

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*.

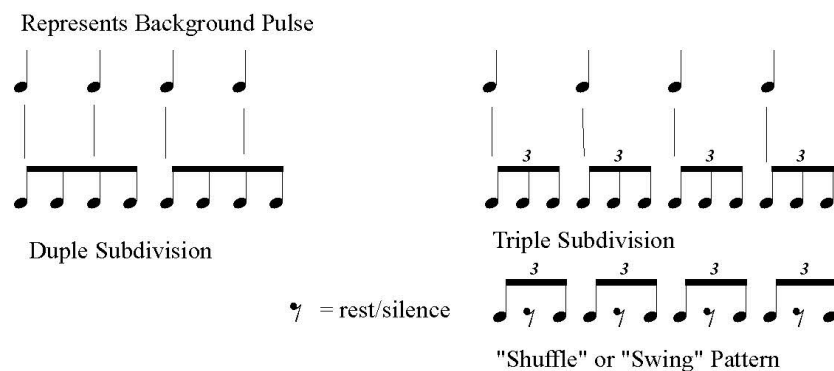
When the background pulse of a work speeds up and slows down in an effort to express emotion this is referred to as **rubato**. Rubato is dramatic and intentional and is generally associated with dramatic emotional expression that became an important aesthetic for Romantic era performance of Western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

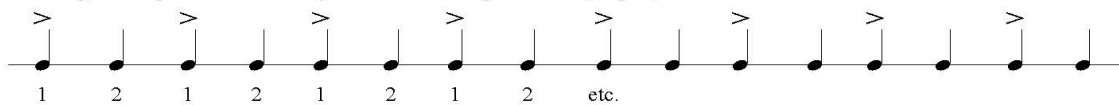
Music that is in **duple meter** groups the background pulse into a pattern of alternating strong and weak beats. The 2/4 in Figure 2 is a **time signature** that indicates a duple meter. The top number of a time signature tells how many beats are in a measure (2=duple). The bottom number indicates what 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

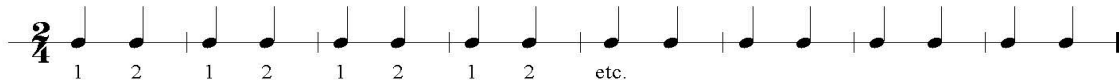
Background pulse with no meter/no emphasis:



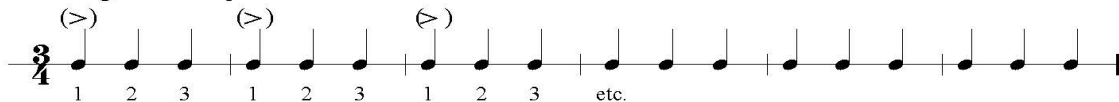
Background pulse with every other note emphasized (duple):



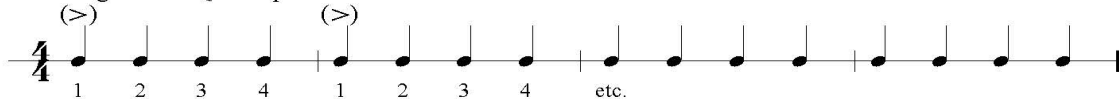
Background pulse organized into duple meter (middleground):



Middleground= Triple Meter

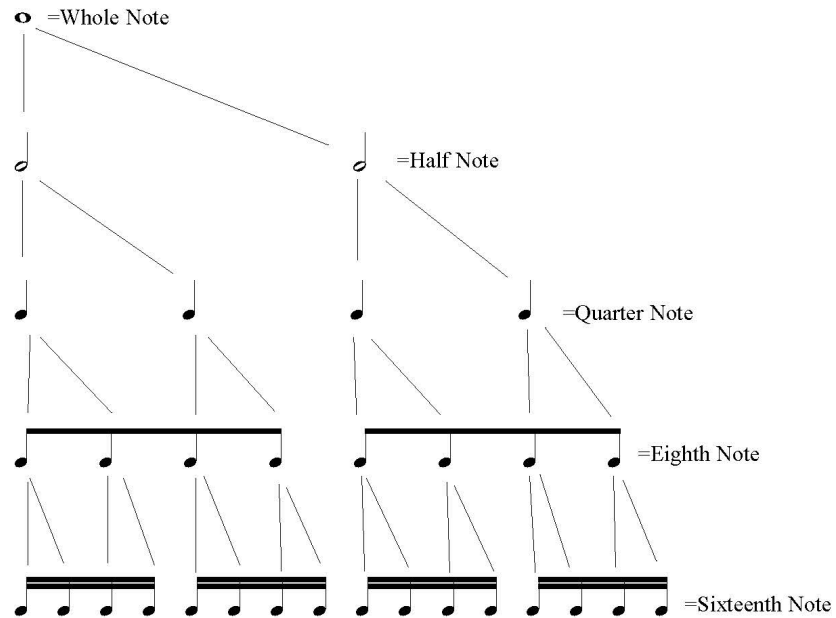


Middleground= Quadruple meter/common time



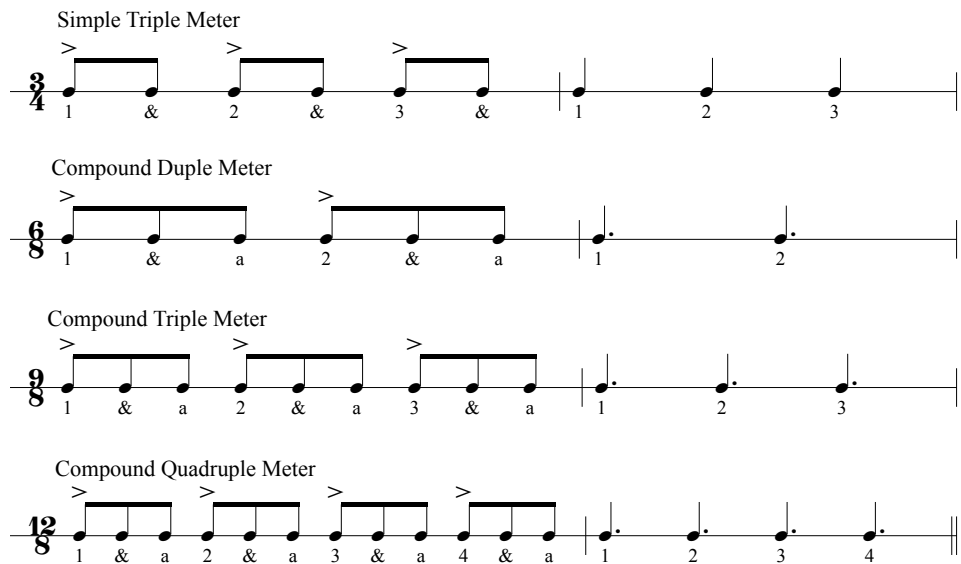
In Western Art music **simple** duple, triple, or quadruple meters have a duple subdivision of the background pulse. (This is not the case in popular and world music genres). **Compound meter** is the Western terminology for meters when the subdivision of the pulse is three instead of two. As with simple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