** is a collection of pitches played at the same time. The rules and aesthetics that determine the proper use of harmony differ between cultures. For example, the ways that harmony is used within Japanese Gagaku differs from the ways that it is utilized in Western music. Some cultures do not utilize harmony as an element of music. Some examples of music that does not traditionally utilize harmony include Indonesian Gamelan, Indian Classical, Arabic and Persian, Native American, and Aboriginal Australian genres. Harmony has been utilized and developed as an element in Japanese Gagaku, Sub-Saharan African, and Western styles including European art music, and Western popular genres.

Western harmony largely functions on a basis known as tonality. Tonality is a concept that recognizes the tonic note of a diatonic scale as the most important “home” or “central” pitch from which the music begins and ends. When considering harmony, the tonal center (tonic) is a chord built on the first scale degree. Some music shifts tonal centers within the piece. When the music shifts from one diatonic key area to another it is called a modulation. Most modulations are imperceptible to the untrained listener. Modulations between major and minor keys can sometimes be discernable to the untrained ear. In the recitative *Quand je vous aimerai?* from the opera *Carmen* there is a modulation from f minor to F Major just before the end. This sets up a modulation from F Major to d minor for the start of the aria: *L'amour est un oiseau rebelle (Habanera)*. The *Habanera* also modulates from d minor to D Major. These key areas dictate the notes chosen for both the melody and the harmony.

A **chord** is generally defined as three or more pitches sounding simultaneously. The tonic chord is built by playing the first, third, and fifth note of the scale simultaneously. If the tonality of a piece is C major then the tonic chord contains the notes C, E, and G (See Figure 7).

Figure 7: Tonic, Sub-dominant, and Dominants in C diatonic-major

Scale degree	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	Octave
C major scale	C	D	E	F	G	A	B	C
Tonic chord “C maj”	C		E		G			
Sub-dominant chord “F maj”				F		A		C
Dominant chord “G maj”		D			G		B	

Because the tonic chord is the “home chord”, in tonal music it is the central harmony. The dominant and sub-dominant chords are also very important and are built on the fifth and fourth notes of a diatonic scale.

Major and minor diatonic chords are considered to be consonant chords. **Consonance** is represented by intervals or chords that sound relatively stable and free of tension. The opposite of consonance is dissonance. **Dissonance** is represented by intervals or chords that sound tense and unstable. Western functional harmony utilizes the principal that the music will start with consonant harmonies, move to more dissonant harmonies and in the end offer relaxation/relief by returning to consonance. The movement between consonance and dissonance provides motion to depth to the music. In tonal music (music with functional harmony) this movement happens between chords. Aesthetics that determine what is consonant and what is dissonant differ from culture to culture and from generation to generation. An interesting example of this is in traditional choral singing from Bulgaria. In this culture seconds are considered to be consonant. In contemporary American pop these intervals (and chords built using them) are considered to be dissonant.

A defining feature of Western Art music is the development of harmony starting in the Medieval style period. In a broad sense tonal music has a peak in purely diatonic music (using notes of major and minor diatonic scales) in the Classical style period. In the Romantic period composers stretched the possibilities of tonal music by adding dramatic dissonances and far reaching harmonies to the traditional tonal foundations that were established during the previous periods. By the Twentieth century many composers believed that traditional tonality was exhausted and old-fashioned. The result of this was that the Twentieth century style period in Western Art music saw a normalization of dissonance. Much music from the period explored the possibilities of sonorities that existed outside the rules of functional harmony/tonality. This is a defining feature of this period of music. When listening to it one may be surprised by the lack of comfort (or the oddness) felt within many works. This is often a direct result of the normalization of traditional dissonances. When music denies the rules of tonality by not having a central tonality it is referred to as **atonal** music. Learning the musical theory behind functional harmony and atonal practice takes many “classically” trained Western musicians years of classes, lessons, practice and study to master.

Western popular and folk genres generally utilize simple harmonies that are diatonic and functionally tonal. Most music within these genres contains a repetitive sequence of movement between several diatonic chords. This is commonly known as a chord progression. These chord progressions often contain

only three or four chords. In major diatonic keys the chords of Tonic (built on scale degree 1), Sub-dominant (scale degree 4) and Dominant (scale degree 5) are often used to build songs. In vocal groups there is often one singer who leads by singing the melody while the others harmonize that melody by combining voices to sing chords. In popular bands instruments that can play chords (guitar, piano) often play the chords/harmony while singers provide the melody.

Traditional Mexican corridos are often sung over a two-chord progression that alternates between only the tonic and dominant chords. Figure 8 shows the chords along with the lyrics of the first verse of *El Corrido de Gregorio Cortez* as performed by Ramón Ayala. A two-chord progression between tonic and dominant allows the musician to start and finish with consonance represented by the tonic chord and move to a more “dissonant” area represented by the dominant chord. In this piece the harmony is the chords played on the guitar while the voices are the melody. Another interesting aspect of the melody is that it is sung in harmony by two singers who sing a third apart.

Figure 8: *El Corrido de Gregorio Cortez* melody with chords

The figure displays a musical score for the first verse of 'El Corrido de Gregorio Cortez'. The score is written in treble clef with a key signature of two sharps (F# and C#) and a 6/8 time signature. The melody is accompanied by a two-chord progression: I(Tonic) A and V(Dominant) E7. The lyrics are written below the staff, with some words split across lines. The score is divided into two systems. The first system starts with the Tonic chord (A) and ends with the Dominant chord (E7). The second system starts with the Tonic chord (A) and ends with a double bar line. The lyrics are: 'En el con-da do del Car-men mi-ren_(lo)que ha su-ce di-do mu-rió el cher-i - fe may - or que dan do Ro - mán her - id - o'.

The addition of the sub-dominant chord (IV) to the tonic and dominant expands the harmonic possibilities of a chord progression. These three chords are the harmonic foundation of many pop songs. It is interesting to note that each of these chords lies next to each other on the circle of 5ths (See figure 4). When asking guitarists what the first chords are that they learned they often reply with three adjacent chords on the circle of 5ths: (F,C,G) or (G,D,A). The tonic, dominant, and sub-dominant chords are used to build “three chord” songs. Examples of three chord songs using tonic dominant and sub-dominant can be seen by following this link:

The **blues chord progression** is a specific sequence of the tonic, dominant, and sub-dominant chords that serves as the harmony for the blues genre. According to Steve Valdez in his book *A History of Rock Music*, 4th edition the basic blues structure was inspired by chords used in basic church hymns from Great Britain, Scotland and Ireland. African (American) slaves assimilated them into their own music and created “the blues”. In the 1910s and 1920s the blues chord progression began to codify into the twelve-bar blues progression. In this progression the tonic

chord (I) is the harmonic foundation of the first four bars. It is followed by a two bar harmony of the sub-dominant (IV) chord. After returning to tonic (I) for two bars it then moves to dominant (V) for two bars and ends with two more bars of tonic (I). Each “bar” or measure has four beats with a backbeat emphasis on 2 and 4. The full progression is illustrated in Figure 9. To modern musicians “playing the blues” often means playing a piece that utilized the 12 bar-blues progression. The blues and pentatonic scales can be used to improvise melodies over the harmony of the blues progression.

Figure 9: 12-Bar Blues Progression

Bar 1 Tonic (chord)= I > > 1 2 3 4	Bar 2 Tonic = I > > 1 2 3 4	Bar 3 Tonic = I > > 1 2 3 4	Bar 4 Tonic = I > > 1 2 3 4
Bar 5 Sub-Dominant= IV > > 1 2 3 4	Bar 6 Sub-Dominant= IV > > 1 2 3 4	Bar 7 Tonic = I > > 1 2 3 4	Bar 8 Tonic = I > > 1 2 3 4
Bar 9 Dominant= V > > 1 2 3 4	Bar 10 Dominant= V > > 1 2 3 4	Bar 11 Tonic = I > > 1 2 3 4	Bar 12 Tonic = I > > 1 2 3 4

By adding more chords to the traditional three songwriters build more complex chord progressions. In much music the chord added is a minor chord built on the sixth scale degree (sub-median/vi). Many pop hits from the 1950s and 60s used the “doo wop” progression of tonic, sub-median, sub-dominant, dominant (I-vi-IV-V) to create a “hit” sound. More recently the tonic, dominant, sub-median, sub-dominant (I-V-vi-IV) progression has been used to create many hits. There are many online videos in which musicians demonstrate this concept by playing the same chord progression while moving through many popular melodies.

As the age of European colonialism gives way to the internet revolution Western musical influences can be found in cultures across the globe. This often manifests through the addition of harmony into popular and traditional genres. Harmony can now be heard within Bollywood, K-pop, J-pop, and Arabic popular music. Sometimes it is used in traditional Western ways while often it is simply used as a newer aesthetic preference that is not bound to Western traditions.

Analyzing harmony:

1. Is there harmony within the music?
2. If so, what instrument(s) are playing the harmonic part?
3. What scale or melodic mode serves as the foundation for the harmony?

4. Is the harmony a repetitive chord progression? If so, what is the chord progression?

Musical Texture

Music theorists often utilize texture as an element of music that helps guide understanding of the complex differences between the many genres of Western Art Music that were created over the past millennium. Musical **texture** is how melody and harmony are combined within a piece of music. Because texture is only concerned with these two elements it is not often used to analyze music from cultures that do not utilize harmony. It is important to understand that purely rhythmic (drumming) parts are not considered when analyzing the texture of a piece of music.

There are three primary musical textures:

Monophony- Monophonic music contains one melody with no harmonic accompaniment. Musical works that have only one melodic instrument performing are often monophonic. Monophonic texture can also occur when many instruments are playing the same melody at the same time. Gregorian chant is an example of a monophonic genre. Music of the shakuhachi and Native American flutes is mostly monophonic. When people gather to sing *Happy Birthday* they strive for a monophonic texture. When a piece of music contains one melody with an accompanying drone (*Raga Jog*) the drone is often not considered and therefore the texture may be called monophonic.

Homophony- Homophonic music contains one melody and harmonic accompaniment. This is the most commonly heard texture in Western Art music and contemporary popular music. The harmony is often played on an instrument that can perform more than one note at the same time. Instruments like the piano and the guitar are used in modern pop music to play the chords while singers often perform the melody. Despite the complex timbres, melodies, and rhythms of Western Art music the most common texture is homophony. When choirs and vocal groups sing four-part harmony (chords) in which all of the voices move in unison rhythm the resulting texture is homophony. The upper voice in these cases is the melody while the other voices are the harmonic accompaniment. This music is sometimes referred to as being homorhythmic.

Polyphony- Polyphonic music contains two or more differing melodies happening simultaneously. There is much polyphonic music from both the Renaissance and Baroque style periods in Western Art music. In Classical, Romantic, and Twentieth Century styles smaller polyphonic sections of large works offer contrast to the largely homophonic textures. Polyphony is complex or “thick” sounding. It is not often heard in popular music. Polyphonic music may or may not have harmonic accompaniment.

The fourth texture is one that also contains one melody but has variations on the melody. **Heterophony**- Heterophonic music contains two or more voices playing variations of one melody at the same time. This is a common texture of some folk traditions in which melodies are previously known to the listeners (*Amazing Grace*) and each performer wants to add their own style to the performance.

Analyzing texture:

1. Does the music have one or more melodies?
2. Does the music have harmony?
3. Did you disregard drones and drums?
4. What is the texture? Does it change within the piece?

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Module 5- Form in Music

Form refers to the layout of a piece of music from beginning to end. It is the structure of themes, rhythms, patterns and other musical concepts that form the design of a musical selection. Form can be easy to hear in short and/or repetitive pieces common to one's own culture. In longer and culturally foreign works the form can be difficult to recognize without prior understanding and analysis. This is because musical forms are varied in their construction and not limited to any one element of music as a point of emphasis. The building blocks of form can be melodies, rhythms, chord progressions, instrumentation, timbres, dynamics, and lyrics. Composers use repetition, contrast, variation, growth, and decline to create expectation and to develop these building blocks.

Forms are tied to the aesthetics of the cultures that create them. The form of the music can follow strictly laid out ceremony like in the Roman Catholic Mass or it can be symbolic of larger cultural and social formations like the polyphonic, cyclical forms found in Indonesian gamelan. Forms can be the products of evolution to a genre over time. This is evident in modern popular aesthetics that value the short length of a piece. The modern length of a pop song is a direct result of the limitations placed on longer jazz, blues, and ragtime works in the early twentieth century by early recording equipment. Ten-inch records could only hold between three to five minutes of music on a side (without having to compress the grooves, thus diminishing quality). The change to a form over time is also evident in the evolution of Medieval and Renaissance dance suites into multi-movement forms that eventually became the sonata cycle form used to structure symphonies, string quartets, sonatas, and concertos in the eighteenth century. Enjoyment of these genres is tied to developing an aesthetic for appreciation of how a composer utilizes form to create a work.

Perhaps the opposite of the "Classical" decorum that manifests in the formal emphasis is the "Free Jazz" movement that began in the late 1950's. This genre of music was spearheaded by black Americans at a time when segregation and racial inequality in parts of America were the norm. The civil-rights movement challenged the established norms. Free-jazz musicians challenged the melodic, rhythmic, formal, and harmonic norms of established practice in jazz. In pure "free jazz" it is possible that the musicians are not familiar with each other, that the ensemble is a unconventional mix of instruments, and that the musicians completely improvise all aspects of the music. This is one of the few genres of music in which musicians have liberty to completely "make it up on the spot".

Improvisation is an important aspect of many musical genres. Because the **improvisation** is generally a spontaneous composition of material that is appropriate within the context scholars are shying away from calling improvisation "making it up on the spot". It is appropriate to call it composing in the moment.

In most genres of jazz (and other music), musicians use freedom to spontaneously put together pre-conceived/practiced musical ideas (improvise). These ideas are arranged over pre-conceived forms utilizing specific scales. The harmonies and rhythms are also standardized. In standard jazz genres like big band swing the improvised aspect of the performance is limited to shorter melodic

solos “over the form”. These solos are small features within a complex arrangement of sounds that requires most musicians to read the music while performing. In be-bop and more contemporary jazz “combo” settings musicians generally have more freedom to improvise longer solos and develop ideas.

There is much debate over the definition of **jazz**. Historically it is a style of music that originated at the beginning of the 20th century in African American communities in the United States from a confluence of African and European music traditions. Some say that it is a historical genre that relies heavily on improvisation over swinging rhythms and blues progressions. Others say that jazz is alive and well in any musician who wants to express themselves through melodic improvisation over American style rhythms and chord progressions. Whichever the case; the key aesthetic value for jazz is expression through improvisation of melody. To a lesser extent this is also the case with other American genres of music. Improvised solos are expected in traditional blues, gospel, psychedelic rock, jam-band, salsa, and country based genres like old time and blue grass. In hip-hop freestyling the rapper improvises poetry rhythmically over rhythmic ostinatos called “instrumentals”.

There are many cultures around the globe that share an aesthetic preference for music in which some aspect of the piece is improvised. In Ewe drumming of West Africa master drummers improvise patterns in response to the form and to the dancers. In Indian and Middle Eastern music the subtle development of the scale (raga/maqam) through improvisation is a feature of much music. To do this with passion and artistry (soul) is the goal of many musicians. Compositions can last over an hour when the performances are inspired.

In the European “classical” tradition modern audiences associate the legendary composers (Beethoven, Bach, Mozart, etc...) with compositions that they wrote on paper. These compositions happened previous to performance. Modern audiences of Western Art music know that each time they hear these compositions (masterworks) they will not include improvisation. What “classical” music fans value are differences in interpretation. This could be different tempos, dynamics, timbres, or subtle variations in expression brought out by conductors or musicians. To those with a “taste” for this music these variations are what give it life. Aesthetes form preferences based upon their experience with differing interpretations of the art. The untrained ear tends to claim, “it all sounds the same”. This sameness might also be a reflection of the lack of improvisation in Western Art music at the beginning of the 21st century. For much of the history of Western Art music composers were also performers. Many wrote pieces to feature themselves on an instrument. It is documented that Bach, Handel, Mozart, Beethoven, Chopin, and others were master improvisers. Some would even duel on their instrument (much like battling in hip-hop music and dance or cutting heads in jazz). Imagine attending a symphony concert that included a musical duel.

Repetition, variation, and contrast

As listeners we recognize the repetition musical ideas. When musicians structure a form they utilize repetition of melodies, rhythms, chord progressions,

and metric cycles to create organization units. Small musical ideas that are developed and repeated throughout a piece are called **motives**. A highly recognizable example of a motive used in Western Art Music is the “three-shorts and a long” motive that is heard at the beginning of Beethoven’s Symphony No. 5. If a motive is repeated continuously it is referred to as an ostinato. Themes are generally longer (or more substantial) than motives. **Themes** are melodies or rhythms that are repeated or varied throughout a musical work.

Ostinato based form

Sometimes entire pieces of music are based upon the repetition of one ostinato. This is the case in several traditional African genres such as Gnawa music of North Africa. Gnawa music contains repetitive chanting that accompanies religious trance and can be performed for hours. This same repetitive ostinato is heard in religious chanting of mantras in many religious traditions. In India, Kirtan is a form of chant and prayer utilized by Hindus, Sikhs, and some Buddhists. In a Kirtan performance call and response form is used over ostinatos to create the form. In **Call and Response** a musical leader sings or plays a line of music and the chorus (ensemble) of musicians responds in unison. In Kirtan and in Griot traditions of West Africa the leader tells historical and religious stories in the call. The variation of the stories satisfies the need for contrast in these traditions. In European traditions ostinato forms were often based on repetitive bass lines (ground bass) and chord progressions (chaconne). Notable among these works is the Baroque Cannon in D by Johann Pachelbel. This piece can often be heard at processional ceremonies like weddings. Melodic variation is often used to create contrast in European works.

More often it is the case that sections of a larger work utilize ostinatos. In pop music a repeated ostinato is often referred to as a riff. In jazz and Latin music it might be called a vamp. In Indian music it is called a lahara. In African drumming it is simply a rhythm that musicians perform until a master drummer signals the switch to a new section. Minimalism is a Western Art music movement of the late twentieth century in which composers utilized simple repeated patterns to build larger works. Some of the most famous minimalist composers are the Americans Philip Glass, Steve Reich and John Adams. Glass and Reich both acknowledge the influence of ostinato based forms found in Indian and African music.

Cyclic forms

When the section that repeats is longer than an ostinato then the form is considered to be cyclic. Like ostinatos the cycles that are repeated can be melodic, harmonic, or rhythmic. Repeated melodies create the traditional liuban and baban forms of the traditional Chinese folk music called Jiangnan Sizhu. Two primary cycle lengths are used for many of the works. These cycles are melodies of 60 or 64 beats in length (Thrasher, 1989). Musicians perform the melody over and over. Each time musicians are expected to embellish the melodies and add their own personal treatments. This is referred to as “adding flowers”.

This cyclical melodic form is akin to the strophic forms of Western music. **Strophic** refers to a form in which musical elements remain (largely) the same with each repetition of a section while some element or lyrics change. It is often the case that the only changing aspect for each strophe is the lyric. This is the case many traditional corridos of Mexico and America. In such works each section of music repeats the same melody, harmony, and rhythm under the changing lyrics.

In many jazz pieces a recurring chord progression serves as the foundation of the piece. One of the most common chord progressions utilized in jazz is the twelve-bar blues progression. Each time through the chord progression is referred to as a chorus. A typical jazz arrangement would have a written melody called “the head” played over first chorus. After the head is performed the musicians will decide on an order for melodic and rhythmic solos in the following choruses. When performing live, the soloists are free to keep going as long as they want. The piece typically then ends with another performance of the head. **Figure 1** illustrates this cyclical form in Joe “King” Oliver’s piece *West End Blues* as it appears in the famous recording made by Louis Armstrong and his Hot Five on June 28, 1928. Introductions like Armstrong’s opening trumpet solo, and codas (outros), are superfluous additions to the form.

Figure 1: *West End Blues* cyclic 12 bar blues form

Intro-	Blues progression: Chorus 1	Blues progression: Chorus 2	Blues progression: Chorus 3	Blues progression: Chorus 4	Blues progression: Chorus 5
Solo Trumpet	Head Polyphonic presentation of the written melody on trumpet with counter melodies played on clarinet and trombone	Trombone Solo: Improvised melodic solo	Vocal and Clarinet solo: Call and response style improvised solo by Armstrong scat singing with clarinet	Piano Solo: Improvised melodic solo in right hand with left hand harmonic accompaniment	Head Armstrong departs from replaying the written melody, instead improvising along with clarinet and trombone

Sectional forms

Sectional forms happen when the musical piece contains multiple, identifiable sections. Sometimes these sections are completely different and do not repeat. It is often that a piece of music will return to one section. This creates a sense of expectation fulfilled within the music.

Sectional forms with cycles

Gamelan

Layered cycles that change in differing sections of a piece are a feature of several Asian musical genres. Sometimes the pieces will have an introduction section before the cycles begin. In Javanese Gamelan there are both rhythmic and melodic cycles at the core of the form. In ketawang (16 beat cycle) works each gong cycle constitutes the repeating form of the piece. Cyclical melodies of varying lengths and speeds are layered on top of the gong cycle. The kendhang drum guides players by signaling changes over the constant gong cycle.

Arabic Music

In much Egyptian (Arabic) music sections of music are often repeated as many times as the performer chooses. In traditional performances the melodies (maqam) are varied and expanded through improvisation in each cycle. The ultimate aesthetic goal is to bring about state of emotional excitement or ecstasy. The effort to explore and heighten an emotion through music is notable. This practice results in performances where it is common for one piece to last over an hour. Oum Kulthum is a famous Egyptian singer that is revered for her emotive impact. She performed with an orchestra (takht) filled with virtuoso musicians. She was favored for her traditional Arabic presentation at a time when Western influences and aesthetics were challenged in Egypt. Much music that she performed has become part of a canon of Arabic music. One of the songs that she popularized is titled *Ana Fi Intizarak*. In this piece there are several sections that build for over thirty minutes as Kulthum increases the emotion. The formal arrangement of these sections is complex because it is based upon the poem that is being sung. Occasionally the piece returns to an instrumental chorus that is heard at the introduction. The musicologist, composer, performer, and Arabic scholar David Marcus wrote in an email to the author:

“In terms of lyrics and emotion, *Ana Fi Intizarak's* singer is getting more and more distressed in each verse, as she waits and imagines each footstep to be the arrival of her lover, who never comes. It's as if she is slowly going crazy, and then each Ya Reyt chorus ("I wish I had never fallen in love!") releases the energy. The song is in Egyptian Colloquial (or Spoken) Arabic, as opposed to Formal (or Classical) Arabic.” (Marcus, 2017)

The cyclic form allowed Kulthum to customize each performance extending or contracting the length of works based upon the emotional content, audience response and creativity.

Hindustani Music

In Hindustani musical traditions improvisatory explorations of ragas and talas travel through formal sections that come together in the badhat form. The form contains a series of guideposts that facilitate virtuosic performance resulting

from years of study and practice. The overall badhat form is a gradual crescendo of intensity that peaks at the end of the work. Musicians grow the “raga” or scale according to traditions combined with their own creativity. They build the intensity of the music over the cyclical tala. In music where there is no melody/only tala the percussion is accompanied by a melodic cycle called a lahara.

There are several sections that offer guideposts within badhat form. The first is the alap. The alap section serves as an introduction to the notes of the raga that is being performed. This offers the audience the opportunity to hear principal notes, motives, and extra-musical ideas (such as mood=rasa) that will be used throughout the piece. The alap section is identifiable because it is a melodic improvisation (with drone) that has no steady background pulse.

Jor is a transitional section that facilitates the move from the alap to the main melody section known as gat. In the jor the melodic instrument becomes more rhythmically active by adding a pulse. This is part of the overall buildup of intensity that happens in badhat form.

The gat section contains the main melody(s) of the performance. This melody serves as a foundation for melodic and rhythmic improvisation throughout the gat section. The gat is performed over a tala (rhythmic mode) and is accompanied by the percussion instrument (usually tabla).

Jhala is an intense section that serves as a musical climax and ending. In the jhala musicians often alternate playing melodic/fretted strings with the fixed pitch/drone strings on the instrument. This serves both to intensify rhythm and to reinforce the primary note of the rag called sa (to which the drone strings are tuned). Jhalas happen at the end of the performance but they can also exist at the ending of the jor before the tala begins.

In a typical performance the growth of the raga through the badhat form can progress for half an hour. The beginning is calm and slow and the end is a fiery display of virtuosic ability. The growth that happens from the slow beginning to the virtuosic and fast ending is often compared to the growth of a plant from seed to flower. The performance of a raga is devotional and is seen not only as musical but also spiritual practice, with the ultimate goal being Nada Brahma (“the sound of God”). (Bakan 2012, 135)

Sectional forms in pop music

When analyzing the form of pop music the terms verse, chorus, and bridge are often utilized. These terms each represent contrasting sections of the music. In many pop and folk genres the melody that is heard in the chorus is considered to be the main melody or “hook” of the piece. Often the verses have lyrics that tell a story and the chorus expresses the emotion. If the verse and chorus repeat with only lyric alteration then they can be considered one section and the form can be called strophic. When the bridge sections offers contrast to the verse and chorus it often creates a form called standard song form. Figure 2 illustrates how this form is often utilized in popular music.

Figure 2: Song Form

	A		A		B	A or A'		
Intro	Verse	Chorus	Verse	Chorus	Bridge	Verse	Chorus	Coda
optional	narrative	"hook"	narrative	"hook"	Contrasting material-possible modulation	Sometimes verse is skipped for return to the "hook"		optional

A simple form that is often used to describe the structure of melodies is called binary form. In binary form the tune has two distinct sections. Examples of binary melodies are the pieces *Turkey in the Straw*, *Yankee Doodle* and *Greensleeves*. These pieces show the contrast of the A section and the B section. This contrast often is both melodic and harmonic.

Figure 3: Sample Binary Form

A Section	B Section
tonic chord	dominant chord

Western art music sectional forms

In Western music realization of formal markers (often identifiable melody) is a highly valued aesthetic. Listeners are often aware of the design of complex forms and thus listen for how composers' use the form to create a work of art. They listen for the development and variation of melodic themes and motives. In many genres the listeners even listen for the expected tempos and harmonic progressions. Through awareness of form a greater understanding of Western art music can be realized.

Arguably the most important of the Western art forms is a multi-movement form called the **sonata cycle**. Sonata cycles came into vogue as a form in the Classical style period (1750-1820). It was at this point that composers established many of the genres that we hear in modern concert halls. The four genres that utilize the sonata cycle are the sonata, the concerto, the string quartet, and the symphony. Because they all use the sonata cycle they typically have a fast (allegro) first movement, a slow second movement, and a fast closing movement. The sonata and concerto only have these three movements while string quartets and symphonies also have a fourth movement, a dance (minuet and trio) inserted between the slow movement and the closing fast movement. Pauses often happen between movements in the performance these genres. In these pauses musicians and audience members adjust and prepare for the next movement. In the 20th century it became standard not to applaud between movements, instead saving applause until the end of the entire work.

Symphonies are works for orchestras (also known as symphony orchestras or philharmonic orchestras) that are composed using the four-movement sonata cycle form. String quartets use the same form as a symphony but are written for an instrumentation of two violins, a viola, and a 'cello (string quartet). Concertos and sonatas are written using the three-movement cycle. A concerto is a work for solo instrument accompanied by an orchestra. The term sonata can be confusing because of its many related uses. The genre called sonata has many historical variations but it is generally considered to be a work for a solo instrument (or instrument with piano accompaniment) that is composed using the sonata cycle three movement fast-slow-fast structure. As mentioned above the second use of the term sonata is in the form called sonata cycle. The third use is in the term sonata-allegro form. This refers to the form of the first movement of the sonata cycle.

Figure 4: Sonata cycle= used in sonatas,

Movement 1: Allegro=fast tempo Sonata form	Movement 2: Slow tempo Often theme and variations/ rondo form	Movement 3: Minuet and Trio Dance in 3 Does not appear in sonata or concerto	Movement 4: Fast Sonata Rondo or Sonata Form
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In the sonata-allegro (first movement) form composers use three melodies as the source material for building the piece. These melodies are called themes. Theme one is the most important theme in the piece. The first step in listening to sonata form is to recognize theme one and to listen for each appearance of it. There are three main sections of Sonata-allegro form called the exposition, development and recapitulation. In the exposition the three themes are presented (exposed). The first theme will be in the tonic key area. For example: In Symphony No. 1 in C major the first theme will be written in C major. A transition section follows in which the music modulates (changes key area) to a relative key. For example: In Symphony No. 1 in C major theme two might be in the dominant key area of G major. The closing theme will be in the same key as theme 2. Expositions are repeated.

The development section of sonata-allegro form contains the least amount of established structure. In this section the composer may present themes out of order, fragment themes, sequence themes, or develop them in other ways. The ultimate goal of the development is to set up the cadence from back to tonic for the return of theme 1 in the recapitulation. The recapitulation is another presentation of the themes from the exposition in the same order. The main difference is that all themes will be presented in the tonic key area.

Figure 5: Sonata-allegro form

I n t r o	Exposition	Development	Recapitulation	C o d a
	Theme 1= tonic	Develops motives and themes presented in the exposition.	Theme 1= tonic	
	transition/modulation		transition/no modulation	
	Theme 2= contrasting key area	Ends with cadence from V to I that reestablishes tonic key for recapitulation	Theme 2= tonic	
	Closing theme= contrasting key area		Closing theme= tonic	

Like all other forms discussed there can also be an introduction and/or a coda. In codas, composers wrap up the piece by emphasizing the tonic chord (home chord). This is done by drawing out cadential material. A cadence is a resting point provided by the harmonic progression. The strongest cadences in tonal music are V-I (dominant to tonic). Tonal centers or key areas are important parts of the sonata forms. All movements are expected to begin and end in a tonic key. The harmonic path away from the tonic is also determined by the sonata form. See figure 4 for a map of sonata-allegro form. Classically trained musicians and enthusiasts spend much time analyzing music to identify each formal marker.

Programmatic Form

In movies, video games, television shows, epic folk tales and other genres music is composed to support a story. Often the forms used for the music will be directly related to the story. Composers who score films are often asked to create customized accompaniment that follows the action on screen. If the composer wants to create music that identifies or supports characters, themes, or actions then they might compose a musical theme that is representative. One needs only to hear the *Imperial March* from the *Star Wars* movies to get a visual image of Darth Vader. This is because when John Williams scored these films he utilized the concept of “leitmotif” that had been used in opera for a century. “Leitmotif” is a term that Wagner used to describe themes that represent characters, ideas, or other objects in his music dramas (operas).

Within an opera, cantata, oratorio or other Western Art genres that have a narrative and involve singing it is common to have three acts that each include arias, recitative, and chorus pieces. Arias are the “hit songs” of the opera and may be composed for solo, duos, or groups of singers. In the aria the emotions of the character are often revealed and expounded upon. Imagine the emotional release song in any Disney movie. This is akin to opera arias. Recitative advances the plot between these arias. Usually arias have some sort of repetitive sectional form.

Recitatives are often non-repetitive because they follow the text. If no organizational units or repetitive structures are present in the music then the form is called **through-composed**.

Analyzing form:

1. Does the music have a preconceived form or is it improvised?
2. Is the form of the music a section that repeats over and over?
3. Is the form established for the genre?
4. Do you notice any repetitive formal markers?

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