Chapter 2

ELEMENTS AND CONCEPTS OF MUSIC

(With reference to Hindustani and Jazz music)
Elements of music

There are three fundamental elements in music – Sur (musical notes), Laya (tempo) and Bhāva (emotion/ expression).

Understanding of Swara (musical notes)

- **Chromatic scale**

Mostly in every type of music, one saptak comprises of 12 notes.

In Hindustani music the 12 notes are:

S  r  R  g  G  M  m  P  d  D  n  N  S’

In jazz music, chromatic scale is:

A  A#  B  C  C#  D  D#  E  F  F#  G  G#

or

A  Bb  B  Cb  D  Eb  E  F  Gb  G  Ab

- **Shuddha swara/ natural notes**

In every type of music seven notes are considered as basic/ natural/ shuddha swaras (notes).

In Hindustani music, the seven swaras (notes), Shadja, Rishabh, Gandhār, Madhyam, Pancham, Dhaivat, and Nishād are used by their respective abbreviated names Sa, Re, Ga, Ma, Pa, Dha and Ni for the sake of convenience.

In jazz music they are named as C, D, E, F, G, A, and B.
• Vikrut swaras/ accidentals

In Hindustani music there are five notes which are referred to as ‘Vikrut swaras’ – Re, Ga, Ma, Dha, Ni. There are two types of Vikrut swaras: 1. Komal swaras- which is half a note lower than the Shuddha swara. There are total four komal swaras: Re, Ga, Dha, Ni. 2. Tivra swara - which is half a note upper than the shuddha swara. There is one tivra swara: Ma.

In jazz music, there are two types of accidentals. 1. Flat note – which is half a note lower than the natural note. 2. Sharp note- which is half a note upper than the natural note. Except for the notes ‘B’ and ‘E’, the other ten notes can be sharpened and except for the notes ‘C’ and ‘F’, the other ten notes can be flattened as each note has been assigned two names.

Difference between Sa and C

In Hindustani music ‘Sa’ is considered as the ‘Tonic’. The notes are placed on their respective frequencies derived in accordance with their tonic Sa. For e.g. if we talk about Re or Ga (or any note), it is always in context to Sa. The notes are not set on a particular frequency but on the basis of the distance from the tonic (Sa).The frequency of all six notes depends on Sa (because it is the tonic). And it is therefore called shadja - the creator of six notes. We can assume any frequency as Sa (tonic). When the arrangement of shuddha ‘S, R, G, M, P, D, N’ is in a sequential order, it is known as ‘Bilāwal Thāt’ (or a major scale).

In Jazz music C, D, E, F, G… all notes are set on a particular frequency. This particular order starting with C and ending with B, with all natural notes (C, D, E, F, G, A, B) is considered as the major scale (Bilāwal Thāt).

Distance between notes in any major scale is:

W W H W W W H

(W= Whole tone -1, H= Half tone – ½)
Saptak and Octave

A. Saptak:

Saptak means a group of seven notes, (Sa to Ni). In hindustani music, there are mainly 3 saptaks: 1. Mandra Saptak, 2. Madhya saptak, 3. Tār Saptak

i. Madhya Saptak: The pitch derived from tonic - Sa to Ni, is called Madhya saptak.

ii. Mandra Saptak: The saptak which has exactly half the frequency from the pitch of Madhya saptak - Sa to Ni, is called Mandra saptak.

iii. Tār Saptak: The saptak which has exactly the double frequency from the pitch of Madhya saptak - Sa to Ni, is called Tār saptak.

The saptak which has a pitch lower than the Mandra Saptak (which has half the frequency from Mandra saptak), is called ‘Ati Mandra Saptak’. And the saptak which has a pitch higher than the Tār Saptak (which has the double frequency from Tār saptak), is called ‘Ati Tār Saptak’.

B. Octave:

Octave means the group of eight. (Octave is similar to saptak, but is referred to as ‘C to C’ and saptak is referred to as ‘Sa to Ni’). An octave is the interval between one musical pitch and another with half or double its frequency.

The octave above an indicated note is sometimes abbreviated as 8va, and the octave below 8vb.

Laya - Tempo

Speed of time is called ‘Laya’. Laya represents the movement of time. Though the speed of time is unseen, we can divide it through Laya.

In Hindustani music, there are mainly 3 types of Laya: 1. Vilambit laya, 2. Madhya laya, 3. Drut laya.
i. Madhya laya: It is considered as normal speed. It is referred to as the speed of human heart beats.

ii. Vilambit laya: It is considered as half the speed of Madhya laya.

iii. Drut laya: It is considered as the double speed of Madhya laya.

The speed slower than Vilambit laya is called ‘Ati Vilambit laya’ and the speed faster than the Drut laya is called ‘Ati Drut laya’.

Bhāva (emotion)

Bhāva (emotion), which lies above all technicalities, makes the soul of every art form. It adds humanness and naturalness to art. It helps an artist to connect to his audience. Without the garnish of expression, any art would lose its real flavor, become metallic (harsh) and robotic. As an art, music has proved to be a perfect medium for expressing feelings.

In the Indian music tradition, the emotional experience, which a listener of music goes through, is called ‘rasa’. Because just as the juice of fruit is enjoyed by the tongue, a listener enjoys the emotional experience from what is heard.\(^{59}\)

Similarly, Jazz music was begun as a form of abstract communication. It gradually strengthened its roots and evolved as a strong medium for communicating feelings.

Emotion – the arcane ruler of the territory of art brings liveliness and charm to it. The technical aspect of music sounds extremely beautiful when expressions become a part of it. The soul and the body, when separated, are meaningless, but when combined, create the most amazing phenomenon - life. Similarly, the combination of Sur, Laya and Bhāva completes music.

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Concepts in music

There are three main concepts in music: melody, harmony, and rhythm.

Melody

Out of the four primary components in music - melody, harmony, rhythm, and timbre - listeners generally attach most importance to melody. Melody is a sequence of agreeable pitches within a small compass suggestive of the mood of the mind. We use words like ‘tune’ or ‘song’ - both of which have mostly to do with melody - as synonymous for ‘composition’, thus suggesting that we consider ‘melody’ to be the identifying characteristic of a composition. We can alter the harmony, rhythm, or timbre of a composition, and still recognize it as the same piece, but as soon as we change the melody, we usually consider it to be a different composition. Melody is the most powerful and beautiful element of music. For most styles of music, besides lyrics, ‘melody’ is usually the most easily identifiable aspect of a composition, and this melody remains the same from performance to performance.60

Acoustically, a melody may be just a succession of tones; psychologically, a form of emotional response; aesthetically, one of the ways tonal materials are given artistic form; but in the theory of music, melody is something of all of these.61

Melody may be defined as “a succession of sounds that describe, by their varying pitches, a musical curve.”62

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60 Glen Haydon; Introduction to musicology; Prentice- Hall, Inc., New York, 1941; Pg- 159
61 Arthur C. Edwards; The Art of melody; Philosophical Library, Inc., New York, 1956; Pg- xix
62 Andre Hodier, translated by David Noakes; Jazz – Its Evolution and Essence; Grove press, United States of America, 1961; Pg- 143
Introduction to Indian Melody

Melody is the heart and soul of Indian music. It is the only and the most effective medium for representing notes in linear form. Indian music which is popularly known as ‘Melody music’ is mainly vocal oriented. Even instrumentalists prefer to include vocal compositions as an important aspect of their art. Basically, Indian music comes in the category of solo music and is generally presented with the accompaniment of 2 to 3 instruments. Thus, melody is a requirement of such kind of vocal solo music making it important naturally.

Introduction to Jazz Melody

I. In jazz, melody is (1) one of the essential elements of music, along with harmony and rhythm; (2) that part of music which is heard most prominently; (3) a component of music capable of division into smaller fragments, such as periods, phrases, or motifs; and (4) a group or fragments woven into symmetrical patterns. The motif is the smallest melodic entity from which much of the reminder of the music is written or played. (Evelyne Reuter)

Melodic Concepts in Indian music

In Indian music, the main concept of melody is Rāga. Hindustani music is also known as ‘Rāga Sangeet’. Although different times have showcased a number of changes in the form of presentation, they have not indicated a devaluation in the main element – rāga. Rāga is an idea which can be demonstrated by using various styles of presentation. In explaining Rāga, one is strongly tempted to make such simplistic conclusive statements as “A rāga is a scale” or “A rāga is a tune”. But, there is no single western word equivalent to all of the things that “rāga” includes. It can be defined as follows, 'Rāga is the specific scale with definite rules of the route of notes (chalan) and with specific important phrases, including the characteristics: vādi (the most important note of rāga), samvādi (the second important note of rāga), āroh, avaroh, pakad (phrases for identifying the rāga), gāyan samay etc, which in totality creates specific mood.'
Melodic Concepts in Jazz music:

Melodic concepts are very simple:

- Every dissonance or tension must be solved.
- Melody must have a harmonic, regular development.
- One has to vary phrasing.
- Melody is a harmonic balance between tension and rest.

Elements of Melody in Indian Music:

II. The scale and the ‘chalan’ of a rāga; which comprise of specific ‘intervals’ and ‘length of individual notes’, are the principal elements of melody. ‘Rhythmic progression’ is another major element of melody which differs according to gharānā (style) and forms of presentation in Indian Music. The speed and the pitch of the melody are gradually increased in the presentation.

Elements of Melody in Jazz Music:

The two principal elements of melody are the ‘interval’, by virtue of which it generally has some connection with a modal series of tones such as the major or minor scale, and its ‘rhythmic articulation’, which establishes a hierarchy among the sounds by making some longer or more accented than others. In this way is formed the ‘phrase’, which is usually accepted as the basic unit of musical discourse.

Melody in Indian Compositions:

III. There are two types of melody in Indian music. One is pre-composed and the other is extempore. In light music, approximately ninety percent melody is pre-composed whereas in Indian classical music ninety percent of melody is extempore.

IV. Every composition is divided into two parts. The first part is ‘Sthāyi’ which illustrates the theme and the other part is ‘Antarā’ which explores the theme exhibited in ‘Sthāyi’. Both of them complement each other in establishment of the theme, emotion as well as the

Andre Hodier, translated by David Noakes; *Jazz – its Evolution and Essence*; Grove press, United States of America, 1961; Pg- 144
melodic structure. They together give the feeling of completion. That is why the melodic structure should be such which creates the feeling of accomplishment. Sthāyi and antarā are called ‘Dhātu’ (parts of composition). Previously there were four dhātus: sthāyi, antarā, sanchāri and ābhog. But gradually, the last two parts diminished. In every composition, there is only one sthāyi but the antarās can be more than one.

V. Rhythm articulation is also another important aspect of Indian melody. In Indian rhythm there is a ‘Tāl’ system. A Melodic composition is created in a particular Tāl structure. A specific Tāl is chosen for the composition in accordance with its form and theme. There is another very important rhythmic aspect ‘Sam’ in Indian classical music which makes the motif- ‘mukhadā’ attractive. As mentioned above, Indian Classical music includes many relevant aspects but the most important and main aspect is rāga. Particularly in classical music, the melodic structure of a musical composition (bandish) is composed on the basis of the ‘rāga chalan’ - melodic progression of the rāga.

**Melody in Jazz Compositions:**

Two types of phrases exist side by side in jazz, just as in European music, one might be called ‘theme phrase’ and the other ‘variation phrase’. They can hardly be confused, for their rhythmic equilibrium is not the same. The theme phrase is more stripped, less diffused, because it has less ornament than the variation phrase. The latter must be subdivided into two principal types, the ‘paraphrase’ and the ‘chorus phrase’. The first retains definite melodic affinities with the theme phrase from which it springs; the second which is a kind of free variation, gets away from it completely.65

**Use of Melody during performance in Indian Music:**

Similar to jazz, a performance of Indian music devotes more importance to improvising the original composition rather than singing its fixed format. Improvisation causes every performance of the same composition or melodic piece to vary each time.

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65 Andre Hodier, translated by David Noakes; *Jazz – Its Evolution and Essence*; Grove press, United States of America, 1961; Pg. 144
In different forms of Indian music, the progression of the melodic phrases differs. There are mainly two types of forms in Indian music - melodic forms and rhythmic forms. Here, we are going to discuss about the melodic forms.

In Hindustani music, every form of music has a different style of melody, duration and rhythm. We can divide North Indian music into three types: classical, semi-classical and light music. (Here, folk music has been considered as one of the forms of light music.)

Classical music includes the forms: Dhrupad, Dhamār, Khayāl, Tarānā and Tappā. The performance of these forms can vary from 3 - 60 minutes in duration, which spare only 5 – 10 percent of the total time of the performance to the main composition. Rest of the performance includes improvising melody and variation in rhythm pattern with variation in speed - laya. In the different forms of classical music, the improvised portion is identified on the basis of the name given to it in accordance with its quality or character. E.g. in Dhrupad-Dhamār it is recognized as ‘Bol- Upaj’ and in Khayāl ‘ālāp, bol- ālāp, sargam, tān, bol- tān’ etc.

Thumri, Dādra, Kajri, Chaiti, Sāwan, Jhulā etc are considered as the forms of semi-classical music. The performance of these forms lasts for about 10 – 20 minutes, 30 percent of which is given to the composition and the rest includes improvisation. In such forms, the improvising melodic phrases are termed as ‘bol- bānt’ and ‘bol-banāv’, which expands the emotional aspect- bhāva as well as the ‘rāga- mood’.

In light music, there are various compositions such as songs-geet, bhajan, ghazal, etc. They have been named as per their theme of lyrics and style of composition. In such performances, generally one composition lasts for 5 to 10 minutes. Each line of the song is considered to be equally important in the performance. Also, the entire composition is presented in a striking manner, as it helps the audience to connect to the theme of the lyrics of the composition being performed.

In every type of the forms of North Indian music, the whole performance is about exploring the theme. And in these various forms, the style of composition and improvisation differs in expression.
Use of Melody during performance in Jazz Music

In jazz, however, the original melody of a composition may not be the most prominent feature of a performance of that piece. Instead, it is often the improvisation that is the focus of attention, and by definition, the improvisations will vary from performance to performance of the same piece.

A typical performance of a jazz composition may last for ten minutes, of which only two minutes contain the original melody for the composition. This original composed melody, often called the “theme” or “head”, is played once or twice at the beginning and end. It serves mostly to identify the piece being played and to establish a context for the improvisations. While not all jazz performances follow this pattern, a great many of them do.

This does not mean that the rest of a jazz performance has no melody. On the contrary, improvisation is largely about creating new melodies. These improvised melodies, however, will often be distinct from that of the original composition.

Normally, in most styles of jazz, only one musician improvises a melody at a time. This is referred to as ‘taking a solo’. This phrase further emphasizes the importance of the role of melody in jazz: the improvisation is called a solo even though other musicians may be accompanying the soloist. An improvised melody may be a simple variation on the original theme. In this case, the composed melody itself serves directly as a basis for improvisation.

The various ways of relating an improvised melody to the underlying harmony are some of the most important concepts for improvisers in most styles of jazz to master. Melodies may also be improvised without regard to any composed melody or harmonies, however. This is sometimes known as free improvisation.


Ibid.

Ibid.
Characteristics of Melody in Indian Music

The main characteristic of the Indian melody is its inbuilt resolved tension between the notes, its soothing melodic structure and the rāga system.

The classical forms are there to explore the rāga at its fullest. It is believed that the rāgas that had been originated in the ancient time were based on a particular theme and were named accordingly. E.g. ‘Rāga Bhairav’ explains the character of lord ‘Shiva’. ‘Rāga Malhār’ exhibits the beauty of the ‘monsoon season’. ‘Rāga Basant’ is also a ‘Ritupradhān’ rāga.*

One very important and unique concept of Indian music is the time theory. According to the notes and the scales, the ragas are divided into eight prahars in 24 hours (in Hindu Shāstra-scriptures, 1 prahar is equal to 3 hours), four prahars of the day and four prahars of the night. They are:

<table>
<thead>
<tr>
<th>Prahar</th>
<th>Time</th>
<th>Raga</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4 to 7</td>
<td>Sandhiprakāsh</td>
</tr>
<tr>
<td>2</td>
<td>7 to 10</td>
<td>1st prahar</td>
</tr>
<tr>
<td>3</td>
<td>10 to 1</td>
<td>2nd prahar</td>
</tr>
<tr>
<td>4</td>
<td>1 to 4</td>
<td>3rd prahar</td>
</tr>
</tbody>
</table>

All these prahars come twice in 24 hours. Specifically in classical music, rāgas are sung during the time intervals allotted to them. The ragas have also been categorized as morning rāgas, afternoon rāgas, evening rāgas, night rāgas, midnight rāgas, early morning rāgas etc. In light music, time theory is not considered as relevant. Yet, to some extent many artists try to maintain it. For e.g. when the performance of light music is towards the end, many artists perform a composition in rāga ‘Bhairavi’ (as it is considered to be the ending rāga).

Indian music is basically solo-centric music. It is a solo - style music. Even in light music, when a group performance is presented, one or two vocalists and in instrumental music one or two instrumentalists lead the whole performance. And they play it in the solo melodic format.

*A Ritupradhān rāga explains the nature of any particular season with the help of its swaras and is sung at any time during that season.
Melodies are often characteristically different in different forms of music. In classical forms like Khayāl, the main melodic improvisation is done in the form of ālāp. Ālāp is the melodic phrase, which helps to explore the rāga. It doesn’t go exactly beat to beat with rhythm, but it has its own inbuilt laya - tempo. It by itself suggests the progression of melody. It is made up of linear melodic patterns which complement the rāga. After every rhythmic cycle, by using the motif - mukhadā, we have to meet the ‘Sam’- the first beat of the tāl in an attractive manner. With this method of improvisation, ālāp is sung in such a manner that it proceeds towards a higher octave from a lower octave. When words are put into an ālāp, it is called ‘bol-ālāp’. When the abbreviated names Sa, Re, Ga, Ma... of the notes being sung are pronounced, it is called ‘Saragam’. Saragam is a very distinct method in Indian music. During such improvisations, gradually internal laya – tempo increases. After that bol - bānt is performed in which lyrics are put into rhythmic melodic phrases. The last improvising method used is ‘Tān’. It is performed in rhythmic format. Generally, 2, 4 or 8 notes are taken in a single beat. Generally, tān is pronounced in ‘Ākār’, but when articulated by words, it is called ‘Bol-tān’.

In Dhrupad - Dhamār, the ālāps are performed using the meaningless syllables like nom, tom, ri, ta, na tana, etc. Also, layakāris like Dugun (double speed), Tigun (triple speed), Chaugun (quadruple speed) etc are used to explore the style. Sam is an equally important element in such forms.

In Thumri and other similar forms, ālāps are performed mostly by using more words in such a manner that they create a specific mood. Improvised melody amalgamates with the bandish (song) in such a way that many times it seems difficult to differentiate between the improvised and the original phrase of the bandish. Successively, these ālāp follow the rhythm in an abstract manner and are identified as ‘Bol-Bānt’. ‘Laggi’ is a beautiful combination of changing rhythmic patterns along with an increasing tempo. The artist sings or plays in accordance with the rhythmic changes which create a feeling of excitement in the minds of the audience. Laggi is performed while singing the last part of the bandish. Only some bandishes are ended with laggi.

In light music, improvisation is not an important element and therefore the presentation of the whole composition becomes important. Harmony and rhythm accompany it. Harmony is a less developed concept in Indian music, but due to the influence of western music, it has
acquired an important position in Indian light music. Along with the usage of harmony, usage of different tālas makes the composition of light music attractive.

All together, mukhadā- motif and ‘sam’ are very important characters which brighten up Indian melody. Sweetness and serenity in melodic forms, notes representing patterns such as ‘sa re ga, re ga ma...’ popularly known as alankār and notes arranged in a successive order are the main characteristics of Indian melody which function in accordance with the highly attractive concept – rāga or scale. Musicians use unexpected notes in semi – classical and light music to beautify the composition whereas in classical music, purity of rāgas becomes the only and the most powerful means of attaining excellence in the art.

**Characteristics of Jazz Melody**

Jazz is normally instrumental music, and not vocal music. The melodies in jazz performance - whether composed or improvised - are often what most would tag as ‘cannot be sung’ melodies, as they may contain fast runs or wide melodic leaps. The style of jazz known as bebop is especially known for the use of these types of melodies.70

Jazz vocalists do sing these types of melodies, although they often do it without words, especially when improvising. The technique of improvising melodies with nonsense syllables is called scat. Of course, many jazz compositions do have beautiful, song-like melodies. Most jazz ballads fall into this category. Also, there are many compositions that are faster, but on relative basis, are melodically simple.

So it is not complexity alone that identifies a melody as being jazz. Jazz melodies are often based in part on African musical traditions. For instance, jazz uses what are known as blue notes - notes that are flat compared to the corresponding notes in European harmony. These notes have no exact equivalent in standard tuning systems, but the effect is usually approximated by lowering the third and seventh steps of the major scale, and often the fifth as well.71

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70 Ref. - Joachim Berendt; The Jazz Book; New York, Westport, Lawrence hill & company, 1975

71 Ref. - Joachim Berendt; The Jazz Book; New York, Westport, Lawrence hill & company, 1975

- Arthur C. Edwards; The Art of melody; Philosophical Library, Inc., New York, 1956
The use of blue notes entered the jazz vocabulary through a form of music called blues. Another trait that jazz inherited from Africa via the blues is the use of call-and-response patterns and repeated figures known as riffs. In a call-and-response pattern, one musician states a short theme, and then another plays a second theme as if in response to the first.\(^7\)

A riff is a repeated figure that is used as the primary melody or to accompany another melody. Another quality shared by many jazz melodies is that they use syncopation and swing rhythms. \(^7\)

Although the descriptions above do often characterize melodies in jazz, it is not always possible to define precisely what makes a jazz melody. Often it is the other aspects of a performance - the rhythm or harmony, the use of expression, or the presence of improvisation –which identify it as being jazz. Indeed, jazz musicians often take melodies from songs in other styles of music such as classical or pop, and perform "jazz" versions of those compositions, by introducing elements of jazz in other aspects of the performance.\(^7\)

While melody may serve a somewhat different function in jazz than in other forms of music, and the melodies themselves may differ from most pop and classical melodies, it is important to realize that melody - both composed and improvised - is still an integral part of jazz.

**The Essence of Melody in Jazz music: the Blue Scale**

Jazz, which owes most of its harmonic language to European music, is equally indebted to it for its melodic vocabulary. The tonal system and the major and minor modes exist in jazz only because they were borrowed from European art. Melodically and harmonically, jazz offers only one innovation, the blue scale. The only melodic lines that can be recognized as belonging peculiarly to jazz come from it. The theoretician might claim that the blues scale is none other than that of the mode of D, designated by some historians as the Dorian. Actually, the blues scale has quite a different nature. Moreover, it is to be distinguished from

\(^7\)Ref.- Leroy Ostransky; The Anatomy of Jazz; University of Washington Press Seattle, 1960
- Arthur C. Edwards; The Art of melody; Philosophical Library, Inc., New York, 1956

\(^7\)Ref.- Joachim Berendt; The Jazz Book; New York, Westport, Lawrence hill & company, 1975

\(^7\)Ibid.
the Greek mode by the variability of its blue notes. The third and the seventh degrees are lowered or not depending on how open or how disguised an allusion to the major scale is desired. Frequently, blue notes and unaltered examples of the same degrees occur within a single phrase. Sometimes the two are superimposed, and in such cases the blue note’s being a kind of suspended appoggiatura is emphasized.75

The Rhythmic Articulation of the Phrase in Indian music

Indian music is enriched with the ‘Tāl’ system. ‘Tāl’ is that wonderful element of Indian rhythm which organizes music. Binding a composed melody in Tāl makes it sound ordered and beautiful. Tāl gives a syllabic expression to melody. Even un-composed melody is disciplined and bound in a time structure because of the accompanying rhythm instruments.

Āḷāp is an ad-lib expansion of the structure of a rāga which abstractly follows the tempo. Other improvising methods like, bol- bānt, tān etc generate energy and cause the performance to progress in a systematic manner.

The most important and beautiful element of rhythmic expression is ‘Sam’- the first beat, which in every cycle of tāl is the most attractive beat and is emphasized every time it comes. If this one beat is pronounced in the correct manner, it connects the audiences to the performance and adds a very unique flavor to melody. ‘Sam’ is that beat which gives meaning to āḷāp, tān etc - all extempore as well as composed melody.

The Rhythmic Articulation of the Phrase in Jazz

Rhythmic articulation determines the hierarchy of the different notes that make up a melody. In any given melody, no two notes have the same importance. Though they may have the same metrical value, two quarter notes, two half notes, or two whole notes are never absolutely ‘equal’. One of them inevitably is more accented than the other.76

75 Andre Hodier, translated by David Noakes; *Jazz – its Evolution and Essence*; Grove press, United States of America, 1961; Pg- 155

76 Andre Hodier, translated by David Noakes; *Jazz – its Evolution and Essence*, Grove press, United States of America, 1961; pg- 152
Polyrhythmic melody:

Polyrhythm is a basic ingredient of all jazz, it seldom shows itself in mathematically precise patterns. Most jazz melodies exhibit polyrhythmic peculiarities. An underlying feeling of polyrhythmic accent affects their phraseology, and gives it a characteristic stamp. But the naked formula of three superimposed on four is something that is usually implied rather than stated. In the general run of jazz melodies, whether hot or hybrid, polyrhythmic elements are less mathematical, freer and more subtle.\(^77\)

When we examine the latter melody (taken at random from among dozens of similar sweet jazz tunes) we find that it contains unmistakable evidence, in the last eight bars, of polyrhythmic structure.\(^78\)

The musical measure (to repeat an axiom of elementary theory) consists of a number of beats, of which some are stronger than others. In normal time the first is the most powerful, the third is next in order of rank, and the second and the fourth are weaker. If the measure is subdivided into eight-note values a new set of subordinate beats is added. The first and the third beats retain their supremacy, the second and fourth become lesser dignitaries, and the eighths constituting the last half of each beat become the weakest units of the series. The accentual relationship is fundamental to the meter of music as we know it.\(^79\)

Now syncopation, results in the temporary disturbance of this normal order of accentual precedence. Polyrhythm of three over four entails its own particular type of disturbance. If a polyrhythmic cycle of three starts on a strong beat the next cyclical accent will fall on a weak one and a disruption of normal rhythm will result. An important note is heard on the third beat of the first measure, a beat of considerable strength.\(^80\)

The relation between the strong and weak beats of musical meter has always exercised an effect on the contour of European melody. In jazz, because of the importance of syncopated elements, the effect is peculiar and in some ways more pronounced. The jazz musician has a remarkable sense of subdivided and subordinate accents in what he is playing, even though it is the slowest sort of jazz. This awareness of minute component metrical units


\(^{78}\) Ibid; Pg- 66

\(^{79}\) Ibid; Pg- 70

\(^{80}\) Ibid; Pg- 70
shows itself in all sorts of syncopative subtleties that are quite foreign to European music. It is the lack of this awareness in most European ‘classical’ musicians that explains their well-known inability to play jazz in a convincing manner.81

An interesting feature of jazz melody lies in the various expedients used by the player and the jazz composer to intensify the distinction between the strong and weak beats of the measure. The most obvious of these is that of simply accenting the strong beats. Another method of defining the normal metrical accent of the strong beats is through the movement of the melodic contour. A third and very characteristic method is to give strong beats notes of greater, and the weak beats notes of lesser, value. This method, which is characteristic of a vast amount of popular Tin Pan Alley writing, results in a skipping, long-short-long-short rhythm which has been referred to by Don Knowlton under the alluring term ‘umpateedle’.82

Among the other more other peculiarities of jazz melody the distortion of repeated phrases deserves a passing note. This again rests upon the syncopative shifting of corresponding elements from strong to weak beats. There is a large number of jazz melodies in which a somewhat similar type of distortion forms an essential part of the original melodic structure.83

The Instrument’s Effect on the Phrase in Indian music

The vocal chords of a human being, a sheer creation of nature, come with a scope for numerous chances to explore the unimaginable capacity of vocal music. As Indian music is derived from vocal chords, vocal music is considered as the most natural and perfect music. Therefore, the instruments which produce a sound very close to the sound produced by the vocal chords are considered as finest.

Secondly, melody is created by the human mind. In India, it is believed that every tune originates in the mind in the form of vocal music obviously because Indian music is melodic – linear music.

Another aspect is the limitation of instruments in playing detailed ornamentation in melody-which is a distinct quality of Indian music. Although every instrument is blessed with a distinct ability to play details, it has its own scope and limitation.

81 Ibid; Pg-71
83 Ibid; Pg-78
The Instrument’s Effect on the Phrase in Jazz music

A free interpretation of the four-bar unit of construction and rhythmic contrasts are essential elements if the phrase is to have good rhythmic equilibrium. However, this equilibrium is affected by the factors that are in a sense more concrete, notably by the nature of instruments used. (Here is one of the basic differences between European music and jazz. Composers in the European tradition conceive a phrase by itself and then make it fit the requirements of a given instrument.) The jazz improviser creates only in terms of the instrument he plays. In extreme instances of assimilation, the instrument becomes in some way a part of him; under less favorable conditions, his ideas are channeled, if not completely guided, by it. Thus, it is appropriate to consider the relationship between the phrase and the instrument, the latter’s ‘heaviness’ determining the former’s abundance. Putting aside the piano, which naturally has broader rhythmic possibilities than any of the wind instruments, the hierarchy may be said to go from the saxophone, which is the most mobile, to the trombone, the most static, with the clarinet and trumpet in between. Of course, considerations of instrumental technique affect this summary classification. Modern trumpets have a mobility that puts them in the same category as clarinets. Nevertheless, a typical clarinet phrase is more abundant and fluid than a typical trumpet phrase.84

84 Andre Hodier, translated by David Noakes; Jazz – its Evolution and Essence; Grove press, United States of America 1961; Pg– 154
HARMONY

What is Harmony

The term ‘harmony’ derives from the Greek word harmonia, meaning "joint, agreement, concord", from the verb harmozo, “to fit together, to join”. The term was often used for the whole field of music, while "music" referred to the arts in general. In Ancient Greece, the term defined the combination of contrasted elements: a higher and lower note. Nevertheless, it is unclear whether the simultaneous sounding of notes was part of ancient Greek musical practice; "harmonia" may have merely provided a system of classification of the relationships between different pitches. In the middle Ages the term was used to describe two pitches sounding in combination, and in the Renaissance the concept was expanded to denote three pitches sounding together.

‘The combination of musical notes sounded at the same time to produce chord with a pleasing effect’ is what is called harmony. (Origin- Latin ‘harmonia’ which means joining.) In the words of Adam Long "Harmony is the resulting mixture of tones played simultaneously. If melody gives you the idea of the song, then harmony deepens the feel of the song. It breathes life into a song. It colors the song."

Harmony is the use of simultaneous pitches (tones, notes), or chords. The study of harmony involves chords and their construction and chord progressions and the principles of connection that govern them. Harmony is often said to refer to the "vertical" aspect of music, as distinguished from melodic line, or the "horizontal" aspect. Counterpoint, which refers to the interweaving of melodic lines, and polyphony, which refers to the relationship of separate independent voices, is thus sometimes distinguished from harmony.

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86 E-source: Dahlhaus, Car!, "Harmony", Grove Music Online, ed. L. Macy; subscription access- grovemusic.com; retrieved on 24th February 2007
87 Ibid
89 E-source: Malm, William P.; Music Cultures of the Pacific, the Near East, and Asia, Third edition,1996; Pg-15
90 E-source: Dahlhaus, Car!, "Harmony", Grove Music Online, ed. L. Macy; subscription access- grovemusic.com; retrieved on 24th February 2007
Descriptions and definitions of harmony and harmonic practice may show bias towards European (or Western) musical traditions. For example, South Asian art music (Hindustani and Carnatic music) is frequently cited as placing little emphasis on what is perceived in western practice as conventional 'harmony'; the underlying 'harmonic' foundation for most South Asian music is the drone (Tānpurā drone), a held open fifth (or fourth) that does not alter in pitch throughout the course of a composition.² Pitch simultaneity in particular is rarely a major consideration. Nevertheless many other considerations of pitch are relevant to the music, its theory and its structure, such as the complex system of Rāgas, which combines both melodic and modal considerations and codifications within it.³

So although intricate combinations of pitches sounding simultaneously do occur in Indian classical music they are rarely studied as teleological harmonic or contrapuntal progressions, which is the case with notated Western music.

**Harmony in Indian Music**

In earlier times, the phenomenon of chanting of mantras in a group by singers called ‘Ruttvij’, used to create an effect similar to that of harmony. It was neither based on chords nor an idea similar to harmony occurred. It was performed to generate elevated energy. Also, times thereafter have never witnessed any individual development regarding harmonic concept in Indian music.

Shri T. V. Subba Rao has mentioned in his book ‘Studies in Indian Music’ that “harmony is the ultimate basis of all music, Western or Eastern. Melody rests upon a succession of tones each having a certain agreeable relation to the other. When two sounds agree there is a pleasurable sensation. Since repetition of notes of the same measure of agreement produce dullness, varying degrees of concord came to be employed. Any recitation in which notes were differentiated was more pleasing than recitation in single tone. In this experience is to be found the origin of the chant Rigveda with notes commonly termed udātta, anudātta and swarita which in the recitation of Sāmaveda rose to seven notes, five direct and two indirect but nevertheless real. This is one reason that the Indologists attribute the beginnings of all

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² Ref. - E-source: Regula Qureshi; “India, §§1, 2(0): Music and musicians: Art music”, Grove Music Online; ed. L. Macy; subscription access: grovemusic.com retrieved on 16 November 2007
⁴ Ref. - E-source: Catherine Schmidt Jones; ‘Listening to Indian Classical Music’, Connexions, retrieved on 16 November 2007
knowledge to the Vedas. At any rate, so far as classical Indian Music is concerned the origin is to be traced to the Sāmaveda. Apart from mythology that Brahmā derived music from Sāmaveda, it will be found that Sām saptak, the basic scale of Indian music, is a perfect scale of high consonance. It is known to us as Shadja grām, the fountain of classical melodies.\(^94\)

Harmony is intellectual, while melody is purely emotional. It is not, however, to be supposed that Indian melodic music is devoid of the element of harmony which is the source of pleasurable sensation. In Indian music, we find the concept of ‘swara-samvād’. Swara-samvād literally means the samvād (consonance) between two different notes. ‘When the two different notes are played together, the effect can be pleasant or unpleasant.’ This is the base of the theory of swara-samvād. In the history of Indian music, mainly the three combinations of two notes have been considered as the reason of the maker of pleasant sound, that is Shadja – Madhyama(Sa - Ma, 1-4), Shadja – Pancham (Sa - Pa, 1-5) and Shadja – Gandhār (Sa - Ga, 1-3)

Every note, nay every shruti or microtone, is derived from the principle of consonance. Every tone employed in melody has to agree with the tonic either directly or through the fourth or fifth. The twenty-two shruties on which the original scale is based are derived by progression of cycles of fourths and fifths. It is well to remember that notes have value and are interpreted into melody only in relation to the tonic or the fundamental. In this connection the degrees of consonance of notes used in Indian music may be noted. The idea of consonance is not different in Western music. A note sounded with another note of the same pitch is said to be in unison. In Indian terminology this concord is that of the vādi, the same being the case with the octave also. The madhyam and the Pancham, the fourth and the fifth respectively are known as samvādis to each other. Other agreeing notes in the scale though in a lesser degree are termed anuvādis. When the intervals are too large or too acute they are spoken of as vivādis producing discord. Though all the notes of the scale have been derived on the principle of consonance, yet their use in violation of certain recognized sequences constitutes the fault of discord or vivādi dosha. The use of three notes successively which have only a semitonal interval between them, except where the middle of the three notes is either the Shadja or panchama, would offend the rule of concord in melody and result in vivādi dosha. Certain Indian melodies do male use of

\(^{94}\) T. V. Subba Rao; *Study in Indian Music*; Asia Publishing House, Mumbai- 1, 1962; Pg- 04
discordant phrases; but specially contrived devices are employed to overcome or reduce dissonance.

According to Rabindranāth Tāgore, melody and harmony are like lines and colours in painting. A simple linear picture may be completely beautiful, but the introduction of colour may make it vague and prosaic. Yet, colour may, by combination of lines, create great paintings as long as it does not destroy the intrinsic value.95

He further says that “if it (western harmony) can be accommodated in Indian music to meet aesthetic demand, then there is possibly no harm. Harmony in music is something real and genuine. And we would be unwisely obstinate if it is denied that the incompleteness in perfection of Indian music is owing to the absence of harmony.

But it may be pointed out in reply that the absence of harmony does not undermine the magnanimitiy of Indian music; in the contrary, its introduction might cause enough harm in damaging the supreme melodic excellence of Indian rāga music, if and only if the fundamental melodic appeal remains undisturbed, and is in need of being enriched by the introduction of harmony as a compensatory value.” 96

**Jazz Harmony**

In its broadest sense, harmony may be defined as the scientific combination of two or more different sounds. It originated in the early Christian Church, and was the musical counterpart of the congregational attitude of mind, that is, the idea of common public worship. Melody or the employment of various single sounds consecutively, naturally existed before harmony. The art of the Greeks never developed beyond this point. In these early days the art of music was nursed by the Church, and the use of melody only was simply the reflection of the Greek idea of worship, which was the very antithesis of the Christian point of view.

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95 Sengupta Pradipkumar; *Foundation of Indian Musicology*; Abhinav Publications, New Delhi, 1991; Pg- 133,134
96 Ibid; Pg- 134
Obviously the first step in the evolution of harmony is the duplication of some preconceived melody at some other pitch, and this cardinal idea of melodies in combination ruled the methods of musical composition up to the end of the sixteenth century.\footnote{C. H. Kitson; *The Evolution of Harmony, A treatise on the material of musical composition, its gradual growth and elementary use*; Oxford University Press, London, 1924. (2\textsuperscript{nd} edition); Chapter 1- The Principle of Chords}

The harmony of the first ragtime pieces came from polka, the quadrille, and the military march. In all these forms is found the same rudimentary language, centered entirely around the use of two main chords, The tonic and the dominant (‘C major- G seventh’). Little by little this language became richer and more refined. Other degrees of the scale were called into play. The added sixth was inserted to sweeten the major triad, the ninth to go the seventh one better. It wasn’t only pure jazz that followed this evolution, but all kinds of popular music in America.\footnote{Andre Hodier, translated by David Noakes; *Jazz – its Evolution and Essence*; Grove press, United States of America, 1961; Pg – 140, 141}

Jazz’s harmonic language therefore seems largely borrowed, both directly from popular American music and indirectly from the influence of European art on this music. Nevertheless, there can be no question of confusing King Cole’s harmonies with those of Debussy from which they are indirectly derived. The reason is that jazz musicians’ ears are better than their education, and that they often had more feeling than taste. If a new combination of the notes falls pleasantly enough on the ear, it has every chance of being adopted by them and of outliving several generations harmonic ‘Innovators’.\footnote{Ibid; Pg –141}

On the contrary, the real good European composer will not write a harmony that ‘caresses’ the ear. He will reject such shoddy wares just as the good painter would voluntarily do without certain easy effects. It is partly for this reason that the greatness of jazz is still contested by many musicians of classical training who, though attentive and open minded, cannot help being annoyed and irritated by these harmonic weaknesses.

\textit{Jazz Scales}

\textbf{Modes Derived From the Major Scale:}

Most chords and modes can be derived from the either the \textbf{major scale} or the \textbf{melodic scale}.
**minor mode.** (Note: In jazz often the terms scale and mode are used interchangeably. However, standard music analysis calls the major scale a scale, while all sequence of pitches that can be derived from the scale, including the minor mode, are not called scales but modes. All others pitch sequences such as whole tone, diminished and blues scales are called scales.

To build modes from the major scale, one has to simply start on a note of the scale other than the tonic and to go up to the octave above using the notes of one’s original major scale. For example, using the C major scale, one has to start on the second note of the scale (D) and to go up to an octave above using the notes of the C major scale. Now, a D scale has been built with the notes D, E, F, G, A, B, C, and D. Whenever one starts a scale from the second note of any major scale the scale is called a Dorian mode. In the key of C major the scale is called a D Dorian mode because D is the starting note and because it uses the notes that are in the key of C major.

**Understanding of Indian scales in relation to jazz scales and modes**

In the ancient time, Indian music had the concept Grām- Murchhanā. Grām means the group of seven notes in sequence, which can be referred to as scale and Murchhanā is the same as mode. The placement of all the seven notes was different in that time. Therefore, the distance between two notes was different. Also the distance between each two notes was not the same. The arrangement of major scale – Shadjagrām was Sa to Sa, where the distance of the gradual notes was ‘4, 3, 2, 4, 4, 3, 2’ microtones (Shruti). Similar to the derivation of the modes of jazz music, by changing the tonic, total seven Murchhanās had been derived from Shadjagrām.

In modern theory, the concept of Grām- Murchhanā has been replaced by the concept of ‘thāT’ and the Shruti system, by equally tempered scale. This modern thāT system was created by Pt. Vishnu Nārāyan Bhātkhande in the early decades of the twentieth century. Bhātkhande modeled his system after the Carnatic melkartā classification, devised around 1640 A.D. by the musicologist Venkatmakhin. Bhātkhande visited many of the gharānās (schools) of North Indian classical music, conducting a detailed analysis of Indian rāga. His research led him to a system of ten thāTs, each named after a prominent rāga associated with it. The ten thāts are ‘Bilāwal, Kalyān, Khamāj, Bhairav, Poorvi, Mārwā, Kāfi, Āsāvari, Todi and Bhairavi’.
<table>
<thead>
<tr>
<th>Name</th>
<th>In Indian Notes</th>
<th>In Staff notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bilāwal</td>
<td>S R G M P D N S'</td>
<td><img src="image" alt="Staff notation for Bilāwal" /></td>
</tr>
<tr>
<td>2. Kalyān</td>
<td>S R G m P D N S'</td>
<td><img src="image" alt="Staff notation for Kalyān" /></td>
</tr>
<tr>
<td>3. Khamāj</td>
<td>S R G M P D n S'</td>
<td><img src="image" alt="Staff notation for Khamāj" /></td>
</tr>
<tr>
<td>4. Bhairav</td>
<td>S r G M P d N S'</td>
<td><img src="image" alt="Staff notation for Bhairav" /></td>
</tr>
<tr>
<td>5. Poorvi</td>
<td>S r G m P d N S'</td>
<td><img src="image" alt="Staff notation for Poorvi" /></td>
</tr>
<tr>
<td>6. Mārwā</td>
<td>S r G m P D N S'</td>
<td><img src="image" alt="Staff notation for Mārwā" /></td>
</tr>
<tr>
<td>7. Kāfi</td>
<td>S R g M P D n S'</td>
<td><img src="image" alt="Staff notation for Kāfi" /></td>
</tr>
<tr>
<td>8. Āsāvari</td>
<td>S R g M P d n S'</td>
<td><img src="image" alt="Staff notation for Āsāvari" /></td>
</tr>
<tr>
<td>9. Bhairavi</td>
<td>S r g M P d n S'</td>
<td><img src="image" alt="Staff notation for Bhairavi" /></td>
</tr>
<tr>
<td>10. Todi</td>
<td>S r g m P d N S'</td>
<td><img src="image" alt="Staff notation for Todi" /></td>
</tr>
</tbody>
</table>
Jazz Modes

Each degree of the major scale has a mode associated with it. The major/minor scale system of Western music draws upon the music theories of the ancient Greeks, and as a result many elements of music theory still use Greek names, including the modes. The mode built from the second degree of the major scale is called the dorian mode. The mode built from the third degree of the major scale is called the phrygian mode. The mode built from the fourth degree is called the lydian mode, the fifth the mixolydian mode, the sixth the aeolian mode (also the natural minor), and the seventh locrian mode. The series from C to C has a name too; the ionian mode, but most musicians are more familiar with it as the major scale.

So, from the key of C major we can build:

<table>
<thead>
<tr>
<th>Name of modes</th>
<th>Notes</th>
<th>Notes in Indian Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>C major (ionian)</td>
<td>C D E F G A B C</td>
<td>S R G M P D N S'</td>
</tr>
<tr>
<td>D dorian</td>
<td>D E F G A B C D</td>
<td>S R g M P D n S'</td>
</tr>
<tr>
<td>E Phrygian</td>
<td>E F G A B C D E</td>
<td>S r g M P d n S'</td>
</tr>
<tr>
<td>F Lydian</td>
<td>F G A B C D E F</td>
<td>S R G m P D N S'</td>
</tr>
<tr>
<td>G mixolydian</td>
<td>G A B C D E F G</td>
<td>S R G M P D n S'</td>
</tr>
<tr>
<td>A Aeolian</td>
<td>A B C D E F G A</td>
<td>S R g M P d n S'</td>
</tr>
<tr>
<td>B locrian</td>
<td>B C D E F G A B</td>
<td>S r g M m d n S'</td>
</tr>
</tbody>
</table>

(Here, in every mode, we consider the tonic as 'Sa')

In the Indian concept, keys are not named (as in western/jazz concepts they are named as C, D, E, F...), but the notes are named as per their distance from the tonic Sa.
## Name of the Jazz modes in Indian Classical music

<table>
<thead>
<tr>
<th>Jazz Modes</th>
<th>Indian Thāt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major (ionian)</td>
<td>Bilāwal</td>
</tr>
<tr>
<td>Dorian</td>
<td>Kāfi</td>
</tr>
<tr>
<td>Phrygian</td>
<td>Bhairavi</td>
</tr>
<tr>
<td>Lydian</td>
<td>Kalyān</td>
</tr>
<tr>
<td>Mixolydian</td>
<td>Khamāj</td>
</tr>
<tr>
<td>Aeolian</td>
<td>Asāvari</td>
</tr>
<tr>
<td>Locrian</td>
<td>No thāt (2 Madhyams)</td>
</tr>
</tbody>
</table>

Each mode has a particular pattern of half steps (h) and whole steps (W) which defines its sound.

<table>
<thead>
<tr>
<th>Mode</th>
<th>1-2</th>
<th>2-3</th>
<th>3-4</th>
<th>4-5</th>
<th>5-6</th>
<th>6-7</th>
<th>7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>W</td>
<td>W</td>
<td>h</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>H</td>
</tr>
<tr>
<td>Dorian</td>
<td>W</td>
<td>h</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>h</td>
<td>W</td>
</tr>
<tr>
<td>Phrygian</td>
<td>h</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>H</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>Lydian</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>h</td>
<td>W</td>
<td>W</td>
<td>H</td>
</tr>
<tr>
<td>Mixolydian</td>
<td>W</td>
<td>W</td>
<td>h</td>
<td>W</td>
<td>W</td>
<td>h</td>
<td>W</td>
</tr>
<tr>
<td>Aeolian</td>
<td>W</td>
<td>h</td>
<td>W</td>
<td>W</td>
<td>H</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>Locrian</td>
<td>h</td>
<td>W</td>
<td>W</td>
<td>h</td>
<td>W</td>
<td>W</td>
<td>W</td>
</tr>
</tbody>
</table>

As we move upwards through the sequence of modes, the location of the half steps shifts down-wards each time.
For the beginning improviser the most important modes to start with are the dorian, mixolydian and major modes. These modes provide the notes for the most common progression in jazz; the II – V – I. Learning the dorian, mixolydian modes and the major scale in all twelve keys combined with the blues scale in all keys will allow you to find a workable solution (workable but not necessarily the ideal solution) for playing over the majority of jazz standards. Eventually, simplified methods become limited and usage of individual modes become necessary.

One thing that makes learning these three modes easier is that the parallel (parallel meaning starting with the same root such as C major, C dorian and C mixolydian) modes differ from each other by only one note. For example, if we take the C major scale and lower the seventh degree to a Bb, we have the C mixolydian. If we now lower the third to an Eb, we now have the C dorian. See the scale chart section for more information.

The aeolian mode is the natural minor that is related to the original major scale. This mode is an option whenever we have a tonic minor. The locrian mode is particularly important when you are playing in minor keys because the locrian is frequently used with the II chord in the II – V – I in minor mode. The lydian mode is often used as an alternative for the major scale because the only difference is the raised fourth degree which adds colour to the major sound and eliminates the perfect fourth degree which is an “avoid” note in the major scale. The phrygian mode is occasionally, but not frequently used. When it is used, it is often intended to impart a Spanish flavor to the music.

Modes Derived from the Minor Mode:

The same approach is used to build modes from the melodic minor mode. In standard music theory the melodic minor mode has two different forms where the sixth and seventh degrees are raised in the ascending form and lowered in the descending form. In jazz theory the melodic minor is always the ascending form only. It is sometimes referred to as the “jazz minor”.

We can also think of the minor mode as the major mode with a lowered third degree. Since the ascending melodic minor or jazz minor has the raised sixth and seventh degrees (F# and G# in A minor), the only remaining difference between the parallel major and minor is the third degree which is an E in A major and an Eb in A minor.
From the key of C minor the resulting modes are:

<table>
<thead>
<tr>
<th>Name of modes</th>
<th>Notes</th>
<th>Notes in Indian Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>C melodic minor</td>
<td>C D Eb F G A B C</td>
<td>S R g M P D N S'</td>
</tr>
<tr>
<td>D phrygian #6</td>
<td>D Eb F G A B C D</td>
<td>S r g M P D n S'</td>
</tr>
<tr>
<td>Eb lydian augmented</td>
<td>Eb F G A B C D E</td>
<td>S R G m d D n S'</td>
</tr>
<tr>
<td>F lydian dominant</td>
<td>F G A B C D E F</td>
<td>S R G m P D n S'</td>
</tr>
<tr>
<td>G minor dominant</td>
<td>G A B C D Eb F G</td>
<td>S R G M P d n S'</td>
</tr>
<tr>
<td>A locrian #2</td>
<td>A B C D Eb F G A</td>
<td>S R g M m d n S'</td>
</tr>
<tr>
<td>B superlocrian</td>
<td>B C D Eb F G A B</td>
<td>S r g G m d n S'</td>
</tr>
</tbody>
</table>

Each mode has a particular pattern of half steps (h) and whole steps (W) which defines its sound.

<table>
<thead>
<tr>
<th>Mode</th>
<th>1-2</th>
<th>2-3</th>
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<th>5-6</th>
<th>6-7</th>
<th>7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melodic minor</td>
<td>W h</td>
<td>W W</td>
<td>W W</td>
<td>W W</td>
<td>H</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phrygian #6</td>
<td>h</td>
<td>W W</td>
<td>W W</td>
<td>W h</td>
<td>W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lydian Augmented</td>
<td>W W</td>
<td>W W</td>
<td>W h</td>
<td>W H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lydian Dominant</td>
<td>W W</td>
<td>W h</td>
<td>W h</td>
<td>W h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor Dominant</td>
<td>W W</td>
<td>h W</td>
<td>W H</td>
<td>W W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locrian #2</td>
<td>W h</td>
<td>W h</td>
<td>W W</td>
<td>W W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superlocrian</td>
<td>h h</td>
<td>W W</td>
<td>W W</td>
<td>W W</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Melodic minor mode:** S R g M P D N S'

There is no Thāt in Hindustani music (under considered 10 thāts') which is similar to the modes derived from the minor modes, but there are some rāgas which follow the similar scale of melodic modes.

Also available for use is the harmonic minor with its lowered sixth and raised seventh
degrees. This creates an augmented (amplified or improved) second (minor third) between the sixth and seventh degrees.

<table>
<thead>
<tr>
<th></th>
<th>1-2</th>
<th>2-3</th>
<th>3-4</th>
<th>4-5</th>
<th>5-6</th>
<th>6-7</th>
<th>7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>C Harmonic minor</td>
<td>W</td>
<td>H</td>
<td>W</td>
<td>W</td>
<td>h</td>
<td>m3</td>
<td>h</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>D</td>
<td>Eb</td>
<td>F</td>
<td>G</td>
<td>Ab</td>
<td>B</td>
</tr>
<tr>
<td>Indian Notes</td>
<td>S</td>
<td>R</td>
<td>G</td>
<td>M</td>
<td>P</td>
<td>D</td>
<td>N</td>
</tr>
</tbody>
</table>

(Here, ‘m3’ means minor third)

The harmonic minor and the melodic minor are so named because in standard music theory the harmonic version of the mode supplies the notes that are to be used when writing harmonies in minor keys while the melodic minor, with its ascending and descending versions, is used in melodic lines. For example in C minor, a G chord would have G, B and D, an F chord would have F, Ab and C, while the melodic lines would use A and B when ascending and Ab and Bb when descending.

In jazz, the melodic minor, dorian mode, aeolian (natural minor) and harmonic minor are all available for use as tonic minor scales, with the dorian and melodic minor being the most frequent choices.

When we play over a II – V – I progression in a major key, all of the pitches for the standard modes to use come from one major scale. This is not the case in minor modes. One of the difficulties in learning to play in minor mode is that the most common modes for the II and V in minor mode are not the ones that automatically come from the corresponding minor mode.

<table>
<thead>
<tr>
<th>chord</th>
<th>Mode</th>
<th>notes of modes in C minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>D locrian</td>
<td>D  Eb  F  G  Ab  Bb  C</td>
</tr>
<tr>
<td>V</td>
<td>G superlocrian</td>
<td>G  Ab  Bb  B  C#  Eb  F</td>
</tr>
<tr>
<td>I</td>
<td>C melodic minor</td>
<td>C  D  Eb  F  G  A  B</td>
</tr>
<tr>
<td></td>
<td>C dorian</td>
<td>C  D  Eb  F  G  A  Bb</td>
</tr>
</tbody>
</table>

So the pitches used in the modes are not all from the same key as they are when you play a II – V – I in major keys.
<table>
<thead>
<tr>
<th>chord</th>
<th>Mode</th>
<th>notes reordered to compare with C minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>D locrian</td>
<td>C D Eb F G Ab Bb</td>
</tr>
<tr>
<td>V</td>
<td>G superlocrian</td>
<td>C# Eb F G Ab Bb B</td>
</tr>
<tr>
<td>I</td>
<td>C melodic minor</td>
<td>C D Eb F G A B</td>
</tr>
<tr>
<td></td>
<td>C dorian</td>
<td>C D Eb F G A Bb</td>
</tr>
</tbody>
</table>

Particularly notable is the fact that the superlocrian does not include the tonic (C) of the following tonic minor but instead has a half step below and above.

**Scales:**

The following scales are not derived from major or minor scales.

**Blues Scale:**

The blues scale is not a mode of either the major or minor scales. It is the easiest scale for beginning improvisers to work with. Like the pentatonic scales of oriental music or other ethnic scales it is a folk music scale that is not derived from the Western European common practice theory of major and minor keys. It has, however, been merged with major/minor tonal concepts.

<table>
<thead>
<tr>
<th>C Blues scale</th>
<th>m3</th>
<th>M2</th>
<th>m2</th>
<th>m2</th>
<th>m3</th>
<th>M2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C</td>
<td>Eb</td>
<td>F</td>
<td>F#</td>
<td>G</td>
<td>Bb</td>
</tr>
<tr>
<td>Indian Notes</td>
<td>S</td>
<td>G</td>
<td>M</td>
<td>m</td>
<td>P</td>
<td>n</td>
</tr>
</tbody>
</table>

(Here, ‘m3’ means minor third and ‘M2’ means major second)

Note the chromatic step-wise sequence from the perfect fourth through the tritone to the perfect fifth, the minor seventh degree, the minor third and the absence of a second degree to the scale. All notes sound good, and there are no “avoid” notes in the scale.
The standard chord for the blues scale is the dominant seventh chord, or C7 for the C blues. Note the difference between major third (E) in the chord and the minor third (Eb) in the scale. This contrast is one of the most characteristic elements of the blue scale when it is used in jazz. Pitch-wise, the blue third should actually lie somewhere in between the minor and major third which is something to keep in mind if you are a singer or a fretless stringed instrument player.

It is notable that the C7 chord with the C blue scale does not need to resolve to an F chord but functions as a tonal center itself.

It is also possible to add a major second to the scale, or to add a major third while keeping the minor third. On the other hand in a more rock-oriented situation the tritone might need to be omitted from the scale. The appropriateness of these changes depends on the musical context. In a minor key the blues will use a m7 chord instead of a 7 chord.

**Symmetrical Scales:**

Symmetrical scales are scales that have a pattern that repeats within the octave.

The most essential of the symmetrical scales is the chromatic scale. Presumably one already understands its construction, and the point of mentioning it here is note that one way of approaching any improvisation is to use only the chromatic scale; the key is how each note is used. Over any given chord any chromatic note will be either a chord tone or a passing tone between chord tones or between other passing tones.

Its construction is:

```
C   C#  D   D#  E   F   F#  G   G#  A   A#  B
```

One can view each chromatic note in terms of its tension and color relative to the chord. For example, over a G7 the note E has a certain color which is very different from the color and tension level of the Eb. The color and tension will also change depending on how the note is used. The Eb may want to lead to E, or down to D, or it may anticipate an F# Æ7 in the next measure, or it may be part of a Ebm chord superimposed that is superimposed over the G7, or it may be part of a sequential melodic pattern that is being carried over the G7 chord, or it may simply sit against the G7 chord.
Whole-Tone Scale:

By using every second note of the chromatic scale, a whole-tone scale will be created. For example, the C Whole Tone scale is as follows:

<table>
<thead>
<tr>
<th></th>
<th>1-2</th>
<th>2-3</th>
<th>3-4</th>
<th>4-5</th>
<th>5-6</th>
<th>6-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>C Whole Tone</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F#</td>
<td>Ab</td>
<td>Bb</td>
<td>C</td>
</tr>
<tr>
<td>Indian Notes</td>
<td>S</td>
<td>R</td>
<td>G</td>
<td>m</td>
<td>d</td>
<td>n</td>
</tr>
</tbody>
</table>

Note that there are only 7 notes or 6 different pitches in the scale; after reaching the seventh note, one reaches to the octave.

Another interesting thing about the whole tone scale is that it contains the interval of only two semitones. Transpose the scale up one half step and you create the other whole tone scale:

Db  Eb  F  G  A  B  Db

Now transpose the scale one more half step to start on D:

D  E  F#  Ab  Bb  C  D

And the same notes are there in the C whole tone scale. D is now the root instead of C, and F# is the third instead of E, but the notes in the scale are the same.

The whole tone scale lacks a leading tone anywhere in the scale (i.e. the note a half step below the tonic, B in the key of C, or E in a C mixolydian mode) and does not have a perfect fifth above the root (a G above the C) which would increase the stability of the C as the root. It also has a very open, homogenous sound because of the whole steps. These all are reasons why the whole tone scale can sound as if there is no root or as if any of the notes could be the root. This can be an advantage when playing impressionistically or for modulating to remote keys.
**Diminished Scale:**

The diminished scale uses a sequence of a whole step followed by a half step repeated four times within each octave. For example, to go from C to C:

<table>
<thead>
<tr>
<th>Diminished</th>
<th>1-2</th>
<th>2-3</th>
<th>3-4</th>
<th>4-5</th>
<th>5-6</th>
<th>6-7</th>
<th>7-8</th>
<th>8-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>D</td>
<td>Eb</td>
<td>F</td>
<td>Gb</td>
<td>Ab</td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Indian Notes</td>
<td>S</td>
<td>R</td>
<td>G</td>
<td>M</td>
<td>M</td>
<td>d</td>
<td>D</td>
<td>N</td>
</tr>
</tbody>
</table>

It is notable that there are 8 different notes in the scale, 9 notes to the octave. Because there are only 7 different letter names for notes (A, B, C, D, E, F, G), one letter name always gets used twice (in the preceding example there is an A and an Ab). The reason that there are 9 notes to the octave is that there are four half steps and four whole steps in the scale whereas the major scale has only two half and five whole steps.

The chord tones for this scale are a minor third apart (C, Eb, Gb, A), spelling out a diminished chord. Another way of creating this scale is to superimpose two diminished chords. In other words, take a Co7 (C diminished 7) chord, superimpose a Do7 (D diminished 7) (D, F, Ab, B) chord and the notes are found for the diminished scale.

Because the pattern repeats every minor third, there are only three different diminished scales:

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>D</td>
<td>Eb</td>
<td>F</td>
<td>Gb</td>
<td>Ab</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Db</td>
<td>Eb</td>
<td>E</td>
<td>F#</td>
<td>G</td>
<td>A</td>
<td>Bb</td>
<td>C</td>
</tr>
<tr>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td>Ab</td>
<td>Bb</td>
<td>B</td>
<td>C#</td>
</tr>
<tr>
<td>Eb</td>
<td>F</td>
<td>Gb</td>
<td>Ab</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

In the Eb diminished scale the pitches are the same as those in the C diminished scale.
Half-Whole Diminished Scale:

If one starts the diminished scale with the half step first and then the whole step you get a different diminished scale. Now the scale has a minor seventh instead of a major seventh, and the fourth pitch of the scale is a diminished fourth or a major third above the root. Because it includes a minor seventh and a major third, this scale will now work well within the family of dominant harmonies and scales.

This scale is called the Half-Whole Diminished (or 8 Note Dominant) because it starts with a half step followed by a whole step, whereas the usual diminished scale starts with a whole step followed by a half step.

<table>
<thead>
<tr>
<th></th>
<th>1-2</th>
<th>2-3</th>
<th>3-4</th>
<th>4-5</th>
<th>5-6</th>
<th>6-7</th>
<th>7-8</th>
<th>8-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half-Whole Diminished</td>
<td>h</td>
<td>W</td>
<td>h</td>
<td>W</td>
<td>h</td>
<td>W</td>
<td>h</td>
<td>W</td>
</tr>
</tbody>
</table>

The other method for building the scale is to start on the second note of the diminished scale. In other words, the half-whole diminished is the second mode of the diminished scale, just like the Dorian is the second mode of the major scale.

Note how the second and third pitches of the scales are notated in the chart below.

<table>
<thead>
<tr>
<th>R</th>
<th>b2</th>
<th>#2</th>
<th>M3</th>
<th>#4</th>
<th>P5</th>
<th>M6</th>
<th>m7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Eb</td>
<td>E#</td>
<td>F#</td>
<td>G#</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Eb</td>
<td>E</td>
<td>F#</td>
<td>G</td>
<td>A</td>
<td>Bb</td>
<td>C</td>
<td>Db</td>
<td>Eb</td>
</tr>
<tr>
<td>E</td>
<td>F</td>
<td>G</td>
<td>G#</td>
<td>A#</td>
<td>B</td>
<td>C#</td>
<td>D</td>
<td>E</td>
</tr>
</tbody>
</table>

The F## is not easy to work with while practicing the scales but it is accurate from a theoretical standpoint. In jazz theory the flatted ninth and the raised ninth can replace the
major ninth in dominant chords, and often both are used at the same time. The half-whole diminished scale consists of a root, flatted ninth, raised ninth, major third, raised fourth (or eleventh), perfect fifth, major sixth and minor seventh.

However, the harmonic implications of the pitches are not symmetrical like they are with the diminished scale. The chord tones are not the first, third, fifth and seventh notes of the scale like they in the diminished scale, but instead are the first (root), fourth (major third), sixth (perfect fifth) and eighth (minor seventh) notes of the scale along with the flatted and raised ninths.

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>M3</th>
<th>#4</th>
<th></th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>C Half-Whole Diminished</td>
<td>C</td>
<td>Db</td>
<td>Eb</td>
<td>E</td>
<td>F#</td>
</tr>
<tr>
<td>C Superlocrian</td>
<td>C</td>
<td>Db</td>
<td>Eb</td>
<td>E</td>
<td>F#</td>
</tr>
<tr>
<td>C Whole Tone</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>E</td>
<td>F#</td>
</tr>
</tbody>
</table>

(Here, ‘R’ means root note, ‘M3’ means major third, ‘#4’ means raised fourth note, ‘8’ means the eighth note)

This is why the superlocrian mode is also called the Diminished Whole Tone Scale; it starts like the half-whole diminished scale, then to the whole tone scale after the overlap on the major third and augmented fourth. Alternatively, another way to build the superlocrian mode is to use the whole tone scale, omit the second degree and replace it with the raised and lowered ninths.

**Bebop Scales:**

Bebop scales are scales with an added passing tone.

The dominant bebop scale adds a major seventh to the mixolydian mode. The result is that there is a non-chord tone between each chord tone and an even sequence of chord tones and non-chord tones throughout the scale no matter where one starts in the scale.
The major bebop scale adds a note between the fifth and the sixth degrees of the major scale.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major bebop</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td>G#</td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

The minor bebop scale adds a major third between the minor third and the perfect fourth, adding a major quality to the sound of the scale.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor bebop</td>
<td>C</td>
<td>D</td>
<td>Eb</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

The reason for the added note is to have 8 notes in each scale so that it is easy to create a line that consists of a steady stream of eighth notes or sixteenth notes.
**Chord / Scale Families**

**Key Characteristics:**

There are some basic groups or families of chords and modes. Each family has an essential sound which is determined primarily by the key characteristic pitches of each. Each of the chords and modes that belong to each family have in them the key characteristics that defines the family.

The value of grouping into families is that often these chords and modes are interchangeable within the family. For example, when given a Maj7 chord the first choice would be to use a major scale. However, one can often substitute a Lydian mode and have a slightly different flavor of the sound to work with.

<table>
<thead>
<tr>
<th>Family</th>
<th>Key pitches</th>
<th>Chords</th>
<th>Scales/modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>M3 and M7</td>
<td>Maj, Maj7, Maj6, Maj9</td>
<td>major, lydian, lydian augmented</td>
</tr>
<tr>
<td></td>
<td></td>
<td>as above with #11</td>
<td>lydian, lydian augmented</td>
</tr>
<tr>
<td>Dominant</td>
<td>M3 and m7</td>
<td>7, 9 13, 7b9, 7#9, 7#9#5</td>
<td>mixolydian, lydian dominant, superlocrian, half-whole diminished, whole tone, 7#11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>lydian dominant, whole tone, lydian dominant</td>
</tr>
<tr>
<td>Minor</td>
<td>m3 and P5</td>
<td>m, m7, m6</td>
<td>dorian, aeolian, phrygian</td>
</tr>
<tr>
<td></td>
<td></td>
<td>m, m6, mMaj7</td>
<td>melodic minor, harmonic minor</td>
</tr>
<tr>
<td>Half-diminished</td>
<td>m3 and o5</td>
<td>7</td>
<td>locrian, locrian #2</td>
</tr>
<tr>
<td>Diminished</td>
<td>o5 and o7</td>
<td>o7</td>
<td>Diminished</td>
</tr>
<tr>
<td>Whole tone</td>
<td>M3 and #5</td>
<td>7#5</td>
<td>whole tone</td>
</tr>
</tbody>
</table>

The key or characteristic notes of each family are the strongest and the best notes to use in a melody or a solo if one wants to identify the underlying chord. That is not meant to suggest that one should use these notes prominently all the time but rather that one should be aware that these notes will fit most strongly when one uses them.
The characteristic notes of the dominant family are a tritone apart. The interesting thing about that is that the inversion of a tritone is still a tritone, which means that the dominant chord a tritone from the original chord will have the same characteristic notes. For example the characteristic notes of a G7 chord are B and F and the characteristic notes of Db7 are F and Cb or B. This is the reason that the tritone substitution, one of the most common chord substitutions in jazz, works as well as it does.

Dominant chords by nature are tension chords, traditionally seeking resolution from the tension to the tonic major or minor. The musical language of jazz, however, accepts more dissonance than common practice harmony and in a jazz context the dominant chords do not always resolve. Still, because the dominant family is by nature a tension sound it supports more alterations and substitutions than the other families of chords. Ninths in a dominant chord and scale can be lowered or raised or both, elevenths can be raised, and even the fifth can be raised or raised and lowered at the same time, as long as the characteristic major third and minor sevenths remain present.

The other families do not accept as many alterations although 4th's can be raised in major scales and 7th's can be raised in minor chords and scales. Since the 4th degree of a scale or mode is not a chord tone, if a mode with a raised 4th is specifically desired by the composer the chord will often be notated with#11 and/or there will be a #4th degree in the melody.100*

100 Ref.- C. H. Kitson; The Evolution of Harmony, A treatise on the material of musical composition, its gradual growth and elementary use; Oxford University Press, London, 1924.(2nd edition)

* (whole topic of Jazz Scales has been taken from C. H. Kitson; The Evolution of Harmony, A treatise on the material of musical composition, its gradual growth and elementary use; Oxford University Press, London, 1924.(2nd edition)
Jazz chords

C major scale:

<table>
<thead>
<tr>
<th>C Major Scale</th>
<th>C D E F G A B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td></td>
<td>S R G M P D N</td>
</tr>
</tbody>
</table>

Triads:

A triad is a chord with 3 notes, where the name of a chord for the first note is the root.

All chords are based on thirds and there are 2 kinds of thirds (or 3rds):

<table>
<thead>
<tr>
<th>minor third</th>
<th>interval of 3 half notes</th>
<th>symbol : b3</th>
</tr>
</thead>
<tbody>
<tr>
<td>major third</td>
<td>interval of 4 half notes</td>
<td>symbol : 3</td>
</tr>
</tbody>
</table>

Here, by stacking 2 thirds on the first note (1) of the C major scale, the resultant is a C major triad or C. From C to E is a major third and from E to G a minor third: every major chord has this structure.

<table>
<thead>
<tr>
<th>C E G</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 3 5</td>
</tr>
<tr>
<td>S G P</td>
</tr>
</tbody>
</table>

Chord formula for major chords: 1 3 5 (S G P)
Again by stacking 2 thirds on the second note (2) of the C major scale, the result is a D minor triad or Dm. From D to F is a minor third and from F to A is a major third: every minor chord has this structure.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>F</td>
<td>A</td>
</tr>
<tr>
<td>1</td>
<td>b3</td>
<td>5</td>
</tr>
</tbody>
</table>

**Chord formula for minor chords: 1  b3  5 (S  g  P)**

Here, by stacking the third on the seventh note (7) of the C major scale, the result is a B diminished triad or Bdim. From B to D is a minor third and from D to F is also a minor third: every diminished triad chord has this structure. (Some notes are skipped due to revision.)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>D</td>
<td>F</td>
</tr>
<tr>
<td>1</td>
<td>b3</td>
<td>b5</td>
</tr>
</tbody>
</table>

**Chord formula for diminished chords: 1  b3  b5 (S  g  m)**

**Summary of the triads of the C major scale:**

<table>
<thead>
<tr>
<th>Notes</th>
<th>Formula</th>
<th>Indian notes</th>
<th>Chord Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 C E G</td>
<td>1 3 5</td>
<td>S G P</td>
<td>C major</td>
<td>C</td>
</tr>
<tr>
<td>2 D F A</td>
<td>1 b3 5</td>
<td>S g P</td>
<td>D minor</td>
<td>Dm or D- or Dmin</td>
</tr>
<tr>
<td>3 E G B</td>
<td>1 b3 5</td>
<td>S g P</td>
<td>E minor</td>
<td>Em or E- or Emin</td>
</tr>
<tr>
<td>4 F A C</td>
<td>1 3 5</td>
<td>S G P</td>
<td>F major</td>
<td>F</td>
</tr>
</tbody>
</table>
Seventh Chords:

A seventh chord is a chord with 4 or more notes. The construction of seventh chords follows the same principle as the construction of triads: stacking 3rds on top of each other. Triads are made by stacking 2 thirds on top of the root. Seventh chords are constructed by stacking 3 thirds on top of the root.

Here, by stacking 3 thirds on the first note (1) of the C major scale, the result is a C major 7 chord or Cmaj7. From C to E is a major third, from E to G is a minor third and from G to B is a major third: every major 7 chord has this structure.

<table>
<thead>
<tr>
<th>C</th>
<th>E</th>
<th>G</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>S</td>
<td>G</td>
<td>P</td>
<td>N</td>
</tr>
</tbody>
</table>

Chord formula for major 7 chords: \(1\ 3\ 5\ 7\) (S G P N)

Again by stacking 3 thirds on the second note (2) of the C major scale, the result is a D minor chord or Dmin7. From D to F is a minor third and from A to C is a minor third: every minor 7 chord has this structure.

<table>
<thead>
<tr>
<th>D</th>
<th>F</th>
<th>C</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>b3</td>
<td>5</td>
<td>b7</td>
</tr>
<tr>
<td>S</td>
<td>g</td>
<td>P</td>
<td>n</td>
</tr>
</tbody>
</table>
Here, by stacking 3 thirds on top of the fifth (5) note of the C major scale; the result is a Gdominant7 chord or G7. From G to B is a major third and from D to F is a minor third: every dominant 7 chord has this structure. (Some notes are skipped due to revision.)

<table>
<thead>
<tr>
<th>G B D F</th>
<th>1 3 5 b7</th>
<th>S G P n</th>
</tr>
</thead>
</table>

Here, by stacking 3 thirds on top of the seventh (7) note of the C major scale, the result is a B half diminished chord or Bm7b5. From B to D is a minor third and from F to A is a major third: every half diminished 7 chord has this structure.

<table>
<thead>
<tr>
<th>B D F A</th>
<th>1 b3 b5 b7</th>
<th>S g m n</th>
</tr>
</thead>
</table>

Summary of the C major scale:

<table>
<thead>
<tr>
<th>Notes</th>
<th>Formula</th>
<th>Indian name</th>
<th>Chord Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C E G B</td>
<td>1 3 5 7</td>
<td>S G P N</td>
<td>Cmaj7</td>
</tr>
<tr>
<td>2</td>
<td>D F A C</td>
<td>1 b3 5 b7</td>
<td>S g P n</td>
<td>Dm7or D-7mor Dmin7</td>
</tr>
</tbody>
</table>
### Tensions

In popular and jazz harmony, chords are named by their root plus various terms and characters, indicating their qualities. In many types of music, notably baroque, romantic, modern and jazz, chords are often augmented with “tensions”. A tension is an additional chord member that creates a relatively dissonant interval in relation to the bass. Typically, in the classical Common practice period a dissonant chord (chord with tension) will “resolve” to a consonant chord. Harmonization usually sounds pleasant to the ear when there is a balance between the consonant and dissonant sounds. In simple words, that occurs when there is a balance between “tense” and “relaxed” moments.\(^\text{101}\)

Tensions are notes that are part of a chord, but are **not chord tones.** (1 3 5 7)

If a chord on C is constructed, a Cmaj7 is found:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>E</td>
<td>G</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>S G</td>
<td>P N</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are 3 notes left in the major scale that are **not chord tones:** 2, 4 and 6. If we add these tones to the chord, they become **tensions.** Most of the time tensions are played an **octave higher** than the chord tones because else they might get in the way of the chord tones (the chord would sound ‘muddy’ most of the time). That's also the way they are notated: 2 becomes 9 (2+7(one octave) =9), 4 becomes 11 and 6 becomes 13.

---

\(^\text{101}\) Ref.- [www.wikipedia.com](http://www.wikipedia.com) (retrieved on 14 September 2011)
So by adding the 2 to Cmaj7, Cmaj9 is found.

<table>
<thead>
<tr>
<th>C</th>
<th>E</th>
<th>G</th>
<th>B</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>S</td>
<td>G</td>
<td>P</td>
<td>N</td>
<td>R'</td>
</tr>
</tbody>
</table>

The two other notes that are left, the 4 and 6, are special cases in combination with a major chord. They are 'avoid' notes: notes that are a half tone above a chord tone. Avoid notes sound disharmonic so they are almost never used.

In the 4 of the C major scale it is noticed that it is a half note above the E, what is the 3rd of Cmaj7. So the 4 (F) is an avoid note for Cmaj7.

A solution for this is to raise the 4 half a tone: F becomes F# and is no longer an avoid note and the basic scale is no longer C major, but C Lydian. This chord would be called Cmaj7(#11).

The 6 is also a special case in combination with major chords. Most of the times when a 6 to a major chord is added; the 7 is omitted and there is no octave added to the 6. This is because the 6 and 7 might get in each other's way.

So by adding the 6 to C major one gets a C6:

<table>
<thead>
<tr>
<th>C</th>
<th>E</th>
<th>G</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>S</td>
<td>G</td>
<td>P</td>
<td>D</td>
</tr>
</tbody>
</table>

The same goes for 6 in combination with a **minor chord**: the 7 is omitted. If the 6 to Dm7 is added, one gets Dm6. It is to be noted that the 6 is no longer A because the root of the chord changed to D. The six is now B (D E F# G A B C#):

<table>
<thead>
<tr>
<th>D</th>
<th>F</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>b3</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>S</td>
<td>g</td>
<td>P</td>
<td>D</td>
</tr>
</tbody>
</table>
The 4 is not an avoid note in combination with minor chords because it is two half tones above the b3 and not one half. One can safely add the 4 to Dm7 and one gets Dm11:

<table>
<thead>
<tr>
<th>D</th>
<th>F</th>
<th>A</th>
<th>C</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>b3</td>
<td>5</td>
<td>b7</td>
<td>11</td>
</tr>
<tr>
<td>S</td>
<td>g</td>
<td>P</td>
<td>n</td>
<td>M'</td>
</tr>
</tbody>
</table>

The 4 is also a special case in combination with dominant chords.

When a 4 is added to a dominant chord, the 3 is omitted. Chords like these are called sus4 chords and often function as a delay for a dominant chord.

Sus4 chords often come with a 9 on the guitar:

<table>
<thead>
<tr>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>5</td>
<td>b7</td>
<td>9</td>
</tr>
<tr>
<td>S</td>
<td>M</td>
<td>P</td>
<td>n</td>
<td>R'</td>
</tr>
</tbody>
</table>

There's also a thing called altered tensions (b9, #9, b5, b13).

The different chord types and their tensions:

<table>
<thead>
<tr>
<th>Chord type</th>
<th>Added note</th>
<th>Symbol</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>2</td>
<td>Cmaj9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>/</td>
<td>Avoid note</td>
</tr>
<tr>
<td></td>
<td>#4</td>
<td>Cmaj7#11</td>
<td>#11 comes out of Indian style</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>C6</td>
<td>Omitted 7</td>
</tr>
<tr>
<td>Minor</td>
<td>2</td>
<td>Cm9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Cm11</td>
<td></td>
</tr>
</tbody>
</table>
| Dominant | 2  
b2  
#2 | C9  
C7(b9)  
C7#9 | b2 and #2 come out of altered scale |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td>C7sus4</td>
<td></td>
</tr>
</tbody>
</table>
| 6  
b6   | C13 | C7(b13)         | b6 comes out of altered scale    |

**Summary of the chord formulas of triads and seventh chords:**

<table>
<thead>
<tr>
<th>Chord Type</th>
<th>Chord Formula</th>
<th>Chord formula in Indian note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Triad</td>
<td>1 3 5</td>
<td>S G P</td>
</tr>
<tr>
<td>Minor Triad</td>
<td>1 b3 5</td>
<td>S g P</td>
</tr>
<tr>
<td>Diminished Triad</td>
<td>1 b3 b5</td>
<td>S g m</td>
</tr>
<tr>
<td>Augmented Triad</td>
<td>1 3 #5</td>
<td>S G d</td>
</tr>
<tr>
<td>Major 7</td>
<td>1 3 5 7</td>
<td>S G P N</td>
</tr>
<tr>
<td>Minor 7</td>
<td>1 b3 5 b7</td>
<td>S g P n</td>
</tr>
<tr>
<td>Dominant 7</td>
<td>1 3 5 b7</td>
<td>S G P n</td>
</tr>
<tr>
<td>Half Diminished 7</td>
<td>1 b3 b5 b7</td>
<td>S g m n</td>
</tr>
<tr>
<td>Diminished 7</td>
<td>1 b3 b5 bb7</td>
<td>S g m D</td>
</tr>
<tr>
<td>Augmented 7</td>
<td>1 3 #5 b7</td>
<td>S G d n</td>
</tr>
<tr>
<td>Suspended 4</td>
<td>1 4 5 b7</td>
<td>S M P n</td>
</tr>
<tr>
<td>minor/major 7</td>
<td>1 b3 5 7</td>
<td>S g P N</td>
</tr>
</tbody>
</table>

*Ref: E-source: Dirk Laukens; *The Jazz Guitar Chord Book*; 2010; [www.jazzguitar.be](http://www.jazzguitar.be)*

* (whole topic of Jazz chords has been taken from Dirk Laukens; *The Jazz Guitar Chord Book*; 2010; [www.jazzguitar.be](http://www.jazzguitar.be))
## Common Jazz Scales

| Major (X|=7) | Dorian Minor (X|7) | Melodic Minor (X|5) | Whole Tone Augmented (X|7+) |
|-------------|------------------|-------------------|--------------------------|
| C D E F G A B C | D E F G A B C D | A B C D E F G A B C D | C D E F G A B C D E F G |
| Bb C D Eb F G A Bb | C D Eb F G A Bb C D Eb F G | D C Eb F G A Bb C D Eb F G | Bb C D Bb Eb F G A B C D |
| Eb F G Ab Bb C D Eb | G A Bb C D Eb F G Ab Bb C | G A Bb C D Eb F G Ab Bb C D | D C Eb F G A B C D E |
| Ab Bb C Db Eb F G A B | Bb C Db Eb F G A B Bb C Db Eb F G | Bb C Db Eb F G A B Bb C Db Eb F G | Bb C D Eb F G A B C D |
| Db Eb F Gb Ab Bb C Db | Eb F Gb Ab Bb C Db Eb F Gb | Eb F Gb Ab Bb C Db Eb F Gb | Bb C D Eb F G A B C D |
| Gb Ab Bb C Db Eb F Gb | Ab Bb C Db Eb F Gb | Ab Bb C Db Eb F Gb | Bb C D Eb F G A B C D |
| F# G# A Bb C Db Eb F# | G# A Bb C Db Eb F# G# A Bb C Db Eb F# | G# A Bb C Db Eb F# G# A Bb C Db Eb F# | Bb C D Eb F G A B C D |

### Mixolydian (X|7) | Half Diminished - Locrian (X|7) | Harmonic Minor (X|5) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G A B C D E F G</td>
<td>B C D E F G A B C D E F G A</td>
<td>A B C D E F G A B C</td>
</tr>
<tr>
<td>C D E F G A Bb C</td>
<td>C D E F G A Bb C D E F G A Bb C</td>
<td>C D E F G A Bb C D E F G A Bb C</td>
</tr>
<tr>
<td>F G A Bb C D Eb F</td>
<td>F G A Bb C D Eb F G A Bb C D Eb F</td>
<td>F G A Bb C D Eb F G A Bb C D Eb F</td>
</tr>
<tr>
<td>Bb C D Eb F G A B</td>
<td>Bb C D Eb F G A B C D Eb F G A B</td>
<td>Bb C D Eb F G A B C D Eb F G A B</td>
</tr>
<tr>
<td>Eb F G Ab Bb C D Eb F</td>
<td>Eb F G Ab Bb C D Eb F G A Bb C D Eb F</td>
<td>Eb F G Ab Bb C D Eb F G A Bb C D Eb F</td>
</tr>
<tr>
<td>Ab Bb C Db Eb F G A B</td>
<td>Ab Bb C Db Eb F G A B C Db Eb F G</td>
<td>Ab Bb C Db Eb F G A B C Db Eb F G</td>
</tr>
<tr>
<td>Db Eb F Gb Ab Bb C Db</td>
<td>Db Eb F Gb Ab Bb C Db Eb F Gb</td>
<td>Db Eb F Gb Ab Bb C Db Eb F Gb</td>
</tr>
<tr>
<td>Gb Ab Bb C Db Eb F Gb</td>
<td>Gb Ab Bb C Db Eb F Gb</td>
<td>Gb Ab Bb C Db Eb F Gb</td>
</tr>
<tr>
<td>F# G# A Bb C Db Eb F#</td>
<td>F# G# A Bb C Db Eb F# G# A Bb C Db Eb F#</td>
<td>F# G# A Bb C Db Eb F# G# A Bb C Db Eb F#</td>
</tr>
</tbody>
</table>

### Others Scales

| Lydian (X|5+4) | Lydian Augmented (X|1+5|4) | Lydian Dominant (X|7+4) | Half Diminished #2 (X|7 #2) |
|----------------|----------------------|-----------------------|-------------------------|
| B C D E F G A B C D | B C D E F G A B C D | B C D E F G A B C D | B C D E F G A B C D |
| A B C D E F G A B C D | A B C D E F G A B C D | A B C D E F G A B C D | A B C D E F G A B C D |

### Diminished (X|5) |
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A B C D Eb F F# G# A</td>
</tr>
</tbody>
</table>

### Notes

| 1 | 2nd mode of Major |
| 2 | 5th mode of Major |
| 3 | 7th mode of Major |

### I7sus4

| V | i | g | C |

### Pentatonic Scale

| X | Pentatonic Scale |
Rhythm

Laya, of the three basic elements of music, is said to be very closely connected to the human body. Rhythm (Laya) could be defined as the measurement of life and death and the heart beat could be labeled as a tool for measuring it. Laya, which is equivalent to life in the human body, also pours life into any musical form. The use of rhythm can brighten up any style of singing.

It is believed that in the beginning of music, rhythm should have been the first element. Shri T. V. Subba Rao has written in his book ‘Studies in Indian Music’ that “the periodicity of natural occurrences was perhaps the basic of rhythm. The primitive man had a strong sense of rhythm, and music to him was no more than the beat of drum. It may be observed that to this day there exist communities whose only music is a form of drum. The regular motion of the heart and lungs reinforced the sense of rhythm if it did not furnish the source of inspiration for it. Dance is but the response of the body as a whole to the natural instinct of rhythm.”

Indian Rhythm

The concept of the ever-recurring cyclic rhythms of the universe is one of the basic tenets of Hindu philosophy. The perception of the cyclic nature of life is reflected in Indian classical music through the device of tāla, a recurring time-measure or rhythmic cycle. Just as in the Hindu religion, man is born, lives his life, dies and is then reincarnated to begin a new life, so the tāla cycle begins, develops and then returns to the sam, the first beat of the cycle, anchor of all melody and rhythm and the leading beat to which all returns.

Hindustani music, mainly recognized as solo music is either vocal, or instrumental. The accompaniment of tablā/ Pakhāwaj - a rhythm instrument is mandatory for a vocal and swaravādyā (melodic instrument) performance. When rhythm is used as an accompaniment in Indian music, it acts as a useful tool to connect the audience to the artist. Rhythm becomes a necessity after a long duration of listening to rhythm-less melodic music. It breaks the monotony of melody. Rhythm instruments add spark to the composition and

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103 T. V. Subba Rao; Study in Indian Music; Asia Publishing House, Mumbai- 1, 1962. Pg 01
104 E-source: Matthew, Montfort; Ancient Traditions–Future Possibilities; retrieved on 09 November 2010
embellish it as to the penchant of the composer. They create excitement and bring
discipline to the composition as well.

The main concept of Indian Rhythm is Tāla. The word Tāla is derived from the Sanskrit root
‘tal’, meaning to strike. Āchārya Pārshvedeva has defined Tāla as:

“Tālashabdasyanishpatipratishtharthedhātunā,
Satālahmalamanamayatkriyāyāprikalpitam.
Tālamoolānigeyanitālesarvampratishthitām,
Tālaheenānigeyammanatraheenayathāahuti.” ¹⁰⁵

The shloka mentioned above means that every type of music is developed by Tāla. A
rendering of music composition without tāla is like offerings without any hymn or mantras.

Shri Amod Dandage has mentioned in his book ‘Complete Tabla’ that “in which the song,
the instrument and the dance have been stably established, is Tāl.”¹⁰⁶

Dr. Prabhā Atre has written in her book ‘Enlightening The Listeners’, “Tāl is a system of
dividing musical time (laya) into a circular pattern- a rhythmic cycle of a fixed number of
beats whose grouping and accentuation give to it a particular character and movement.
This cycle is repeated continuously during the performance to provide the rhythmic
framework in which the musical form takes shape.”¹⁰⁷

The structure of Tāl has mainly six features:

1. It has fixed number of beats.
2. The beats of the tāla are grouped in a particular way.
3. The first and the most accentuated beat is ‘Sam’.
4. The silent beat is ‘Khāli’- the beat on which a wave is made with the hand while counting
   the beats of tāla.
5. The less accentuated beat on the percussion instrument is ‘Tāli’, while demonstrating a
tāla with the help of hands a clap is sounded on these beats.

¹⁰⁵ E-source: Dr. Manohar Sharma; Tradition of Hindustani Music; Pg 13
¹⁰⁶ Ibid
¹⁰⁷ Dr. Prabha Atre; Enlightening the Listener; Munshiram Manoharlal Publishers Pvt. Ltd., 2000; Pg- 5
North Indian Cycles

The main percussion instrument in North India is the *tablā*. The instrument consists of two drums which differ in shape and character. The sounds that can be produced by the *tablā* are often depicted as *bols* or spoken words which are then adapted by the tabla player in his playing. It has a language all its own. For every sound on the drum there is a corresponding syllable. These syllables are known as *bols*.

Just as the "note" is the basis of the melodic component of music, the bol is the foundation for tāla. Bol literally means speech or syllables. The vocal bols sound very similar to bols played on the percussive instrument. The most common *tablā* bols are dhā, dhi/dhin, ti/tin, tā, nā, tirakiTa, Te, ka, ga etc. Different schools of percussion may pronounce the same bol differently. Several bols structured in a specific manner and arranged in sub-divisions are called Thekās.

Table of the Bol and their sound on Tablā

<table>
<thead>
<tr>
<th>Bol</th>
<th>Sound</th>
</tr>
</thead>
<tbody>
<tr>
<td>ti / te</td>
<td>A dry, slapping sound played in the black circle (syahi) of the dāyān.</td>
</tr>
<tr>
<td>nā / tā</td>
<td>A resonant tone played on the outer ring (keenar) of the dāyān.</td>
</tr>
<tr>
<td>tin</td>
<td>A resonant tone played on the middle ring (chānTi) of the dāyān.</td>
</tr>
<tr>
<td>ga</td>
<td>A resonant tone played on the middle ring (chānTi) of the bāyān.</td>
</tr>
<tr>
<td>ka</td>
<td>A dry slap played on the bāyān.</td>
</tr>
<tr>
<td>dhin</td>
<td>Ga and tin played at the same time.</td>
</tr>
<tr>
<td>dhā</td>
<td>Ga and nā/tā played at the same time.</td>
</tr>
<tr>
<td>tirkiTa</td>
<td>ti, ti, Ka and Ti played quickly in a row.</td>
</tr>
</tbody>
</table>

A tāla does not have a fixed tempo and can be played at different speeds. In Hindustani classical music a typical recital of a rāga falls into two or three parts categorized by the tempo of the music – Vilambit laya (Slow tempo), Madhya laya (Medium tempo) and Drut
laya (Fast tempo). Each repeated cycle of a tāla is called ‘āvartan’. The cycle of a tāla (1st beat to 1st beat) is called ‘āvartana’ and the beat is called ‘Mātrā’ in Hindustani music. A tāla is generally divided into sections (vibhāgs), not all of which may have the same number of beats.

Tālas have a vocalized and therefore recordable form wherein individual beats are expressed as phonetic representations of various strokes played upon the tabla. The first beat of any tāla, called sam is denoted with an ‘X’. The first beat is always the most important and heavily emphasized. It is also the point of resolution in the rhythm. A soloist has to sound an important note of the rāga there, and the percussionist's and soloist's phrases culminate at that point.

For the understanding of ‘Tāl’, it is necessary to understand some of the important terms used in Hindustani music, which have been mentioned below.

The beats of a tāla are divided into groups known as vibhāgs, the first mātrā (beat) of each vibhāg usually being accented. It is this that gives the tāla its unique texture. For example, Rupak tāla consists of 7 beats while the related Dhamār tāla consists of 14 beats. The spacing of the vibhāg accents makes them distinct; otherwise one āvartan of Dhamār would be indistinguishable from two of Rupak or vice versa. The first beat of any vibhāg is accompanied by a clap of the hands when reciting the tāla and therefore is known as tāli (or hand clap).

Even if two sub-divisions have the same number of beats, the pattern that they signify could be changed by laying different emphases on the first beat marking the beginning of the sub-division. In Indian music there are three different kinds of beats:

- The Sam signifies an emphatic beat
- The Khāli signifies an empty beat or rest
- The tāli signifies other beats

This means that the drummer plays the sam with a hard stroke and the khāli is represented by a distinctly soft stroke. The sam is generally the initial beat of the tāla. It has a special significance for the soloist as well and more often than not the soloist sings or plays an important note like the vādi or samvādi on this beat. So the sam is also emphasized by the
musical notes. Sam is played with a stressed syllable that can easily be picked out from the surrounding beats.

Furthermore, tālas have a low point, known as khāli (empty), which is always the first beat of a particular vibhāg, denoted in written form with '0' (zero). The khāli vibhāg has no beats on the bāyān, i.e. no bass beats this can be seen as a way to enforce the balance between the usage of heavy (bass dominated) and fine (treble) beats or more simply it can be thought of another mnemonic to keep track of the rhythmic cycle (in addition to Sam). In recitation the Khāli vibhāg is indicated with a sideways wave of the dominant clapping hand (usually the right) or the placing of the back of the hand upon the base hand's palm in lieu of a clap making an "empty/nil" sound. The beats following the first beat of each vibhāg are indicated with digits that are greater than 0, 'X' representing the first beat - Sam, the '0' Khali (empty clap) and each number an individual consecutive beat).

Some tālas, for example Dhamār, Ektāl, Jhoomrā and Chautālas, lend themselves better to slow and medium tempos. Others flourish at faster speeds, like Jhaptāl or Rupaktālas. Tritāl or Teentāl is one of the most popular, since it is as aesthetic at slower tempos as it is at faster speeds.

Rhythm in Indian music performs the function of a time counter. A tāla is a rhythmic cycle of beats with ebb and flow of various types of intonations resounded on a percussive instrument. Each such pattern has its own name. Indian classical music has complex, all-embracing rules for the elaboration of possible patterns, though in practice a few tālas are very common while others are rare. The most common tāla in Hindustani classical music is Teentāl, a cycle of four measures of four beats each.

Theoretically there are over hundred tālas but there are only about twenty or so that are in use today. Some of the popular ones are:
Most commonly used Tālas of Hindustani music:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>NAME</th>
<th>BEAT</th>
<th>DIVISION</th>
<th>VIBHĀG</th>
<th>PLAYED ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dādrā</td>
<td>06</td>
<td>3+3</td>
<td>X 0</td>
<td>Tablā</td>
</tr>
<tr>
<td>2</td>
<td>Roopak</td>
<td>07</td>
<td>3+2+2</td>
<td>X 2 3</td>
<td>Tablā</td>
</tr>
<tr>
<td>3</td>
<td>Tivrā</td>
<td>07</td>
<td>3+2+2</td>
<td>X 2 3</td>
<td>Pakhāvaj</td>
</tr>
<tr>
<td>4</td>
<td>Kaheravā</td>
<td>08</td>
<td>4+4</td>
<td>X 0</td>
<td>Tablā</td>
</tr>
<tr>
<td>5</td>
<td>Jhaptāl</td>
<td>10</td>
<td>2+3+2+3</td>
<td>X 2 0 3</td>
<td>Tablā</td>
</tr>
<tr>
<td>6</td>
<td>Sultāl</td>
<td>10</td>
<td>2+2+2+2+2</td>
<td>X 0 2 3 0</td>
<td>Pakhāvaj</td>
</tr>
<tr>
<td>7</td>
<td>Ektāl</td>
<td>12</td>
<td>2+2+2+2+2</td>
<td>X 0 2 0 3 4</td>
<td>Tablā</td>
</tr>
<tr>
<td>8</td>
<td>Chautāl</td>
<td>12</td>
<td>2+2+2+2+2</td>
<td>X 0 2 0 3 4</td>
<td>Pakhāvaj</td>
</tr>
<tr>
<td>9</td>
<td>Jhoomarā</td>
<td>14</td>
<td>3+4+3+4</td>
<td>X 2 0 3</td>
<td>Tablā</td>
</tr>
<tr>
<td>10</td>
<td>Deepchandi</td>
<td>14</td>
<td>3+4+3+4</td>
<td>X 2 0 3</td>
<td>Tablā</td>
</tr>
<tr>
<td>11</td>
<td>Ādā Chautāl</td>
<td>14</td>
<td>2+2+2+2+2+2</td>
<td>X 2 0 3 0 4 0</td>
<td>Tablā</td>
</tr>
<tr>
<td>12</td>
<td>Dhamār</td>
<td>14</td>
<td>5+2+3+4</td>
<td>X 2 0 3</td>
<td>Pakhāvaj</td>
</tr>
<tr>
<td>13</td>
<td>Tritāl</td>
<td>16</td>
<td>4+4+4+4</td>
<td>X 2 0 3</td>
<td>Tablā</td>
</tr>
<tr>
<td>14</td>
<td>Tilwādā</td>
<td>16</td>
<td>4+4+4+4</td>
<td>X 2 0 3</td>
<td>Tablā</td>
</tr>
</tbody>
</table>
Rarely used Tālas of Hindustani music:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>NAME</th>
<th>BEAT</th>
<th>DIVISION</th>
<th>VIBHĀG</th>
<th>PLAYED ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Basant</td>
<td>09</td>
<td>1+1+1+1+1+1+1+1+1+1</td>
<td>X 2 3 4 0 5 0 6 0</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Rudra</td>
<td>11</td>
<td>1+1+1+1+1+1+1+1+1+1+1</td>
<td>X 2 0 3 4 5 0 6 7 8 0</td>
<td>Tablā</td>
</tr>
<tr>
<td>3</td>
<td>Firdost</td>
<td>14</td>
<td>2+2+2+2+2+2+2+2+2+2</td>
<td>X 0 2 0 3 4 5</td>
<td>Tablā</td>
</tr>
<tr>
<td>4</td>
<td>Gajajhampā</td>
<td>15</td>
<td>4+4+4+4+3</td>
<td>X 2 0 3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Pancham Savāri</td>
<td>15</td>
<td>3+4+4+4</td>
<td>X 2 0 3</td>
<td>Tablā</td>
</tr>
<tr>
<td>6</td>
<td>Addhā</td>
<td>16</td>
<td>2+2+2+2</td>
<td>X 2 0 3</td>
<td>Tablā</td>
</tr>
<tr>
<td>7</td>
<td>Jata</td>
<td>16</td>
<td>2+2+2+2</td>
<td>X 2 0 3</td>
<td>Tablā</td>
</tr>
<tr>
<td>8</td>
<td>Tappā</td>
<td>16</td>
<td>2+2+2+2</td>
<td>X 2 0 3</td>
<td>Pakhāvaj</td>
</tr>
<tr>
<td>9</td>
<td>Panjābi</td>
<td>16</td>
<td>2+2+2+2</td>
<td>X 2 0 3</td>
<td>Tablā</td>
</tr>
<tr>
<td>10</td>
<td>Shikhar</td>
<td>17</td>
<td>2+2+2+2+2+2+2+2+2</td>
<td>X 0 2 0 3 4</td>
<td>Tablā</td>
</tr>
<tr>
<td>11</td>
<td>Matta</td>
<td>18</td>
<td>2+2+2+2+2+2+2+2+2</td>
<td>X 0 2 0 3 4</td>
<td>Pakhāvaj</td>
</tr>
<tr>
<td>12</td>
<td>Brahma</td>
<td>28</td>
<td>2+2+2+2+2+2+2+2+2</td>
<td>X 2 0 3 0 4 0</td>
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Bol of the tāla mentioned below:

1. Dādrā

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<tbody>
<tr>
<td>Bol</td>
<td>dhā</td>
<td>dhin</td>
<td>nā</td>
<td>dhā</td>
<td>tin</td>
<td>nā</td>
<td>dhā</td>
</tr>
<tr>
<td>Symbol</td>
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<td>0</td>
<td></td>
<td>X</td>
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2. Roopak

<table>
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<td>dhin</td>
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<td>tin</td>
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<td>Symbol</td>
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<td>2</td>
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3. Tivrā

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<td>din</td>
<td>tā</td>
<td>tiTa</td>
<td>kata</td>
<td>gadi</td>
<td>gana</td>
<td>dhā</td>
</tr>
<tr>
<td>Symbol</td>
<td>X</td>
<td>2</td>
<td>3</td>
<td></td>
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4. Kaheravā

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<td>ti</td>
<td>na</td>
<td>ka</td>
<td>dhi</td>
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<td>dhā</td>
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<td>0</td>
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5. Jhapṭāl

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<th>8</th>
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<th>10</th>
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<td>tin</td>
<td>nā</td>
<td>dhin</td>
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<td>nā</td>
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6. Sultāl

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<tr>
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<tbody>
<tr>
<td>Bol</td>
<td>dhā dhā din tā kiTa dhā tiTa kata gadi gana dhā</td>
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<td>Symbol</td>
<td>X 0 2 3 0 4 X</td>
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</tbody>
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7. Ektāl

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<tr>
<th>Mātrā</th>
<th>1 2 3 4 5 6 7 8 9 10 11 12 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bol</td>
<td>dhin dhin dhāge tirakīTa tun nā kat tā dhāge tirakīTa dhin nā dhin</td>
</tr>
<tr>
<td>Symbol</td>
<td>X 0 2 0 3 4 X</td>
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8. Chutāl

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</tr>
</thead>
<tbody>
<tr>
<td>Bol</td>
<td>dhā dhā din tā kiTa dhā din tā tiTa kata gadi gana dhā</td>
</tr>
<tr>
<td>Symbol</td>
<td>X 0 2 0 3 4 X</td>
</tr>
</tbody>
</table>

9. Jhoomarā

<table>
<thead>
<tr>
<th>Mātrā</th>
<th>1 2 3 4 5 6 7 5 6 7 8 9 10 11 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bol</td>
<td>dhin dhin dhin dhin dhāge tirakīTa tirakīTa tirakīTa tirakīTa tirakīTa dhin dhin dhāge tirakīTa dhin</td>
</tr>
<tr>
<td>Symbol</td>
<td>X 2 0 3 0 X</td>
</tr>
</tbody>
</table>

10. Deepchandi

<table>
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<tr>
<th>Mātrā</th>
<th>1 2 3 4 5 6 7 8 9 10 11 12 13 14 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bol</td>
<td>dhā dhin dhā dhā din tā tā din tā dhā dhā dhā dhā dhin dhā dhā dhā</td>
</tr>
<tr>
<td>Symbol</td>
<td>X 2 0 3 X</td>
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</table>

11. Ādā Chautāl

<table>
<thead>
<tr>
<th>Mātrā</th>
<th>1 2 3 4 5 6 7 8 9 10 11 12 13 14 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bol</td>
<td>dhin tirakīTa dhin nā tu nā kat tā tirakīTa dhin nā dhin dhin nā dhin</td>
</tr>
<tr>
<td>Symbol</td>
<td>X 2 0 3 4 0 X</td>
</tr>
<tr>
<td>12. Dhamār</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Mātrā</td>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 1</td>
</tr>
<tr>
<td>Bol</td>
<td>ka dhi Ta dhi Ta dha — ga ṭi Ta ti Ta tā — ka</td>
</tr>
<tr>
<td>Symbol</td>
<td>X 2 0 3 X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13. Tritāl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mātrā</td>
</tr>
<tr>
<td>Bol</td>
</tr>
<tr>
<td>Symbol</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>14. Tilvādā</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mātrā</td>
</tr>
<tr>
<td>Bol</td>
</tr>
<tr>
<td>Symbol</td>
</tr>
</tbody>
</table>
Tālas gain life and body when instruments play their role. In the present context, instruments of rhythm are the objects capable of pronouncing intense, discrete or non-sustained sounds. Instruments of rhythm and their sounds give life to the idea of the tāla. These sound syllables, when fitted suitably to the tāla division create Thekās, the actually played and heard tāla expression in Hindustani Music. Theoretically speaking, innumerable Thekās are possible for any tāla, provided instrumental sounds of the required variety and richness are available; Thekās provide content to tālas and raise them above the level of mathematical formulae. Whether in accompaniment or in solo renderings, the Thekās convince listeners by a kind of compositional beauty. Thus, the Hindustani tālas function as accompanying entities in music.

It is believed that tāl is capable of evoking rasa. For e.g. Madhyalaya produces Hāsya and Sringār rasa, Vilambitlaya – Bibhatsa and Bhayānak rasa and Drutlaya - Veer, Raudra and Adbhut rasa. Therefore, every composition has its own distinct laya/tempo. When the composition is sung or played slower or faster than its original tempo, it loses its essence and considerably decreases in its capacity to generate and convey the required emotions. An improper tempo disallows the composition to reach to its audience, while a good rhythm accompaniment lifts up the value of the composition as well as of the performing artist.

Also, rāgas have a distinct rhythm of their own. Some rāgas should be sung at a slower pace than others and vice a versa. This pattern in time employed by melody can be seen from the sequential rendering of notes, i.e. in certain rāgas, notes are played in a certain order. Additionally if notes are held or played for different lengths of time they also add to the rhythm of the melody. This length of the notes which is called the internal rhythm plays a crucial role in the establishment of a rāga. It is an essential factor as it reveals the presence and importance of rhythm in the melodic aspect of music.

The foremost accompanying instruments used in Indian music are Tablā, Pakhāvaj, etc. In light music or folk music, Dholak, Dhol, Manjeerā, Nāl etc are also used for accompaniment. All of these instruments vary in their tones. Therefore, every single instrument has a particular role to play in music. They are used to accompany the particular forms of music. e.g. Tablā is used with Khayāl, Gat, Tarānā, Thumri, Light music etc. Pakhāwaj is mainly used with Dhrupad, Dhamār and Kirtana. Dhol, Dholak, Nāl, Manjeera are basically the folk instruments which are majorly used with the regional songs.
Another crucial fact is that the charm of a particular style of singing relies on the typical tone of that specific rhythm instrument which has the capacity to bring out its real essence. For e.g. if Pakhāwaj is used with Thumri, it fails to show the Shringārik Bhāva of Thumri.

In any composition, swara and laya are interwoven and therefore a listener cannot decipher them. Any rhythm instrument has its own sur and is also tuned in some particular swara. The composition also has its own tempo/laya. Rhythm is the arrangement of sounds and silences in time. There is no music without time, as time is the vessel for music to flow through. This oneness helps the composition to come out as a whole piece of music. For the audience, it is very difficult to see them separate.

The eminent artist and scholar of Indian classical music Padmabhushan Dr. Prabhā Atre has written in her book ‘Enlightening the Listeners’ that “the two unique features of Indian music- rāga and tāl are independent structures; both can be presented without the help of the other. When they are presented together, they change their roles according to whether a rāga is to be projected or a tāl is to be projected. They can also be complementary to each other at times.”

Listening to percussion instruments like tablā, pakhāvaj etc means listening to tāl on these instruments. Tāl being the main focus, melody becomes subordinate. It provides reference points to the progression of the tāl by remaining simple and repetitive. It makes tāl more enjoyable.

Similarly, to listen to a rāga is to experience rāga’s personality, its beauty, its mood, its meaning. Rāga being the focal point, tāla is expected to repeat itself mainly in the thekā form and provide a uniform rhythmic foundation. Tāl is there to support melodic scheme of the rāga and form and add to its beauty by creating possibilities of melodic and rhythmic variations. It also provides reference points as well as resting points during the developments and guides the movements of the notes and helps progression.”

The other use of rhythm instruments is of the individual performance. Especially, Tablā and sometimes Pakhāwaj are used for solo performances which are accompanied by Lehrā on

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109 Dr. Prabha Atre, *Enlightening the Listener*, Munshiram Manoharlal Publishers Pvt. Ltd., 2000; Pg- 70
110 Ibid; Pg- 70
111 Ibid; Pg- 70
harmonium, Sārangi or the other melodic instrument. This is the different flavor of Indian classical music.

Today, we are witnesses of the duets which are known as ‘Jugalbandi’ in Indian music with violin, sitar, santoor or even two rhythm instruments together and also the rhythm orchestras. Such performances have their own place in the world of music.

In Indian classical music, the tāla can be quite complex and intricate. There are two main characteristics of the tāla which differentiate it from Western music.

In Western music each segment or measure has the same number of beats like; say 3+3+3 or 4+4+4+4, whereas in Indian music each sub-division can have different number of beats. For example the Jhaptāl has a 2+3+2+3 pattern. This means it has four sub-divisions with the first and the third sub-divisions having two beats and the second and the fourth divisions having three beats. Another tāla the Dhamār tāla has a pattern of the form 5+2+3+4.

No music can be thought out without rhythm, internal rhythm or the external rhythm, the individual/solo performances or as an accompaniment. For sure, Rhythm enriches the music.
In jazz, after tone, it is rhythm that most expresses an artist’s unique conception. The manner in which the player rhythmically phrases is to an even larger degree more revealing than the actual melodic and harmonic content. It conveys a truly physical impression to the listener which is difficult to describe in words.

The rhythm section provides the pulse, meter, rhythmic accents, compassionate or sympathetic balance, rhythmic “swing”, and harmony, constitutes the heart of an improvising group. Some small jazz groups contain only rhythm section players – combinations of piano, bass, drums, and sometimes guitar, vibraphone, timbales, bongos, maracas, claves, guiro, cowbell, etc. in these cases the rhythm section must also supply all of the improvised solos and the foreground duties usually assigned to the wind instruments. In optimum situations when the members of the rhythm sections are reasonable accomplished, there function is not simply to provide a throbbing background to a featured wind instrument, nor to play together in rhythmic and harmonic unison, as an indissoluble group. Rather they share the burden of the wind instrument by serving as a soundboard for its rhythmic accents, harmonic deviation, melodic continuity, and mood changes. They contribute more than their basic duties of time-keeping and background vamping by feeding the soloist with new material to be developed coordinately. At times they can even become cooperative entities within the rhythm sections, echoing each other, dropping out occasionally, or becoming part of without necessarily involving the other members of the section. The most commonly used instrumentations of that section are the piano, bass, and drums.  

The instruments in a jazz ensemble that provide a rhythmic and harmonic foundation is called rhythm section. It is the members of a jazz ensemble that provides the beat, pulse, groove, and harmonic material for a tune. Normally, the rhythm section will comprise a bass instrument (string bass, electric bass, tuba); percussion (usually the drum set); and one or more harmony instruments (piano, acoustic or electric guitar, banjo, the Hammond B-3 organ, vibra harp). Members of the rhythm section may also be given the opportunity to solo.

Jerry Coker; *Improvising Jazz*; Prentice-Hall, inc. Englewood Cliffs, N.J., 1964; Pg- 20,21
Since rhythm and inflection are the elements that most obviously distinguish jazz from the rest of Western music, it is highly revealing to study than in relation to African ancestry. In examining the nature of Jazz rhythm we discover that its uniqueness derives from to primary sources: a quality jazz musicians call ‘swing’ and the consistent “democratization” of rhythmic values. Both characteristics derive exclusively from African musical antecedents.\(^{113}\)

In seminal work, “Early Jazz”, the author, Gunther Schuller gives a fantastic account of how certain elements of jazz evolved and in particular tracing the development of that central aspect of jazz, “swing”. One important point Schuller makes is that in jazz, the second and fourth beat of a 4/4 measure achieves equality (some would say even primacy) with the other beats of the bar. This is in marked contrast to a large majority of familiar musical traditions, especially in the Western cultures (where for the sake of discussion 4/4 is standard) in which the first beat assumes priority over the others. He points out that this marking off of the first downbeat is for obvious reasons when the music serves the purpose of dance or marching. In any case every jazz musician knows that “two” and “four” are the swinging beats and in fact it is the four that really swings, while the upbeat of four swings even more.

Jazz rhythms tend to be syncopated, meaning they contain unexpected accents. The concept of swing is also very important as it has to do with creating a sense of momentum and danceability. Some styles of jazz make use of counterpoint, which occurs when several melodies with different rhythms are played simultaneously. Together, the attributes of syncopation, swing, and counterpoint create a rich rhythmic background that is one of the most important elements of jazz.

- Syncopation
- Swing
- Counterpoint
- Richness of Jazz Rhythms

\(^{113}\) Gunther Schuller; Early Jazz: Its Roots and musical development vol.-1; Oxford University Press, New York, 1968; Pg–6
Syncopation

Syncopation is the most direct way a musician has of emphasizing weak beats, other than outright accentuation. By transforming this natural gift for against-the-beat accentuation into syncopation, the Negro was able to accomplish three things: reconfirmed the supremacy of rhythm in the hierarchy of musical elements; he found a way of retaining the quality of ‘democratization’ of rhythmic impulses; and by combining these two features with his need to conceive all rhythms as ‘rhythmicized melodies’, he maintained a basic, internally self-propelling continuum in his music. To the extent that they resisted other influences, all three qualities survived in jazz as ‘swing’.¹¹⁴

Perhaps more so than the melody or harmony, it is the rhythm of a performance that identifies it as jazz for many people. Jazz developed in part from ragtime piano music, and the very name “ragtime” is a contraction of "ragged time", which refers to the use of syncopated rhythms that are common in both ragtime and jazz.

In the most general sense, syncopation has to do with the creation of rhythmic surprise. The most typical way this is done is through the placement of accents. In most other styles of music in the Western world, accents generally fall on the beats:

In jazz, however, accents tend to fall between the beats. If you divide each beat into two parts, the accents in jazz often fall on the second half of each beat. Furthermore, they appear irregularly; you do not tend to see the second half of every beat accented equally:

¹¹⁴ Gunther Schuller; Early Jazz: Its Roots and musical development vol.-1; Oxford University Press, New York, 1968; Pg-16
Note the accents in this example occur within the melodic line. One of the characteristics of bebop in particular is the use of short, accented off beats at the ends of phrases:

Another aspect of syncopation has to do with which beats are emphasized. In other types of music, when there are four beats per measure (as is most common), beats one and three are usually stronger than two and four:

In jazz, at least since the Swing Era, beats two and four - the "off beats" - often feel stronger than one and three:
All four beats are still played, but beats two and four are accented slightly. This is sometimes referred to as a four-beat rhythm. When two and four are accented especially heavily, it is sometimes called a "backbeat" rhythm:

The early jazz musicians often strongly accented beats one and three, however, with bassists and drummers playing almost entirely on these two beats, and pianists or guitarists supplying chords on the off beats:

This is referred to as a "two-beat" rhythm. Modern jazz musicians will often use a more subtle two-beat feel at the beginning of a performance, such as while playing the theme, and then switch to a four-beat rhythm for the solos.

**Swing**

When people discuss rhythm in jazz, they almost invariably deal with the concept of swing. Whereas syncopation has to do with surprise, swing has to do with the creation of forward momentum, a drive that makes you want to dance to the music.

For the Jazz musician, pitch is unthinkable without a rhythmic impulse at least as strong; rhythm is as much a part of musical expression as pitch or timbre and possibly more
important. This extra dimension in the rhythmic impulse of a jazz phrase is what we call ‘swing’.\textsuperscript{115}

Swing in its most general sense means a regular steady pulse, ‘as of a pendulum’. On more specific level, it signifies the accurate timing of a note in its proper place. In analyzing the swing element in jazz, we find that there are two characteristics: (1) a specific type of accentuation and inflection with which notes are played or sung, and (2) the continuity-the forward-propelling dictionary-with which individual notes are linked together. Seen other way, ‘swing’ is a force in music that maintains the perfect equilibrium between the horizontal and vertical relationships of musical sounds; that is, it is a condition that pertains when both the verticality and horizontality of a given musical moment are represented in perfect equivalence and oneness. These two swing qualities are present in all great jazz.

The jazz musician does ‘democratization’ of rhythmic values (weak parts of rhythmic units). He does this not only by maintaining an equality of dynamics among ‘weak’ and ‘strong’ elements, but also by preserving the full sonority of notes, even though they may happen to fall on weak parts of a measure. (The only exception to this is the so-called ghost notes, which is more implied than actually played.) This consciousness of attack and sonority makes the jazz ‘horn’ (a wind instrument) player tongue almost all notes, even in the fastest runs, though the effect may be that of slurring. A pure ‘legato’ is foreign to him because he cannot then control as well the attack impulse or the sonority. (This factor also presents us with a clue as to why it has proven so difficult to incorporate the bowed string instruments into jazz.) It is not mere accident that when jazz musicians imitate their playing by singing, they use syllables which have fairly strong, bouncy consonant beginnings.\textsuperscript{116}

At the most basic level, swing is usually described in terms of the length of eighth notes. If you divide each beat exactly in half, the results are called straight eighth notes:

\[ \text{\includegraphics{swing_diagram.png}} \]

\textsuperscript{115} Gunther Schuller; Early Jazz: Its Roots and musical development vol.-1; Oxford University Press, New York, 1968; Pg- 8

\textsuperscript{116} Ibid; Pg- 8
In swing eighth notes, the first part of each beat is a little longer than the second:

Sometimes this is described by saying that the beat is really subdivided into three parts, and swing eighth notes are the first and third parts of the beat. Here is how that rhythm sounds:

This is not really a typical swing rhythm, however. Jazz musicians almost always play eighth notes straighter than that, except perhaps in the style known as the shuffle. A correct ratio for swing cannot be given precisely. Different musicians tend to interpret swing in different ways. Earlier jazz musicians tended to play with a more exaggerated swing:
The more modern tendency has usually been to play eighth notes a little straighter:

Also, the ratio depends on the tempo of a performance. At slow tempos, an exaggerated swing often works well. While at fast tempos, straighter eighths usually sound better.

Some styles of jazz - especially hybrids of jazz with other forms of music - do not use swing eighth notes in this literal sense at all. For example, eighth notes in bossa nova are usually played straight. However, the slight accent on the second half of each beat, combined with other elements of jazz expression, may still convey something of a swing feel:

Not only does swing involve altering the placement of eighth notes within the beat, but it can sometimes involve the placement of the beats themselves. Musicians may sometimes play "in front of" or "on top of" the beat, meaning that when instead of playing each note exactly when it is called for, they anticipate slightly and play everything a fraction of beat early.
This tends to give the music a sense of forward momentum. At other times, a musician may play behind the beat, meaning that they delay everything slightly, giving the music more of a relaxed feel.

Another subtle aspect of swing is that all players in an ensemble do not necessarily play with the exact same feel. For example, the bassist may be playing his eighth notes with close to a triplet feel, while drummer may be exaggerating the rhythm on his ride cymbal even beyond that; meanwhile the pianist and horn players may be using straighter eighth notes. Furthermore, the rhythm section may be playing more in front of the beat, with the horns well behind (or vice versa). This creates a sort of rhythmic tension within the group that also contributes to a sense of looseness.

**Counterpoint**

One final rhythmic component of several styles of jazz is counterpoint, which is created when several instruments are playing melodic lines at once, each with a different rhythm.

While other styles of music, particularly baroque, use counterpoint as well, it is in those cases usually a planned counterpoint, and the individual lines are designed to fit together in a logical fashion. In jazz, since the lines are usually improvised, the counterpoint often turns out to be more complex. Some styles of jazz make more extensive use of counterpoint than others do.

**Richness of Jazz Rhythms**

Syncopation and swing are like yin and yang; they may take on different forms depending on context, but always act in opposition to each other and yet in conjunction. Usually the elements of syncopation and swing will be present in a jazz performance to some degree,
or else we would start to question whether or not it was really jazz. But swing and syncopation may not always take precisely the forms described above.

While most jazz is played in four, meaning there are four beats per measure, jazz is also commonly played in three. The rhythms are usually still syncopated and swinging.

![Musical notation: 3/4 and 5/4 meters]

More unusual meters that contain five, seven, or other numbers of beats are used on occasion as well. These can also swing in their own way.

![Musical notation: 5/4 and 7/8 meters]

Modern jazz musicians sometimes choose to play without a constant rhythmic pulse at all. Beyond the literal definition, syncopation can refer to the general tendency to create surprise, and swing to the tendency to create a sense of forward motion. Without a sense of the expected, there could be nothing unexpected. The following excerpt demonstrates how a non-literal “swing” creates a sense of continuity that can be broken up by non-literal “syncopation”.

This more generalized concept of “swing” and “syncopation” also applies to jazz played with a conventional pulse. For example, when jazz is performed at slower tempos, such as in ballads, the swing and syncopation is usually of a looser nature, but it is still present in some way.
Together, the components of syncopation, swing, and counterpoint lead to a rhythmic feel that is unique to jazz. Syncopation and counterpoint create excitement, while at the same time; these rhythms are often very natural and conversational. The irregular accents of a syncopated jazz line mimic the patterns of ordinary speech.

The sense of swing in jazz rhythms often makes them danceable despite their unpredictability and complexity. The richness of the rhythms may be the single most important element of jazz, rivaled only by the emphasis on improvisation.

**Jazz drumming**

One of the principles of jazz rhythm is the so-called drum backbeat on the second and forth beat of a bar, especially popular in modern jazz drumming and rock and roll music. The jazz musician will count 1-2-3-4 but snap his fingers on 2 and 4, thus putting greater emphasis on this ordinary weak beats than on 1 and 3. These characterization are unique to jazz relate to its African heritage. To examine the nature of native African rhythm is a vast and complex subject. Until the most recent years African music was a source of mystification even to those musicologists and researchers who specialized in the field. The reason lies in the very nature of the music, for in respect to rhythm African music is unquestionably the world’s most complex music. According to A. M. Jone's research work (published as ‘studies in African music in two volumes): African music, including its drumming, is wholly contrapuntal and basically conceived in terms of polymetric and polyrhythmic time relationships.

But Jones also produces proof of a number of other features of African music that have not been recognized or have confounded musicologists: (1) African rhythm is based on additive rather than divisive principles; (2) African music is improvised, but only in a special sense of that word; and (3) it is improvised within a most complex and rigorous set of musical disciplines.¹¹⁷

The basic African ensemble consists of a solo cantor answered by a chorus, one or two bell players who beat out an unchanging basic pattern, hard-clappers (among the singers) who do likewise, and an ensemble of three or four drummers. Such an ensemble will produce a minimum of seven musical lines and very often a maximum of eleven lines. What is

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¹¹⁷ Gunther Schuller; *Early Jazz: Its Roots and musical development vol.1*; Oxford University Press, New York, 1968; Pg- 11
remarkable, however, is not the number of lines, but that in the case of a seven-part ensemble – six of the seven lines may operate in different metric patterns which are, moreover, staggered in such a way that the downbeats of these patterns rarely coincide. Indeed, two of the drummers may play at cross-rhythms to each other for entire performances, which often continue for hours.¹¹⁸

Negros loved irregular polyrhythmic metric patterns and polyrhythm, possibly by then already in a somewhat simplified form, although not necessarily so, since African music abounds with what to our Western ears appear to be relatively simple tunes. The point is that the slave continued to maintain the three basic canons of his musical tradition: (1) the foundation of a regular substructure, in other words, the beat (in the case of the boatmen, supplied by the sounds of rowing); (2) the superimposition thereon of improvised or semi-improvised melodies in variable meters and rhythm; and (3) a call-and-response format in which this musical material is set.¹¹⁹

**The Bass section:**

The bass is a member of the rhythm section. This term comes from an earlier period in popular music when swing orchestras dominated the scene and dance bands consisted of a rhythm section, a brass section, and a woodwind section. These days, most pop groups consist only of a rhythm section plus a singer(s). Nonetheless, the term rhythm section is still in use.

A rhythm section is composed of bass, drums, piano, and guitar. But, there is no compulsive need of all four instruments to create a rhythm section. In other words, some rhythm sections consist only of a bass and a piano or a bass and a drum set. Whatever the combination, the rhythm section is responsible for the rhythmic and the harmonic underpinning of the music. In short, the rhythm section backs up or accompanies singers and soloists. The role of the bass in the rhythm section is twofold:

- To define and maintain the pulse and groove of the music
- To highlight the root of each chord

¹¹⁸ Gunther Schuller; *Early Jazz: Its Roots and musical development vol.-1*; Oxford University Press, New York, 1968; Pg- 11

¹¹⁹ Ibid; Pg 17-18
Ironically, it was the more charitable side of the white man’s cultural attitudes that led to the corruption of African music in America, while at the same time the oppressive aspects helped the black man conserve the remnants of his African heritage. That is to say, since religion and, therefore, music, to a limited extent, were the first forms of expression allowed the Negro, his conversion both to Christianity and more gradually to European musical concepts was inevitable, given his natural talent for acculturation.¹²⁰

Evolving in a steady process of musical assimilation, the Negro’s rhythms were eventually transformed into the much simpler patterns of early jazz. Along this route, especially after Emancipation, various social reforms and corollary manifestations in social or religious rituals and in popular entertainment left their mark. The marching-band tradition of Italian and German immigrants blended readily with the funeral processions of the Negro; Anglo-American hymns blended with African monadic and dionic singing to become the spiritual and its secular counterpart, the blues. The development of the minstrel show provided the Negro with an outlet in the area of popular entertainment, absorbing in the process various popular musical forms from Europe—jigs, marches, polkas, quadrilles, etc.—and finally spawning a pianistic descendant: ragtime. All these forms contributed vitally to the development of jazz in its full-fledged form in the first decades of this century.¹²¹

¹²⁰ Gunther Schuller; Early Jazz: Its Roots and musical development vol.-1; Oxford University Press, New York, 1968; Pg- 18
¹²¹ Ibid; Pg-18
Improvisation in Music

Philosophically, improvisation often focuses on bringing one's personal awareness 'into the moment', and on developing a profound understanding for the action one is doing. This fusion of "awareness" and "understanding" brings the practitioner to the point where he or she can act with a range of options that fits the situation to the best, even if he or she has never experienced a similar situation.

Improvisation is the practice of acting and reacting, of making and creating, in the moment and in response to the stimulus of one's immediate environment. This can result in the invention of new thought patterns, new practices, new structures or symbols, and new ways to act. This invention cycle occurs most effectively when the practitioner has a thorough intuitive and technical understanding of the necessary skills and concerns within the improvised domain.

Improvisation in Indian Music

Indian music is based on the concept of improvisation. It is unpremeditated music (though the main 'bandish' is always pre-composed) and is therefore loaded with enormous scope for the artist to explore. Indian Music is known for its spontaneous improvisation in the world of music.

The very thought of Indian music is followed by the idea of 'Rāga'. Basically, Rāga is the 'improvisation' of one theme or one characteristic through the medium of melody, which suggests that the most important element of Indian music is 'melody with improvisation' (specifically in melodic music).

It is observed that whenever any foreign musician is asked to comment about Indian music, he always is fascinated about the improvisation of Indian music.

In any 'Rāga', the fixed part is: use of its notes and the route of the ascending and the descending notes. Though it is fixed it is un-composed. There are plenty of choices for the use of one note after the other. Artist is free to move within the boundary of the character of
the rāga. That is why the quality and the beauty of the rāga being presented entirely depend on the skill, talent, practice, creativity, sense of aesthetics and understanding of the artist.

There are different melodic forms in Indian music, i.e. Khayāl, Dhrupad, Tappā, Thumri, Tarānā etc. In each of these the bandish is the pre-composed song, which takes only one percent of the presentation but is used as the guideline. Each rāga is so vast that only sky is the limit in exploring it and thus a guideline proves important for the provision of a proper path of progression to it.

As mentioned before, improvisation is the most important aspect of Indian music. The style of improvisation differs in every bandish. Various methods of improvisation help in identifying the diverse styles of singing. Also, there are some other aspects which are different in every form, but the method of improvisation gives them a distinct identity.

Basically, there are two types of improvisation in Indian music. 1. Melodic, 2. Rhythmic

Methods of melodic improvisation in Indian music

Different ways are used for the improvisation of melody.

1. Through ālāp
2. Through tān

1. Ālāp:

Ālāp is one of the most important methods of improvisation. It is used to expand the rāga and to build the character of the rāga.

In vocal music, there are four ways of using ālāp.

a. Ā-kār: In ā-kār the swarās (vowels) - ā, e, i, o, u are used to extend the notes. But the most prominently used swara is ā. That is why it is called ā-kār.
b. Sargam: In sargam, the notes are sung with their abbreviated note names. The seven notes Shadja, Rishabh, Gandhar, Madhyam, Pancham, Dhaivat and Nishad popularly known as sā, re, ga, ma, pa, dha, and ni are sung in slow speed during ālāp. It is specifically used to show attractive combinations of notes.

c. Bol-ālāp: Lyrics of the bandish are used to establish the emotions of the bandish and also to merge the improvised ālāp with the pre-composed bandish, this is called bol-ālāp. Bol-ālāp also breaks the monotony of ākār. Generally, the words which are aesthetically good to listen to are used frequently in bol-ālāp but to some extent it also depends on the gharānā of the artist. In different gharānās the usages of words differ. The pronunciation style and placement of the letters vary. Bol-ālāp is very important method of ālāp in vocal music.

d. ‘nom-tom’: The syllabic words like the nom, tom, ri, ta, na are believed to be originated from the Arabic words. With time we have lost the original words as well as their meanings but their usage is still in vogue because of the attractive accent they carry.

In instrumental music, the same elaboration of rāga through ālāp is done but not with bols (text of the bandish), sargam, ā-kār or nom-tom. In different instruments with their distinct tonal qualities and playing techniques along with ālāp, Jor and jhālā are played to establish the rāga.

After the slow introspective beginning of ālāp, the musician moves on to the Jor. In this part, the basic theme of the rāga is elaborated and the artist tries to bring the emotional mood of the rāga to the surface. The step-by-step acceleration of the tempo finally culminates in the Jhālā, the final movement and the climax of the rāga. Here, the music becomes more and more playful and exciting. There is no rhythm (Tabla) accompaniment in ālāp, jor or jhālā.

2. Tān
Tān is commonly used method in vocal and instrumental music. When the notes are sung/played in double the speed of the original tempo or faster than that, it is called tān. Tān brings vibrancy to the presentation and a gradual increase in its tempo makes the performance strikingly attractive.

Like ālāp in vocal music tāns are also sung in ā-kār, sargam and with bols. Tān with the use of the text of the bandish is called the bol-tān.

Another way of improvisation is done with reference to laya, i.e. in sargam or with the bol (lyrics of bandish)-‘bot bānT’. This pattern is used to connect ālāp and tān and also to give the pleasure of laya.

**Rhythmic Improvisation in Indian Music**

As we have discussed in the previous chapter of Rhythm that rhythm is used for two purposes: Solo presentation and accompaniment. Here, we are talking about the technicalities in relation to fusion music. In fusion, every artist plays his role individually. He may play solo or do accompaniment. He improvises his Thekā remaining within the cycle of the tāla.

**How the improviser’s thought works**

The Indian musician, during his long hours of training and practice, thoroughly familiarizes himself with the positions, combinations, movements and the expression of the notes. Ranging from the single note to short and long phrases, the combinations he practices become more and more complex in their arrangement, movement and expression.\(^{122}\)

During improvisation he draws upon his experience. In moments of inspirations, he often comes up with something novel and remarkable that he has not tried before.\(^{123}\)

In improvisation, the notes of the rāga are explored in different ways in the context of rāga-roop or personality. However, it is the musician’s aesthetic sense and his interpretation of the rāga rules that decide whether a certain phrase is to be chosen or not.\(^{124}\)

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\(^{122}\) Dr. Prabha Atre; *Enlightening the Listener*; Munshiram Manoharlal Publishers Pvt. Ltd., 2000; Pg- 9

\(^{123}\) Ibid; Pg- 9
Improvisation in Jazz music

Improvisation is the heart and soul of jazz. The improvisation of many lines at the same time is a typical African concept, and is perpetuated in most forms of early jazz, a music marked above all by “collective improvisation.” With the advent of the arrangement (a decidedly “white” influence) and the incorporation of the solo in an otherwise arranged or at least partially prearranged context, the multi-linearity of early jazz was abandoned until the late 1950s. The juxtaposition of solo and ensemble music is also a basic characteristic of African music; it manifests itself in the entire call-and-response typology and specifically in the cantor-to-chorus relationship. But the ensemble or choral sections of such African music are based on very strict organizational principles, largely found on repetition. Variational techniques do exist, but they occur only in certain categories of music, and even then are reserved almost entirely for the leading performer, the master drummer.  

“Since jazz improvisation is a personal statement drawing upon melody, rhythm, and harmony, serious jazz musicians do not want their statement to ramble or be incoherent. The best improvisers try to be as succinct as possible, stating an idea, developing it to its logical conclusion, and stopping—having said all that was necessary to convey the thought.”

Jazz improvisation is the process of spontaneously creating fresh melodies over the continuously repeating cycle of chord changes of a tune. The improviser may depend on the contours of the original tune, or solely on the possibilities of the chords' harmonies. It has been said that the best improvised music sounds composed, and that the best composed music sounds improvised. Composed music and improvised music may seem to be opposites, but in Jazz they merge in a unique mixture.

A common misconception about Jazz improvisation is that it's invented out of the air. This notion may exist because many small Jazz groups do not read music when they

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124 Ibid; Pg-10

125 Gunther Schuller; Early Jazz: Its Roots and musical development vol.-1; Oxford University Press, New York, 1968; Pg- 57.

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126 Ref -Taylor, Billy; Jazz Piano—A Jazz History; Dubuque, Iowa: Wm. C. Brown Company Publishers, 1983
perform. Jazz players will choose phrases that seem to be preordained so you intuitively know where they are going; even though it's being created at the instant you are hearing it. The musicians are actually spontaneously creating a very intricate form of theme and variation; they all know the tune and the role of their instrument. The guitar, piano, bass and drums, while all able to solo, basically provide the rhythm and harmony over which the soloist will create improvised variations. The structure is flexible so that the soloist may venture in various directions depending on the inspiration of the moment. A Jazz musician is creating spontaneous art every time he or she plays music.

"In Jazz, improvisation isn't a matter of just making anything up. Jazz, like any language, has its own grammar and vocabulary. There's no right or wrong, just some choices that are better than others." - Wynton Marsalis

But there's more to Jazz than just improvisation. Duke Ellington has written about improvisation, "You've got to find some way of saying it without saying it." Composers such as Duke Ellington and Charles Mingus wrote occasional Jazz compositions practically devoid of improvisation. The real challenge comes when a composer integrates improvisation into a piece, merging Jazz composition and improvisation in the act of creativity. Coleman Hawkins' Body and Soul or Thelonious Monk's Straight, No Chaser is sophisticated compositions built from the improvised line.

"Improvisation is the ability to create something very spiritual, something of one's own." - Sonny Rollins

Composers including Bach, Handel, Mozart, Beethoven and Liszt have all been celebrated for their ability to improvise. In a sense, all Jazz musicians are also composers. While they do not necessarily sit down with pen in hand to write out their solos on score paper, their solos do require the same discipline as that of any composer. Listen to players who are both great composers and soloists, such as Benny Carter or Billy Childs improvise their own material and extend their creative reach.
"In fifteen seconds the difference between composition and improvisation is that in composition you have all the time you want to decide what to say in fifteen seconds, while in improvisation you have fifteen seconds." - Steve Lacy 127

If the mediocre improviser is in a way obliged by un-inventiveness to use only the ‘do-mi-sol-do’ technique, the great artist knows how to free himself from this yoke and, starting with the same harmonic base, to create a much richer and more varied melody. To this end, he uses- almost always without going out of his way to do so- a large number of such devices as appoggiaturas (or grace notes), passing tones, embellishments, retardations, and anticipations, which add flexibility to his musical discourse and free him from the harmony’s tyranny.128

The passing chord is actually just one way of enriching the harmonic foundation; another way is by adding notes- ninths, elevenths or thirteenth- to the basic chord, and still another is by grafting to the principal chord a secondary one borrowed from a different key. This enlargement of the harmonic field, which is characteristic of modern jazz, is matched by a corresponding enlargement of the melodic field. To say nothing of successions, a six-note chord offers more melodic possibilities to a soloist than a three-note one. On the other hand, the modern improviser, accustomed to branch out on complex harmonies, may find himself in a quandary when he has nothing but major triads to work with (for it is not always true that if you can do what is difficult, you can do what is easy).129

The harmonic foundation is not only a springboard that the improviser needs but also a framework without which his invention could not flourish, at least under present-day condition of jazz, with that minimum of form which music of any value needs.130

Factors responsible for improvisation

Five factors are chiefly responsible for the outcome of the jazz player’s improvisation: intuition, intellect, emotion, sense of pitch, and habit. His intuition is responsible for the bulk of his originality; his emotions determine the mood; his intellect helps him to plan the
technical problems and, with intuition, to develop the melodic form; his sense of pitch transforms heard or imagined pitches into letter names and fingerings; his playing habits enable his fingers to quickly find certain established pitch patterns. Four of these elements of his thinking—intuition, emotion, sense of pitch and habit—are largely subconscious. Consequently, any control over his improvisation must originate in the intellect. While the intellect is limited in its capacity for control over intuition and emotion, it can be responsible for the training of the ear and for establishing a variety of helpful finger patterns, in addition on to its function of solving technical problems.\textsuperscript{131}

It would be difficult to place these five factors into proportionate values. Some are able to perform adequately by relying completely on the subconscious elements. All but rare genius, however, are eventually limited in their development. They need special study, due to the problems of deeply ingrained habits, the unaccustomed rigors of working up to every potential, and, in some instances, an ability to admit or evaluate shortcomings.\textsuperscript{132}

Since the intellect is the only completely controllable factor, we will approach the problem of learning to play jazz almost solely through this factor, and hope that the other four (intuition, improvisers rely more heavily on certain factors; other will depend on other factors. A few gifted players emotion, the sense of pitch and habit) will progress at the rate established by the intellect. While using intellect, the improviser must know, for his own musical security, the general framework on which he bases his improvisation.\textsuperscript{133}

**Methods of Jazz Improvisation**

Three methods of Jazz improvisation are melodic, harmonic and motivic. Improvised melody occurs when musicians use slurs, alternate notes and syncopation in order to recreate the melody in new and interesting ways. Improvising harmonically employs chords and tone centers to inspire new soloing. Improvising by redefining motives, phrases and statements serves to sophisticate the musical arrangement. Just as no two artists would paint a scene in the same way, no two musicians improvise in the same way. Seasoned Jazz musicians combine all three techniques to create new works, inspired by the original melody, harmony and structure representing their unique creative passion. The true value of

\begin{footnotes}
\item[\textsuperscript{131}]
Jerry Coker; *Improvising Jazz*; Prentice-Hall, Inc. Englewood Cliffs, N.J., 1964; Pg- 3
\item[\textsuperscript{132}]
Ibid; Pg- 3, 4
\item[\textsuperscript{133}]
Ibid; Pg- 3, 4
\end{footnotes}
this music lies in an artist's individual creativity and that unique process of expression which is Jazz.

**Improvisation in melody using harmony**

It is perfectly clear that each improviser reacts in his own way to a harmonic progression, according to his own musical ideas and creative ability. A musician with only a mediocre gift of melodic invention will naturally choose the first procedure, which consist of breaking each chord up and stringing out the notes in a more or less freely chosen order (for the melodic line is sometimes determined, not by real creative invention, but by habit-guided fingers). It may not be completely possible to invent an admirable melodic line using only notes of the major triad, but such an exception would be a real work of genius; usually an exclusive use of this procedure results in uninspiring monotony.134

**Improvisation by Harmony**

In jazz, harmony is often the foundation of a performance. Harmony is expressed in terms of the chords used to accompany the melody. Aside from the theme, which is often played only at the beginning and end of the performance, the sequence of chords used to accompany the melody may be the only thing that has been prearranged about the performance. This chord progression is also used as a basis for improvisation. In many cases, the musicians read from lead sheets that contain only the melody line and chord symbols. After the melody is played once or twice - often interpreted rather freely - the musicians repeat the original chord progression over and over while improvising new melodies over it. For example, here is an example of a jazz composition with the original melody and accompanying chords:

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134 Andre Hodier, translated by David Noakes; *Jazz – its Evolution and Essence*; Grove press, United States of America, 1961; Pg - 146
In Indian notation:

\[
\begin{array}{cccc}
\text{R} & \text{M} \ n & \text{Re} & \\
\text{R} & \text{M} \ n & \text{S}'R' & \\
\text{R} & \text{M} \ n & \text{P} \ n & \text{R'S}' \\
\text{R} & \text{M} \ n & \text{S}'N \ n & \\
\end{array}
\]

Here, note ‘C’ is considered as ‘Sa’ (the tonic).

And here is a new melody improvised over the original harmony:

In Indian Notation:

\[
\begin{array}{cccc}
\text{R}'\text{M'} \ - & \text{D} \ - & \text{n} \ - & \text{S}'R' \\
\text{R} & \text{RMD} \ S'n \ Dn & \text{D} \ \text{PM} \ MP \ - & \text{D} \\
\text{S}' \ - & \text{D} \ n & \text{S}'n & \text{m} \ \text{MG} \ - \\
\end{array}
\]

135 Ibid.
136 Andre Hodier, translated by David Noakes; *Jazz – Its Evolution and Essence*; Grove press, United States of America, 1961; Pg - 146
This progression may be repeated over and over so a soloist can improvise for as long he wants. Not all jazz performances follow this model, but a great many of them do.

Not only are new melodies improvised over the original harmony, but the accompaniment played by the other musicians is usually improvised based on the original chord progression as well. In this example, the melody is the same as the original, but the piano is accompanying differently, based on the same chord changes:

Harmonic Complexity

The harmonies used in modern jazz tend to be richer than those used in other forms of music. Rather than using chords of three or four notes, chords used by jazz musicians often contain five or six different notes, some of which may be considered dissonant at first by ears accustomed to pop or classical music. For example, here is a typical chord progression used in many forms of music:

And here is that same chord progression as it might be interpreted by a jazz musician:

Andre Hodier, translated by David Noakes; Jazz – its Evolution and Essence; Grove press, United States of America, 1961; Pg - 147

Ibid
Many of the dissonances in chords used by jazz musicians come from the use of blue notes on top of an ordinary chord used in Western harmony. For example, here are a seventh chord and then the same chord with an added blue note on top:

These extensions and alterations to chords may be improvised, just as melodies are improvised. Furthermore, the melodies - both composed and improvised - often take advantage of these extensions and alterations as well. That is, rather than limiting a melody to notes that belong to the simple three or four note chord, a jazz musician is more likely to use notes from the extended chord. For example, here is a chord progression given above, with a harmonically simple melody on top, typical of many other styles of music:

And here is that progression with a more harmonically complex melody on top, typical of jazz:

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139 Ibid
140 Andre Hodier, translated by David Noakes; Jazz – Its Evolution and Essence; Grove press, United States of America, 1961; Pg - 147
141 Ibid.
Although the chords used in jazz may be more complex in themselves than those used in other types of music, the way that the chords lead from one to another is not any different from how they function in other styles. In the preceding examples, there is a well-defined key center at any given time, and the various chords all relate to the key center, which may change over the course of a piece. Music with this type of harmony is called tonal. Chords in tonal music resolve in well-defined, even predictable ways. The progression used above is tonal. Here is a longer example:

There is another style of harmony, called modal, that deemphasizes chord resolution. Modal harmony can be used in many different forms of music, but it is especially common in jazz. In a modal jazz composition, the individual chords in a progression often last longer than they do in a tonal composition - perhaps eight measures each instead of one - and they do not lead from one to another so much as they mark separate sections of a composition. Here is an example of a modal chord progression:

142 Ibid.

Andre Hodier, translated by David Noakes; Jazz – Its Evolution and Essence; Grove press, United States of America, 1961; Pg - 147
Tonal Harmony demonstrates the movement of the chord progression around the tonic and Modal Harmony is marked by the changing modes.

Sometimes, a modal jazz composition will take this to the extreme and use just one chord throughout the duration of the composition. On the other hand, a modal jazz composition may contain as many chords as a tonal one. The defining feature of a modal composition is not the number of chords but rather how they relate to each other.

**Typical Progressions**

There are certain chord progressions that occur especially often in jazz. The most important of these is the blues progression, of which there are many variations. The traditional blues progression is 12 measures long, and is broken into three phrases of 4 measures each which are based, respectively, on the I, IV, and V chords of the key. Here is an example of a blues progression:
As the name suggests, this progression was inherited from the blues.

Another common pattern in jazz harmony is known as the II-V-I chord progression. The II-V-I is rarely the entire chord progression for a composition, but often large portions of the chord progression for a composition can be analyzed in terms of II-V-I. The essential characteristic of this progression is that the roots of the chords move upward by fourths, or, correspondingly, downward by fifths. Here is an example of a ii-V-I progression:

\[ \text{Dm7} \rightarrow \text{G7} \rightarrow \text{Cmaj7} \]

Another common device in jazz harmony is the \textit{vamp} - a short repeating sequence of chords. Here is an example of a vamp:

\[ \text{Dm7} \rightarrow \text{Eb7} \rightarrow \text{Dm7} \rightarrow \text{Bb7} \rightarrow \text{Dm7} \rightarrow \text{Bb7} \]

A chord progression does not always repeat unchanged throughout a performance; jazz musicians typically alter chords within the progression to suit the moment. Some compositions contain several distinct chord progressions, perhaps a complex one for the composed melody and a simplified one for the improvised solos, or perhaps a different progression for each soloist. In addition, some musicians occasionally improvise entire chord progressions as well as melodies. This is done mostly by musicians performing unaccompanied, as it would be difficult for a group of musicians to coordinate the improvisation of a chord progression. However, certain simple devices, such as some

\[ \text{Ibid.} \]

\[ \text{Ibid.} \]
vamps, are common enough that they are easily recognized by the other musicians if one musician decides to improvise one, and the other musicians are then able to follow along. Also, there are some places, such as the beginnings and ends of performances, where improvised vamps are not unexpected.

Some jazz is a tonal - it uses no particular sequence of chords at all to guide the improvisation. Instead, improvisations may be based on the melody alone, or on particular textures, or they may be completely free of preconceived constraints. For example, here is an improvisation that is not based on any particular harmonies:

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\[\begin{align*}
&\text{\#1} & & \text{\#2} & & \text{\#3} & & \text{\#4} \\
&\text{\#5} & & \text{\#6} & & \text{\#7} & & \text{\#8} \\
&\text{\#9} & & \text{\#10} & & \text{\#11} & & \text{\#12} \\
\end{align*}\]
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The term ‘free jazz’ is often used rather broadly to describe any music that does not have a strict chord progression, although the term is usually applied to music that has no predefined structure at all.

As is the case with melody, it is not always possible to characterize a particular chord progression as being jazz harmony. However, jazz musicians, when adapting a song from another style of music to a jazz setting; usually alter the chords in accordance with the descriptions above.

**How the Improviser’s Thought Works**

Any kind of music in which the act of creation plays a role is, for this very reason, music of which thought is a determining ingredient. Such is the case with jazz, even though as we have seen, any attempt at construction appears in it only incidentally and in a rudimentary form. In jazz, the act of creation can be performed almost as freely in the simple exposition of a theme as in the invention of a chorus. By the way he handles sound itself and by a kind of rhythmic remodeling of the theme being interpreted, the musician is able to renew it in its

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148 Ibid.
very essence without actually getting very far away from it. When the instrumentalist is improvising freely, this important role of creative performance is seconded by the resourced of melodic invention in the traditional sense. However, in both cases, it is thought that is behind creation. Unless it is claimed that a pianist’s hands move haphazardly up and down the keyboard- and no one would be willing to claim this seriously- it must be admitted that there exists a guiding thought, conscious or subconscious, behind the succession of organized sound patterns. Even in the case of an instrument that, to the hasty glance of a superficial observer, may seem a more direct extension of the musician’s body than the piano- the trumpet, for instance- it is still true that the slightest inflection is directed, if not rigorously controlled, by the performer’s thought.149

Musical thought has two roads to follow, then, in jazz- the interpretation of a pre-existing melody or the invention of a new melody that replaces the theme from which it springs. The first of these two techniques may result, under the most favourable conditions, in a kind of inner transfiguration of raw material that often does not have any intrinsic melodic interest. The best examples are to be found in the work of Louis Armstrong (and particularly in what he did from 1936 to 1939). Without changing a not or even a time value, Armstrong sometimes succeeds in making the dullest musical line positively glitter. The real metamorphosis of the theme under Armstrong’s hands depends much more on his attacks, on the precision of his syncopations, and on the vibrato he uses on certain sounds, giving them an expressive density that makes each completely different from the others.150

The second technique consists in substituting for the given theme, a melody that resembles it in structure and is based on a similar harmonic progression. But sometimes the phrase doesn’t resemble a variation at all and insists on becoming a theme in its own right, just like the one it is suppose to replace.151

Continuity of Thought

The second aspect of improvisation in jazz is continuity of musical thought. Admittedly, this observation applies less strictly to jazz than to classical music. A succession of improvised choruses cannot be expected to have as perfect a degree of continuity as a composition

149 Andre Hodier, translated by David Noakes; Jazz – its Evolution and Essence; Grove press, United States of America, 1961; Pg - 158,159
150 Andre Hodier, translated by David Noakes; Jazz – its Evolution and Essence; Grove press, United States of America, 1961; Pg - 159
151 Ibid; Pg- 160
that has been long labored over and constructed in a spirit that we have seen to be foreign to jazz. Nevertheless, it remains evident that a coherently developed chorus has a much better chance of being musically satisfying than one whose phrases are haphazardly thrown together, without any thought of musical continuity.  

It must be admitted that many recorded improvisations suffer from a lack of continuity that becomes overwhelmingly apparent upon careful and repeated listening. One of the most obvious causes of this non-continuity is the heterogeneity of style with which many musicians are afflicted. This inconstancy of thought leads to the music’s being inconsistent.

The great improvisers are rarely guilty of this fault. They know how to stick to a general line, although this does not exclude diversion suggested by creative imagination. Sometimes a high-class improviser adopts the principle of contrast, which is dangerous for continuity. There again, only the existence of a focus will avoid chaos.

Collective Creation

A third aspect of musical thought in jazz remains to be examined - collective creation. This takes place in various ways, depending on weather one artist, while creating, has in mind some other artist whose own inventiveness will be superimposed on his, or weather several musicians work together, simultaneously and in equal proportions, to bring a piece into being. The composers work in a kind of absolute; but he works, in a sense, on the same level as the arranger whose creative effort is very specifically destined for a given band or soloist.

Some contributions may seem fairly modest - that of a pianist who modifies the harmony of a theme, or of a drummer who puts his skill and his rhythmic sense at the service of the soloist he accompanies. However, any musician who has played in a jazz band knows the

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152  Ibid; Pg- 168
153  Ibid; Pg- 169
154  Andre Hodier, translated by David Noakes; Jazz – its Evolution and Essence; Grove press, United States of America, 1961; Pg- 169
155  Ibid; Pg- 176
stimulation that can be expected from a harmony that falls just right or a way of playing the cymbals that really swings.\textsuperscript{156}

There is a manifestation of spontaneous of polyphony when several instruments improvise simultaneously and in equal parts on a theme. This definition has the merit of eliminating, as not being essentially polyphonic, accompaniments in the form of a countermelody that some pianist favour and that have been used by clarinetists and trombonists in a number of works in the New Orleans style. \textsuperscript{157}

\textsuperscript{156} Ibid; Pg- 176

\textsuperscript{157} Ibid; Pg- 177
Instruments

Instruments of Indian music

The tradition of instruments is prevalent in Indian music since ancient times. Many archaic instruments have perished and new instruments have evolved. Also, a simultaneous transformation in the making and the style of playing instruments has been noticed along with a development in music. Here, we are going to study about the instruments used in Indian, jazz and fusion music.

In Indian music, solo playing is very prominent. Instruments are used as solos, for accompaniment and for duets. All the sampoorNa vādyas\(^{158}\) of each category are used for solos and duets. In Indian classical music, the orchestration of all melody instruments (sur-vādya) in accompaniment of rhythm instruments (tablā, pakhāwaj etc) and the orchestration of rhythm instruments (tāl- vādya) in accompaniment of lehrā on a melody

\(^{158}\) SampoorNa vādyas is the category of instruments which are capable to play range of two and a half saptak.
instrument (harmonium, sārangi, violin etc) known as ‘tāl-vādyaka-kachehri’, are the modes of group playing. A rhythm instrument (most prominently tablā) is always used as an accompaniment, to manage the tempo and enhance the rhythmic beauty of music. Also, the tānpurā is used for continuous sur.

Duets are done between two melody instruments, or two rhythm instruments or one instrument of both the categories. Duets are called ‘Jugalbandi’ in Indian music.

Vocal music, in spite of the existence of a huge variety of instruments, is of prime importance in the tradition of Indian music. In India, vocal music receives utmost importance and all other instruments try to imitate it. Many bandishes made for vocal are used by the instrumentalists.

The most commonly used melody instruments in the present time are Flute, Harmonium, Santoor, Sārangi, Sarod, Shehnāi, Sitār, Tānpura, Violin, Hawaiian Guitar, Jal tarang etc.

The most commonly used rhythm instruments in the present time are Tablā, Pakhāwaj, Dhol and Dholak (folk instruments), Mridangam and Ghatam (South Indian Instruments) etc.
Some instruments of Indian music like Surbahār, Sur Singār, Esrāj, Dilrubā, Rabāb, Veenā (all types of veenā) etc., are not used very frequently. Also, there are certain instruments which have almost been outmoded by the present time.
Different styles of music tend to favor different groups of instruments, and thus we often identify a style by the sound of the ensemble. Jazz has its own typical sets of instrumentation, and these are part of the sound of jazz. Jazz musicians also strive to obtain a personal sound on their instrument, and many make use of extended effects to alter the sounds of their instruments.

The timbre of an instrument is the type of sound it makes. For instance, a trumpet and saxophone have different timbres, even when they are playing exactly the same notes. That is how you can tell the difference between them, just by listening to them.

The sound of the instruments used to produce a piece of music is the first thing we hear when we listen to it, so to some degree timbre is largely responsible for our initial reaction to music. Furthermore, most styles of music have their own characteristic sound, due to the types of instruments used and the way they are typically played. The sound of the symphony orchestra is part of the sound of classical music, the sound of the guitar is part of the sound of flamenco, and the amplified and often deliberately distorted sound of the electric guitar is part of the sound of rock. In jazz, the instrumentation of the typical group
has changed over time, but there are some common elements that can be considered part of the sound of jazz.

Jazz was a product of the meeting of African and European cultures in the American south. As a result, it inherited some of the instruments commonly used in these cultures. The instruments seen most commonly in traditional jazz were the trumpet, trombone, clarinet, tuba, string bass, banjo, piano, and drums. Usually a group would have either a tuba or a bass but not both; the same is true for banjo and piano, although it was not as unusual to see both in an ensemble. In any case, this instrumentation could produce a well-balanced sound - the banjo, piano, tuba, bass, and drums providing the rhythmic pulse, the banjo, piano, tuba, and bass additionally providing harmonic foundation, and the other wind instruments providing melody and additional harmony. The range of pitch, from the lowest notes of the tuba to the highest of the clarinet or trumpet, provided a rich sound. The players would often be improvising independent melodic lines simultaneously; the resultant counterpoint gave the music an even fuller sound than would otherwise be achieved.

While jazz has been primarily an instrumental music, singers have always had a place in the music as well. Singing in jazz was derived primarily from the blues, and early jazz singers typically used the same type of speaking or shouting tone, as opposed to the more song-like vocal quality associated with other types of music. Other jazz singers sang in a more lyrical manner. In addition, some vocalists would try to imitate instrumental sounds with their voices, using nonsense syllables or sounds rather than lyrics while singing. This is known as scat.

By the swing era, jazz ensembles began to favor the combination of piano, bass, and drums as the so-called "rhythm section". The use of counterpoint among the horns became much less common; instead one instrument would typically solo over accompaniment provided by the rhythm section. Also, the sound of the saxophone became to be most associated with jazz, at least as important as the trumpet. The trombone and clarinet continued to be used, but not as prominently. The banjo and tuba were reduced to novelty status for the most part. By the bebop era, the basic group timbre had changed due to these factors.

Many bandleaders chose to write and arrange music for larger ensembles. While the instrumentation of the ensembles was originally unique to each band, eventually, a
standardized big band took shape in which there are 15-20 musicians divided into sections of like instruments. The standard big band contains a trumpet section, a trombone section, and a saxophone section, as well as a rhythm section of piano, guitar, bass, and drums. Each section generally acts as a unit, with anywhere from two to six musicians either playing in unison, or playing parallel lines - melodies or riffs with the same rhythms but differing in pitch. The leading role usually shifts from section to section over the course of a piece, with the other sections providing background riffs. The composition of the typical ensemble in modern jazz has not changed much from the bebop era, although groups of more unusual instrumentation are not uncommon.

Even when more traditional instrument is used, however, there are elements in the music that can affect the overall timbre of the group. One such factor is free improvisation, which may include collective free improvisation. In this music, there may often be no rhythm section providing a constant rhythmic pulse or harmonic framework for improvisation. If piano, bass, or drums are present, they may be acting as equal contributors rather than as a rhythm section.

Extended Effects

Throughout the history of jazz, with the changes in typical instrumentation of ensembles and roles within those ensembles, one thing that has remained constant is the tendency of jazz instrumentalists to want to alter the sounds of their instruments. This is often done to give the music a more vocal quality. Trumpet and trombone players may use an assortment of different mutes to muffle and distort the sound of their instruments.

Wind instrument players also may manipulate their instruments or their embouchures in other ways to produce other effects such as vibrato, shakes, bent pitches, falls, splats, and growls.

While pianists cannot control their sounds so easily, they can still use effects such as percussive clusters, and they can reach inside the instrument to muffle or pluck the strings.

These techniques are sometimes called extended effects. In addition, the advent of electronic sound effects has opened a whole new world of sounds. Many jazz purists decry
this use of technology, but in many respects it is just an extension of the continual search for new sounds that has fascinated jazz musicians from the very beginning.

There are many different instruments that have been used in jazz, and most of these have come to take on specific roles. The roles of melody, harmony, bass, and rhythm are fundamental to music. The instruments discussing in this section are grouped according to the roles they generally fulfill in jazz. These categorizations should not be considered rules for how each instrument must be played in jazz; they are merely an attempt to acknowledge what has become common practice.

**Melody Instruments**

Instruments in this category include the trumpet, Trombone, The saxophone family (soprano, alto, tenor, and baritone most notably), Clarinet, Flute, and violin.

It is notable that wind instruments in jazz are commonly referred to as horns, regardless of whether they are woodwind or brass. These instruments are generally capable of playing only one note at a time, and their range resembles that of the human voice. Indeed, for the purposes of this categorization, we should include the human voice as well.

Melody instruments are often found playing the theme of a composition, accompanied by instruments of the other families (chordal, bass, and percussion).

Melody instruments generally serve as the focus of attention in the same way that singers in popular music do. Ironically, however, jazz singers do not solo as often as horn players.
This may be because singers are normally attuned to the lyrics as well as the melody, and it is extremely difficult to improvise words while singing. Instead, many singers improvise by scatting nonsense syllables:

Melody instruments, including the voice, can also be used to provide accompaniment. Just as pop groups may have backup singers, combos and especially big bands may also use melody instruments in background parts. This is sometimes heard as a single melody instrument playing a countermelody to the main theme or solo.

The use of melody instruments to provide accompaniment is more common in big bands than in combos because big bands are more likely to employ written arrangements that can organize this accompaniment.

**Chordal Instruments**

Instruments used for harmony are instruments that can play chords. That is, they can play more than one note at a time. Instruments in this category include Piano, Organ, Vibraphone and marimba, Guitar, and banjo.

These instruments are often found accompanying the melodic instruments. Because they are capable of playing chords, they are usually called upon to provide harmonic support for the melody instruments. Most commonly, they take the chords, decide which specific notes to include from them, and play them in some sort of rhythmic pattern.
Such instruments are often offered a chance to solo as well. When they do so, these instruments often tend to accompany themselves.

It is somewhat unusual to have more than one instrument from this category in a group, except for the guitar, which is often used in conjunction with another instruments used for harmony. Often the guitar is functioning more as a melody instrument than in this category.

Such instruments, bass instruments, and percussion instruments often work together to provide accompaniment. This combination of instruments is called a rhythm section. Traditionally, in jazz, the instrument for harmony relies on the bass and percussion to maintain the momentum. A piano or guitar player may then play as sparsely as he wishes.

When a harmony instrument is providing accompaniment without the benefit of bass or percussion, the player often takes on the roles of the missing instruments as well. In the following example, a horn player is accompanied by a pianist only, and the pianist is playing more bass notes and providing the momentum by himself to compensate.

**Bass Instruments**
The most common bass instrument is variously known as the acoustic bass, string bass, double bass, upright bass, standup bass, contrabass, or simply the bass.

There is also a bass guitar, also known as the electric bass. The tuba is in the bass instrument category as well.

These instruments, while limited for the most part to playing one note at a time, are pitched so low that they are rarely called upon to play a traditional melodic role. Instead, the artists spend most of their time playing as members of the rhythm section in an accompanying role.

There are two primary functions of the bass in a standard rhythm section. The first is to provide a harmonic foundation, usually by playing the roots of the chords.

Secondly, the bass plays some sort of rhythmic pattern. This leads to the second primary function of the bassist - to outline the pulse. While many people think of the percussion instruments as the ones keeping the beat, the bass is at least as important for this purpose.

Bass players do not tend to take improvised solos as often as other instruments, either. When a bass player performs solo, there is usually no other bassist to support him, and as a result, much of the momentum of the performance might be lost. It is up to the rest of the rhythm section to keep this from happening. On the other hand, they have to be careful not to overplay and drown out the bassist. It is a difficult balance.
Percussion Instruments

Percussion in jazz is virtually synonymous with the drum set, which is made of a variety of drums and cymbals.

In addition to the drum set, it is not unusual to see congas, timbales, tambourines, triangles, or other types of percussion instruments in jazz as well.

While piano, vibraphone, and marimba are technically considered percussion instruments, they are not usually treated as percussion in jazz. The main function of the percussion instruments is to accompany the other musicians with rhythmic support. Percussionists are considered members of the rhythm section. In most cases, they play a regular pattern, with improvised variations.

A percussionist need not adhere to a regular pattern. He may instead try to participate more actively in the interaction between the instruments.

Percussionists solo more rarely than other instruments. Drums solos are almost always unaccompanied.159

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159 E-book: Marc Sabatella; Outside Shore Music; 2000; retrieved on 14 April, 2011
A Short description of the main Instruments used in Indian music

1. Sarod

The sarod is believed to have descended from the Afghan rubāb, a similar instrument originating in Central Asia and Afghanistan.\textsuperscript{160} The name Sarod roughly translates to "beautiful sound" or "melody" in Persian (which is one of the many languages spoken in Afghanistan). Although the Sarod has been referred to as a “bass rubāb,”\textsuperscript{161} its pitch range is only slightly lower than that of the rubāb. Shri Lālmani Misrā opines in his ‘Bhāratiya Sangeet Vādyā’ that the sarod is a combination of the ancient chitra veenā, the medieval rubāb and modern sursingār.\textsuperscript{162}

Among the many conflicting and contested histories of the Sarod, there is one that attributes its invention to the ancestors of the present-day Sarod maestro, Amjad Ali Khan. Amjad Ali Khan’s ancestor Mohammad Hāshmi Khān Bangāsh, a musician and horse trader, came to India with the Afghan rubāb in the mid-18th century and became a court musician to the Maharajah of ‘Rewa’ (now in Madhya Pradesh). It was his descendants, notably his grandson Ghulām Ali Khān Bangāsh, a court musician in Gwalior, who changed the rubāb into the sarod we know today.\textsuperscript{163} A parallel theory credits descendants of Madār Khān, Niyāmatullāh Khān in particular, with the same innovation circa 1820. The sarod in its present recognizable form is dates back to approximately 1820,
when it started gaining recognition as a serious instrument in Rewa, Shāhjahanpur, Gwalior and Lucknow. In the 20th century, the conventional sarod is a 20-25-stringed lute-like instrument — four to five main strings used for playing the melody, one or two drone strings; two chikari strings and nine to eleven sympathetic strings. The design of this early model is generally credited to Niyāmatullāh Khan of the Lucknow Gharānā as well as Ghulām Ali Khān of the Gwalior-Bangāsh Gharānā. Among the contemporary sarod players, this basic design is kept intact by two streams of sarod playing.

Two of the earliest sarods are still in concert circulation. These are the sarods built for Niyāmatullāh Khān (c. 1840) and for Murād Ali Khān (c. 1860). Both have seen extensive use for over five generations, and are in perfect playing condition. As a result of the resurgence of these two early prototypes, the theories that proclaim the 20th-century variants to represent the zenith of sarod design; face a serious and credible challenge. The Murād Ali sarod, in particular, has acoustic sustain and projection that surpasses those of modern variants by a considerable margin. On this sarod, it is possible to sustain slides of up to ten whole tones on one string, with one downward stroke driving the string and membrane.

Another type is that designed by Allāuddin Khan and his brother Ayet Ali Khan. This instrument, referred to by David Trasoff (Trasoff, 2000) as the 1934 Maihar Prototype, is larger and longer than the conventional instrument, though the fingerboard is identical to the traditional sarod described above. This instrument has 25 strings in all. These include four main strings, four jod strings (tuned to N or D, R/r, G/g and S respectively), two chikari strings (tuned to Sa of the upper octav) and fifteen tarab strings. The main strings are tuned to Ma, Sa, lower Pa and lower Sa (c1, f1, g0, c0) giving the instrument a range of three octaves.

Sarod strings are made either of steel or phosphor bronze. Most contemporary sarod players use German or American made strings, such as Roslau (Germany), Pyramid (Germany) and Precision (USA). The strings are plucked with a triangular plectrum made of polished coconut shell, ebony, cocobolo wood, rosewood or other such materials. Early sarod players used plain wire plectrums, which yield a soft, ringing tone.
2. Flute

The flute is a musical instrument of the woodwind family. Unlike woodwind instruments with reeds, a flute is an aerophone or reed-less wind instrument that produces its sound from the flow of air across an opening. A musician who plays the flute can be referred to as a flute player, a flutist, or less commonly a fluter.

The bamboo flute is an important instrument in Indian classical music, and developed independently of the Western flute. The Hindu God Krishna is traditionally considered a master of the bamboo flute. The Indian flutes are very simple compared to the Western counterparts; they are made of bamboo and are keyless.\(^{164}\)

Indian concert flutes are available in standard pitches. In Carnatic music, the pitches are referred by numbers such as (assuming C as the tonic) 1 (for C), 1½ (C#), 2 (D), 2½ (D#), 3 (E), 4 (F), 4½ (F#), 5 (G), 5½ (G#), 6 (A), 6½ (A#) and 7 (B). However, the pitch of a composition is itself not fixed and hence any of the flutes may be used for the concert and is largely left to the personal preference of the artist.

Two main varieties of Indian flutes are currently used. The first, the Bansuri, has six finger holes and one embouchure hole, and is used predominantly in the Hindustani music of Northern India.

The quality of the flute's sound depends somewhat on the specific bamboo used to make it, and it is generally agreed that the best bamboo grows in the Nagercoil area in South India. Music Maestro Pannālāl Ghosh popularized flute in Indian music.

3. Harmonium

Harmonium is a free-reed keyboard instrument using wind under pressure supplied by compression bellows. It is invented by Alexandre-Francois Debian of Paris in 1840. After the introduction of the free-reed from Europe to China, a series of experiments got under way, resulting in a whole series of instruments.

In much of Europe, the term harmonium is used to describe all pedal-pumped keyboard free-reed instruments, making no distinction whether it has a pressure or suction bellows.

In India, the term generally refers to a hand-pumped instrument.

During the mid-19th century, missionaries brought French-made hand-pumped harmoniums to India. The instrument quickly became popular there: it was portable, reliable and easy to learn. It has remained popular to the present day, and the harmonium remains

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165. E- source: David; Guides, Rough; Edwards, Nick; Ford, Mike; Sen, Devdan; Wooldridge, Beth ; 2004, The Rough Guide to South India 3; London: Rough Guides. Pg- 670, 671

166. Sibyl Marcuse; Musical Instruments Comprehensive Dictionary; Doubleday & Company, INC., Garden City, New York. 1964; Pg- 228
an important instrument in many genres of Indian music. For example, it is a staple of vocal North Indian classical music concerts. It is commonly found in Indian homes. Though derived from the designs developed in France, the harmonium was developed further in India in unique ways, such as the addition of drone stops and a scale-changing mechanism.

In Kolkata, Dwārkānāth Ghose of the Dwarkin company modified the imported harmony flute and developed the hand-held harmonium, which has subsequently become an integral part of the Indian music scenario.\(^{167}\) Dwijendranāth Tagore is credited with having used the imported instrument in 1860 in his private theatre, but it was probably a pedal-pumped instrument that was cumbersome or possibly some variation of the reed organ. Initially it aroused curiosity, but gradually people started playing it,\(^{168}\) and Ghose took the initiative to modify it.\(^{169}\) It was in response to the Indian needs that the hand-held harmonium was introduced. All Indian musical instruments are played with the musician sitting on the floor or on a stage, behind the instrument or holding it in his hands. In that era, Indian homes did not use tables and chairs.\(^{170}\) Also, Western music being harmonically based, both a player's hands were needed to play the chords, thus assigning the bellows to the feet was the best solution; Indian music, being melodically based, only one hand was necessary to play the melody, and the other hand was free for the bellows.

The harmonium was widely accepted in Indian music, particularly Parsi and Marathi stage music, in the late 19th century. By the early 20th century, however, in the context of nationalist movements that sought to depict India as utterly separate from the West, the harmonium was portrayed as an unwanted foreigner. Technical concerns with the harmonium included its inability to produce meend (slides between notes) and the fact that, once tuned, it cannot be adjusted in the course of performance. The former prevents it from articulating the subtle inflections (such as āndolan, gentle oscillation) so crucial to many rāgas; the latter prevents it from articulating the subtle differences in intonational color between a given swara in two different rāgas. For these reasons, it was banned from All-India Radio from 1940 to 1971. On the other hand, many of the harmonium's qualities suited

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\(^{167}\) E-source: The invention of hand harmonium; Dwarkin & Sons (P) Ltd.. Archived from the original on 2007-04-09; Retrieved 2007-04-24.)


\(^{169}\) E-source: The invention of hand harmonium; Dwarkin & Sons (P) Ltd.. Archived from the original on 2007-04-09; Retrieved 2007-04-24.)

\(^{170}\) Ibid
it very well for the newly reformed classical music of the early 20th century: it is easy for amateurs to learn; it supports group singing and large voice classes; it provides a template for standardized rāga grammar; it is loud enough to provide a drone in a concert hall. For these reasons, it has become the instrument of choice for accompanying most North Indian classical vocal genres, with top vocalists routinely using harmonium accompaniment in their concerts. However, it is still despised due to its foreign origin by some connoisseurs of Indian music, who prefer the sārangi as an accompanying instrument for khayāl singing.

4. Santoor

Santoor is a very ancient instrument of India. The original name of this instrument was Shata-tantri Veenā which in Sanskrit language means a Veenā of 100 Strings. Today, when we say Veenā, it means a specific instrument but in ancient times Veenā was a common word for different kinds of string instruments. The first string instrument was called Pinaki-Veenā. The idea to create this instrument came from the Bow & Arrow. When Arrow was released, it created a sound, which initiated the idea which led to the invention of a musical instrument called the ‘Pinaki Veenā’. ‘Pinak’ in Sanskrit language means the Bow. In the Western Countries this instrument is called the Harp and in India we have got a miniature form of the same instrument known as “Swarmandal” which many vocalists these days use while singing.

The Ancient Scriptures of India mention a ‘Shata tantri Veenā’ which can be considered as the archaic name for ‘Santoor’. This instrument got its present name Santoor because of the influence of the Persian language in our Country. There are Hundred Strings in Santoor. It is
a hollow box on top of which there are 25 bridges. Each bridge used to have 4 strings resting on it. To play this instrument, two wooden mallets are used. This instrument had been in use in the Valley of Kashmir for many centuries, in a typical type of music known as “Sufiānā Mausiqi” which means a kind of music connected with Sufi philosophy. This style mostly uses Santoor as an accompanying instrument with the singers and sometimes as a solo instrument as well. In 1940s & 50s, the best known Sufiānā Musicians in Kashmir Valley were Mohamed Abdullāh Tibbat Baqāl and Mohamed Qaleen Bāf. Till then Santoor had never been used in Indian Classical Music. Actually, outside the Valley of Kashmir nobody had seen this instrument or heard the name Santoor.

One interesting feature about Santoor is that, a similar kind of instruments has been found in various parts of the world but with different names. In China it is called ‘Yang Quin’, in Central Asian Countries ‘Cimbale’, in Iran & Iraq ‘Santoor’, in Greece ‘Santoor’, in Germany ‘Hackbret’, in Hungary ‘Cymbalom’ and in many European Countries and America ‘Hammer-Dulcimer’. The noteworthy thing is that only the Valley of Kashmir has got a Hundred String Santoor whereas all above mentioned forms of the instrument have got either less or more than 100 strings. Some people claim that Santoor originated in Iran but according to Indian Musicologists and Ancient Sanskrit scriptures Santoor (Shata-tantri Veenā) is an Indian instrument. There is another theory that gypsies travelled from India to different other countries in Europe etc. probably they carried this instrument from India where it got different names and shapes in different parts of the World. In Hungary for example gypsy music is played on Cymbalom. In fact Santoor is the predecessor of Piano because it is based on the same system. There are strings inside Piano which are struck by small hammers when we press the keys of Piano.  

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171 E-source: www. Santoor.com; pt. Shivkumar Sharma); retrieved on Jan 8, 2009
5. Sārangi

The sārangi is a bowed, short-necked string instrument of India which originated from Rājasthāni folk instruments. It plays an important role in India's Hindustani classical music tradition. Of all Indian instruments, it is said to most resemble the sound of the human voice – able to imitate vocal ornaments such as gamakas (shakes) and meend (sliding movements).

Sārangi is a bowed chordophone of North India, the whole instrument usually been made of a single block of wood. The large, clumsy body has a waisted belly and very wide neck with lateral pegs for three gut strings to which one of metal is sometimes added. From 11 to 15 sympathetic strings pass through small holes in the finger board to reach their smaller pegs set in the neck. The Sārangi is held vertically, the strings being stopped laterally by the player’s finger nails.¹⁷²

¹⁷² Sibyl Marcuse; *Musical Instruments Comprehensive Dictionary*; Doubleday & Company, INC., Garden City, NewYork, 1964; Pg- 456
6. **Sitār**

The sitar is a long necked lute from India, of Persian origin. It is a plucked stringed instrument predominantly used in Indian and Pakistani classical music. It derives its resonance from sympathetic strings, a long hollow neck and a gourd resonating chamber.

Used widely throughout the Indian subcontinent, the sitar became known in the western world through the work of Pt. Ravi Shankar, beginning in the late 1950s and early 1960s after The Kinks' top 10 single "See My Friends" featured a low tuned drone guitar which was widely mistaken to be the instrument. The sitar saw further use in popular music after The Beatles featured the sitar in their compositions, namely "Norwegian Wood (This Bird Has Flown)" and "Within You Without You". Their use of the instrument came as a result of George Harrison taking lessons on how to play it from Shankar and Shambhu Das. Shortly after, Brian Jones of The Rolling Stones used a sitar in "Paint It, Black" and a brief fad began for using the instrument in pop songs.

The sitar's curved frets are movable, allowing fine tuning, and raised so that sympathetic strings (tarab, also known as "tārif" or "tarafdār") can run underneath them. A sitar can have 21, 22, or 23 strings, among them six or seven played strings which run over the frets: the Gandhār-pancham sitar (used by Vilayat Khan and his disciples) has six playable strings.

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173 Sibyl Marcuse; **Musical Instruments Comprehensive Dictionary**; Doubleday & Company, INC., Garden City, NewYork. 1964; Pg- 479

strings, whereas the Kharaj-pancham sitar, used in the Maihar Gharānā, to which Pt. Ravi Shankar belongs, and other gharanās such as Bishnupur, has seven. Three of these (or four on a Ghandhār-pancham sitar or "Vilayat Khan" style aka Etawa gharana), called the chikāri, simply provide a drone: the rest are used to play the melody, though the first string (bājtār) is most used.

The instrument has two bridges; the large bridge for the playing and drone strings and the small bridge for the sympathetic strings. Its timbre results from the way the strings interact with the wide, sloping bridge. As a string reverberates its length changes slightly as its edge touches the bridge, promoting the creation of overtones and giving the sound its distinctive tone. The maintenance of this specific tone by shaping the bridge is called javāri/ jivāri. Many musicians rely on instrument makers to adjust this.

Materials used in construction include teak wood or Tun wood (Cedrela tuna), which is a variation of mahogany, for the neck and faceplate (tablī), and gourds for the kaddu (the main resonating chamber). The instrument's bridges are made of deer horn, ebony, or very occasionally from camel bone. Synthetic material is now common as well. The sitar may have a secondary resonator, the tumbā, near the top of its hollow neck.

In Sitar, the melody is played on one string only, the others serving as the drone accompaniments. Some specimens have additional, sympathetic strings. The tuning is g₀ c₁ f₀ c₂. Sitar is plucked with a wire plectrum worn on the player’s right fore- finger.¹⁷⁵

The history of the sitar in jazz, that is the fusion of the sounds of Indian Classical music with Western jazz, dates back from the late-1950s or early-1960s when musicians trained in Indian Classical music such as Pt. Ravi Shankar started collaborating with jazz musicians such as Tony Scott and Bud Shank. Later jazz recordings containing sitar music include albums by Miles Davis, John Coltrane, Yusef Lateef, Joe Harriott (in collaboration with composer John Mayer), and Ornette Coleman.¹⁷⁶

¹⁷⁵ Sibyl Marcuse; Musical Instruments Comprehensive Dictionary; Doubleday & Company, INC., Garden City, New York. 1964; Pg- 479
7. Tablā

The tablā is a popular Indian percussion instrument (of the memberaphone family, similar to bongos), used in Hindustani classical music and in popular and devotional music of the Indian subcontinent. The instrument consists of a pair of hand drums of contrasting sizes and timbres. The term ‘tablā’ is derived from an Arabic word ‘tabl’, which simply means "drum".  

Playing technique involves extensive use of the fingers and palms in various configurations to create a wide variety of different sounds, reflected in the mnemonic syllables (bol). The heel of the hand is used to apply pressure or in a sliding motion on the larger drum so that the pitch is changed during the sound's decay.

Tablā is a drum of North and central India, with body of metal, wood or clay in shape of two truncated cones joined at their widest part. The single head is laced with thongs forming a zigzag pattern and tightened with cylindrical wooden dowels, the head is permanently treated with back tuning paste (syāhi); this accounts for its being compared to the right head of the Mridangam, it is generally played together with bānyā.  

Banyā is a small indoor kettledrum of India, with body of clay, wood or copper. The head is stretched over a hoop and laced in W or Y pattern with lather thongs, tensed with wedge bracings. Occasionally a permanent black tuning paste is applied to the head, in which

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case it is close to the edge, not in the center of the head. \textsuperscript{179} Tablā is the most commonly used rhythm instrument in North Indian music.

\section*{8. Tānpurā}

The tamburā, tamburā or tānpurā is a long-necked plucked lute (a stringed instrument found in different forms and in many places). The body shape of the tānpurā somewhat resembles that of the sitar, but it has no frets – and the strings are played open. One or more tānpurās may accompany other musicians or vocalists. It has four or five (rarely six) wire strings, which are plucked one after another in a regular pattern to create a harmonic resonance on the basic note (bourdon or drone function). An electronic tānpurā is often substituted in contemporary Indian classical music performance.

Tānpurās come in different sizes and pitches: larger "males", smaller "females" for vocalists, and a yet smaller version are used for accompanying sitar or sarod, called tamburi or tānpuri.

The standard tuning is 5-8-8-1 or, in Indian sargam, .P, S, S, .S For rāgas that omit the fifth, the first string is tuned down to the natural fourth: 4-8-8-1 or .M, S, S, .S Some rāgas require a less common tuning with shuddha Ni (one semitone below octave Sa), .N, S, S, .S With a

\textsuperscript{179} Sibyl Marcuse; Musical Instruments Comprehensive Dictionary; Doubleday & Company, INC., Garden City, New York. 1964; Pg- 33
five-string instrument, the seventh or N (natural minor or major 7th) is added .P, .N, S, S, .S (5-7-8-8-1) or .M, .N, S, S, .S (4-7-8-8-1).

The tānpurā is unique in many ways. It does not partake in the melodic part of the music, but it supports and sustains the melody by providing a colourful and dynamic harmonic resonance field based on one precise tone, the basic note or key note. Also, it is not played in rhythm with the music. Its tempo is independent of the music it supports, and the speed of playing may vary throughout a performance or remain relatively constant, at the discretion of the player.

The special overtone-rich sound is achieved by applying the principle of jivāri, which creates a sustained "buzzing" sound in which particular harmonics will resonate with focused clarity. Jiva refers to "soul", that which gives life, implying that the tānpurā embodies an "animated" tone quality. The principle of jivāri can be likened to the prismatic refraction of white light into the colours of the rainbow, as its acoustic twin principle at work.

9. Violin

The violin is a bowed chordophone, treble member of a family comprising violin, viaola and vioncello, usually with four strings tuned in perfect fifths. ¹⁸⁰

The violin is a very important part of South Indian classical music (Carnatic music). It is believed to have been introduced to the South Indian tradition by Bāluswāmi Dikshitār, the

¹⁸⁰ Sibyl Marcuse; *Musical Instruments Comprehensive Dictionary*; Doubleday & Company, INC., Garden City, New York. 1964; Pg-573
brother of Muthuswami Dikshitar. Though primarily used as an accompaniment instrument, the violin has become popular as a solo instrument in the orchestration.

In Indian film music, violin is one of the most essential instruments.

Indian classical music uses a very different grip from the traditional European classical genre. The violin is held perpendicular to the chest with the scroll pointing down. Generally, violinists sit cross-legged on the stage, with their right leg extended. The scroll is placed below the ankle of the right foot. This style is preferred for two reasons. Carnatic Music Concerts (Katcheris) are performed by smaller groups of artists than Western Classical Concerts due its complexity. The performers sit cross-legged on an elevated stage, and do not use chairs. Also, extensive use of gamakas necessitates more freedom for the left hand on the fingerboard, which is easier to achieve when seated cross-legged. Also, musicians play the instrument sitting squat on the floor and hence sometimes, the violin actually touches the floor.

In its Indian Classical form, the violin is also tuned differently. Instead of the conventional G-D-A-E, perfect fifth tuning, violins in Carnatic Music are tuned to fifths on the ‘G’ and ‘D’ string, with their higher octave equivalent in the ‘A’ and ‘E’ string. (i.e., the violin will be tuned as F-C-F-C or D-A-D-A etc.).
A Short description of the main Instruments used in Jazz music

1. Banjo

Banjo is the plucked chordophone of African Negro origin, introduced to the New World by slaves and popularized in 19th century, U.S., whence it was exported to Europe, Cuba, etc; this instrument had been preliminarily used in music hall and jazz.

The banjo has a body like a tambourine, a parchment membrane stretched over a circular frame with an open bottom, a bridge, and a long neck. On earlier specimens the neck is detachable cylindrical stick without frets; on later ones the neck is shorter and provided with a finger-board and raised metal frets. Originally there were 4 gut strings; since, banjos have been made with 5, 6, 7, or 9 metal strings, those having more than 5 long strings being called English guitar banjo. Banjos are played with a plectrum or with bare fingers (“finger-style banjos”). 181

The banjo is usually associated with country, folk, Irish traditional music and bluegrass music 182

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181 Sibyl Marcuse; Musical Instruments Comprehensive Dictionary; Doubleday & Company, INC., Garden City, New York. 1964;
Pg-35

182 E-source: Bluegrass Music: The Roots. IBMA; Retrieved on 2006-08-25
2. Clarinet

The clarinet is a type of woodwind instrument. The name derives from adding the suffix –et (meaning little) to the Italian word clarino (meaning a type of trumpet designed for high-register playing), as the first clarinets had a strident tone similar to that of a trumpet. The instrument has an approximately cylindrical bore, and uses a single reed. A person who plays the clarinet is called a clarinetist or clarinettist.183

Organologists and ethnomusicologists consider as a clarinet any reed-pipe with a mouthed single beating reed; Sachs defined it in this wider sense as a tube closed at the upper end, with a nearby blowhole covered by a beating reed.

Such instruments were already known to ancient Egypt, where the blowhole was made by cutting a 3-sided oblique slit into the cane, thereby forming a tongue, i.e., an idioglott reed. Their origin is unknown. When the clarinet first appears in higher civilizations, it is in form of a double clarinet. The ancient Egyptian pipes, if we may judge by the manner of present-day performance throughout the East, were played by mouthing the reed while the player continued to breathe through his nose, thus creating a continuous sound. Modification of timbre and dynamics is not possible with this playing technique. Idioglott clarinets are played in modern Egypt and also in Asia.

As the clarinet's bore is cylindrical, the instrument has the characteristics of a stopper pipe, sounding an octave lower than an open pipe, with concomitant stress of the uneven harmonics.184

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183 Ref.- E-source: en.wikipedia.org/wiki/Clarinet
184 Sibyl Marcuse; *Musical Instruments Comprehensive Dictionary*; Doubleday & Company, INC., Garden City, NewYork. 1964; Pg- 106
Clarinets comprise a family of instruments of differing sizes and pitches. The unmodified word clarinet usually refers to the Bb soprano clarinet, by far the most common clarinet. However, the clarinet family is the largest woodwind family, with more than a dozen types, ranging from the (extremely rare) BBBb octo-contrabass to the Ab soprano (piccolo clarinet).

Today, the clarinet is used in jazz and classical ensembles, in chamber groups, and as a solo instrument.

<table>
<thead>
<tr>
<th>Name</th>
<th>Key</th>
<th>Commentary</th>
<th>Range (concert)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piccolo clarinet</td>
<td>A♭</td>
<td>Now rare, used for Italian military music and some contemporary pieces for its sonority;</td>
<td><img src="image" alt="Piccolo Clarinet" /></td>
</tr>
<tr>
<td>E-flat clarinet(Soprano clarinet)</td>
<td>E♭</td>
<td>Characteristic timbre, used in concert band repertoire because its tonality is considered &quot;compatible&quot; with other instruments, especially those in B♭ .</td>
<td><img src="image" alt="E-flat Clarinet" /></td>
</tr>
<tr>
<td>Soprano clarinet</td>
<td>D</td>
<td>Obscure because of its limited repertoire in Western music.</td>
<td><img src="image" alt="Soprano Clarinet" /></td>
</tr>
<tr>
<td>Instrument</td>
<td>Pitch</td>
<td>Description</td>
<td></td>
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<tr>
<td>---------------------</td>
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<td>-----------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>C Clarinet</td>
<td>C</td>
<td>Rare because its timbre is considered too bright.</td>
<td></td>
</tr>
<tr>
<td>B♭ Soprano Clarinet</td>
<td>B♭</td>
<td>The most common type: used in most styles of music.</td>
<td></td>
</tr>
<tr>
<td>A clarinet</td>
<td>A</td>
<td>Has a richer sound than B♭, frequently used in orchestral and chamber music.</td>
<td></td>
</tr>
<tr>
<td>Basset clarinet</td>
<td>A</td>
<td>Clarinet in A extended to a low C; used primarily to play Classical-era music. Mozart's Clarinet Concerto was written for this instrument, though it is frequently played in a version for the ordinary A clarinet. Basset clarinets in Bb also exist; this instrument is required to play the obbligato to the aria &quot;Parto, parto&quot; in Mozart's La Clemenza di Tito.</td>
<td></td>
</tr>
<tr>
<td>Basset-horn</td>
<td>F</td>
<td>Similar in appearance to the alto, but differs in that it is pitched in F, has an extended range to low C, and has a narrower bore on most models. Mozart's Clarinet Concerto was originally sketched out as a concerto for basset horn in G. Rarely used today.</td>
<td></td>
</tr>
<tr>
<td>Alto clarinet</td>
<td>E♭</td>
<td>Used in chamber music and wind ensembles.</td>
<td></td>
</tr>
<tr>
<td>Bass clarinet</td>
<td>B♭</td>
<td>Used in contemporary music, concert band and jazz; sometimes used in orchestral music.</td>
<td></td>
</tr>
<tr>
<td>Contra-alto clarinet (also called E♭ Contrabass Clarinet)</td>
<td>EE♭</td>
<td>Used in clarinet choirs.</td>
<td></td>
</tr>
<tr>
<td>Contrabass clarinet (also called B♭ Subcontrabass or Double-bass Clarinet)</td>
<td>BB♭</td>
<td>Used in clarinet choirs and sometimes in orchestras and wind ensembles.</td>
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</tr>
</tbody>
</table>

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3. Drum

The drum is a member of the percussion group of musical instruments, which is technically classified as the membraphones. Drums consist of at least one membrane, called a drumhead or drum skin that is stretched over a shell and struck, either directly with the player's hands, or with a drum stick, to produce sound. There is usually a "resonance head" on the underside of the drum; these are usually tuned to a slightly lower pitch than the top drumhead. Other techniques have been used to cause drums to make sound, such as the thumb roll. Drums are the world's oldest and most ubiquitous musical instruments, and the basic design has remained virtually unchanged for thousands of years.¹⁸⁶

All types of drums such as timpani for example are always tuned to a certain pitch. Often, several drums, other than timpani drums, can be arranged together to create a drum kit.¹⁸⁷

Membranophone with a body that is either tubular (cylindrical, conical, barrel-shaped, etc.) or vessel-shaped (kettledrum) or that consists of a frame (tambourine, etc.) and is sounded by percussion, being struck by the player's bare hands or by beaters.

In one form or another, drums are known all over the world (with the exception of a few primitive people); their age is unknown, but we can follow them back to about 3000 B.C. In many races they serve more as sacred or ritual objects than as rhythm instruments. In Africa, the extra-musical function of drums is such that in many regions they may be said to participate actively in daily life, at religious and civil ceremonies, at the hunt, in transmitting messages, etc.

European antiquity knew no drum other than the Semitic frame drum used in Greece and Rome. During the middle Ages drums were introduced from west Asia; they were stuck with sticks and served above all as timekeeping devices with little metrical development.
Barrel drum, bass drum, bowl drum, conical drum, cylindrical drum, daiko, double conical drum, footed drum, frame drum, friction drum, goblet drum, gong drum, ground drum, hourglass drum, kettledrum, ku, machine drum, pedal drum, plucked drum, pot drum, rattle drum, sand drum, side drum, slit drum, steel drum, tabor, “talking drum”, tambourin, tambourine, tsuzumi, water gourd etc are the different types of drums.188

4. Guitar

The guitar is a plucked string instrument, usually played with fingers or a pick. The guitar consists of a body with a rigid neck to which the strings, generally six in number, are attached. Guitars are traditionally constructed of various woods and strung with animal gut or, more recently, with either nylon or steel strings. Some modern guitars are made of polycarbonate materials. There are two primary families of guitars: acoustic and electric.

188 Sibyl Marcuse; Musical Instruments Comprehensive Dictionary; Doubleday & Company, INC., Garden City, NewYork. 1964; Pg-156
Acoustic guitars (and similar instruments) with hollow bodies have been in use for over a thousand years. There are three main types of modern acoustic guitar: the classical guitar (nylon-string guitar), the steel-string acoustic guitar, and the arch top guitar. The tone of an acoustic guitar is produced by the vibration of the strings, which is amplified by the body of the guitar, which acts as a resonating chamber. The classical guitar is often played as a solo instrument using a comprehensive finger picking technique.

Guitars are recognized as a primary instrument in genres such as blues, bluegrass, country, flamenco, jazz, jota, mariachi, metal, reggae, rock, soul and many forms of pop.

It is a plucked chordophone with built-up, characteristically incurved ribs forming a waist. Prototypes of the guitar are believed to be represented by 4 specimens of a wooden instrument with built-up body, sharp incurve of the ribs, and long narrow neck bearing signs of having had 3 or 4 strings and frets, excavated in Egypt and assigned to a period between the 4th and 6th century A.C. Such instruments might have been introduced to Spain by the Arabs, it is argued. 189

189 Sibyl Marcuse; *Musical Instruments Comprehensive Dictionary*; Doubleday & Company, INC., Garden City, NewYork. 1964; Pg- 218
Before the development of the electric guitar and the use of synthetic materials, a guitar was defined as being an instrument having "a long, fretted neck, flat wooden soundboard, ribs, and a flat back, most often with incurved sides". The term is used to refer to a number of related instruments that were developed and used across Europe beginning in the 12th century and, later, in the Americas.

These instruments are descended from ones that existed in ancient central Asia and India. For this reason guitars are distantly related to modern instruments from these regions, including the tambur and the sitar. The oldest known iconographic representation of an instrument displaying the essential features of a guitar is a 3,300 year old stone carving of a Hittite bard. The guitar is a transposing instrument. Its pitch sounds one octave lower than it is notated on a score. A variety of tunings may be used. The most common tuning, known as "Standard Tuning," has the strings tuned from a low E, to a high E, traversing a two octave range—EADGBE.

Range of guitar:
Piano is a stringed keyboard instrument invented by 1709 by Bartolommeo Cristofori of Padua, then in Florence, characterized by a hammer action. Cristofori called his new instrument the gravicembalo col pian e forte (harpsichord with soft and loud), and our names piano and pianoforte are merely abbreviations thereof. In 18th-century France and Germany the word was reversed to forte-piano. The modern piano is made in 2 forms: horizontal (“grand piano”) or vertical (“upright”, “spinet”, or “console”) piano, each maker having his own standards of length or height. Generally it has a compass of 7 octaves and a 3rd, A2 – C5. When not in use the keys are covered by the fall-board, which folds up against
the name-board. Behind this lies the pin block, or wrest plank, of laminated wood, drilled in its entire depth with holes for the tuning pins. The nut of its precursor, the harpsichord, is replaced by agraffes in the bass and a capotasto bar in the treble. A narrow gap is left behind the pin block for the hammers to raise and strike the strings; this gap is closed to the rear by the belly rail, to which the front edge of the soundboard is glued. The latter bears a stout, S-shaped bridge, which is undercut on the side facing the tail and placed diagonally in order to facilitate cross-stringing. Stringing is trichord in the treble, bichord in the middle, and single in the bass, the change over points being known technically as “breaks”. A metal frame is set over the entire pin block and the soundboard.

Once the instrument is strung, the pressure of the strings on the bridge causes the belly to flatten out. The soundboard is made of softwood (increasingly, of laminated wood) and has been heavily varnished on both sides since the 19th century. Square pianos of the early 19th c. often have the upper surface varnished, and in 1826 a patent was taken out for a soundboard to be varnished on both sides. On grand pianos 3 pedals (in Europe 2) are suspended in a “lyre”. The left, or “piano”, pedal is also called the “soft”, or “una corda”, pedal; it shifts the key frame slightly to the treble so that the left string of each corse in no longer struck by hammer (in a few makes this pedal, instead raises the hammer rail); the middle pedal, called sostenuto, immobilizes any raised dampers until the pedal is released, thus permitting a tone or chord to continue sounding even after other strings have been struck; the right, or sustaining, pedal also called “damper” or “loud” pedal, raises all the dampers and holds them suspended until the pedal is released. The action is mounted on a bracket attached to a key frame (in grand pianos), and the whole is enclosed in a case of laminated hard wood.  

Range of Piano:

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193 Sibyl Marcuse; *Musical Instruments Comprehensive Dictionary*; Doubleday & Company, INC., Garden City, New York. 1964, Pg. 402
6. Saxophone

The saxophone (also referred to as the sax) is a conical-bore transposing musical instrument that is a member of the woodwind family. Saxophones are usually made of brass and played with a single-reed mouthpiece similar to that of the clarinet.

The saxophone was invented by the Belgian instrument maker Adolphe Sax, then of Brussels, in 1841. He wanted to create an instrument that would be the most powerful and vocal of the woodwinds and the most adaptive of the brass—that would fill the vacant middle ground between the two sections. He patented the sax in France on June 28, 1846, with wide cronical bore and slightly flared bell, made of metal, with oboe-like key arrangement, a mouthpiece similar to clarinet, and played with a single reed\(^\text{194}\) in two groups of seven instruments each. Each series consisted of instruments of various sizes in alternating transposition. The series pitched in B\(\flat\) and E\(\flat\), designed for military bands, has proved extremely popular and most saxophones encountered today are from this series. Instruments from the so-called "orchestral" series pitched in C and F never gained a foothold.

While proving very popular in military band music, the saxophone is most commonly associated with jazz and classical music. There is substantial repertoire of concert music in the classical idiom for the members of the saxophone family. Saxophone players are called saxophonists.

\(^{194}\) Sibyl Marcuse; *Musical Instruments Comprehensive Dictionary*, Doubleday & Company, INC., Garden City, New York. 1964, Pg. 460
The primary (military band) saxophone family alternates instruments in B♭ and E♭. The other ("orchestral") family patented by Sax, alternating instruments in C and F, has always been marginal, although some manufacturers tried to popularize the soprano in C (or C soprano saxophone), the alto in F (or mezzo-soprano saxophone), and the tenor in C (or C melody saxophone) early in the twentieth century. The C melody enjoyed some success in the late 1920s and early 1930s as a parlor instrument. One company has recently revived production of the C soprano and C melody. Instruments in F are rare.

The saxophone has more recently found a niche in both concert band and big band music, which often calls for the E♭ baritone, B♭ tenor and E♭ alto. The B♭ soprano is also occasionally used, in which case it is normally played by the first alto saxophonist. The bass saxophone in B♭ is called for in band music (especially music by Percy Grainger) and big band orchestrations, especially music performed by the Stan Kenton Mellophonium Orchestra. In the 1920s the bass saxophone was used often in classic jazz recordings, since at that time it was easier to record than a tuba or double bass.

Range of Saxophone:

![Range of Saxophone](image)

7. **Trombone**

The trombone is a brass wind instrument, with cylindrical bore. Like all brass instruments, sound is produced when the player’s vibrating lips (embouchure) cause the air column inside the instrument to vibrate. Nearly all trombones have a telescoping slide mechanism that varies the length of the instrument to change the pitch. Instead of a slide, the valve trombone has three valves like those on a trumpet.
The trombone started life as an improvement of the trumpet, perhaps at the court of Burgundy at the turn of 14/15th century.\textsuperscript{195}

The word ‘trombone’ (German: \textit{Posaune}, Spanish: \textit{Trombon}) derives from Italian ‘tromba’ (trumpet) and ‘-one’ (a suffix meaning "large"), so the name means "large trumpet". The trombone has a predominantly cylindrical bore like its valved counterpart the baritone horn and in contrast to its conical valved counterparts, the euphonium and the orchestral horn. The most frequently encountered trombones are the tenor trombone and bass trombone, while the E\textsubscript{♭} alto trombone has become less common as tenor technique has extended the upper range of that instrument. The most common variant, the tenor, is pitched in B\textsubscript{♭}, an octave below the B\textsubscript{♭} trumpet and an octave above the B\textsubscript{♭} tuba. Trombone music, along with music for euphonium and tuba, is typically written in concert pitch, although exceptions do occur, notably in some brass band music where tenor trombone is presented as a B\textsubscript{♭} transposing instrument.

A person who plays the trombone is called a trombonist or trombone player.

Trombones are also common in swing, jazz, salsa, rock, R&B and New Orleans brass bands.

\textsuperscript{195} Ref.- Sibyl Marcuse; \textit{Musical Instruments Comprehensive Dictionary}; Doubleday & Company, INC., Garden City, NewYork. 1964; Pg-533
8. Trumpet

The trumpet is the musical instrument with the highest register in the brass family. Trumpets are among the oldest musical instruments, dating back to at least 1500 BC. They are played by blowing air through closed lips, producing a "buzzing" sound that starts a standing wave vibration in the air column inside the instrument. Since the late 15th century they have primarily been constructed of brass tubing, usually bent twice into a rounded oblong shape.

There are several types of trumpet; the most common is a transposing instrument pitched in B♭ with a tubing length of about 148 cm. Earlier trumpets did not have valves, but modern instruments generally have either three piston valves or, more rarely, three rotary valves. Each valve increases the length of tubing when engaged, thereby lowering the pitch.

A musician who plays the trumpet is called a trumpet player or trumpeter.

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In the ancient Mediterranean area the trumpet was both a war instrument and a temple instrument.\textsuperscript{197}

The trumpet is constructed of brass tubing bent twice into a rounded oblong shape.\textsuperscript{198} The trumpet and trombone share a roughly cylindrical bore, which results in a bright, loud sound. The bore is actually a complex series of tapers, smaller at the mouthpiece receiver and larger just before the flare of the bell begins; careful design of these tapers is critical to the intonation of the instrument.

As with all brass instruments, sound is produced by blowing air through closed lips, producing a "buzzing" sound into the mouthpiece and starting a standing wave vibration in the air column inside the trumpet. The player can select the pitch from a range of overtones or harmonics by changing the lip aperture and tension (known as the embouchure). The mouthpiece has a circular rim, which provides a comfortable environment for the lips' vibration. Directly behind the rim is the cup, which channels the air into a much smaller opening (the back bore or shank) that tapers out slightly to match the diameter of the trumpet's lead pipe. The dimensions of these parts of the mouthpiece affect the timbre or quality of sound, the ease of playability, and player comfort. Generally, the wider and deeper the cup, the darker the sound and timbre is.

Modern trumpets have three (or infrequently four)piston valves, each of which increases the length of tubing when engaged, thereby lowering the pitch. The first valve lowers the instrument's pitch by a whole step (2 semitones), the second valve by a half step (1 semitone), and the third valve by one-and-a-half steps (3 semitones). When a fourth valve is present, as with some piccolo trumpets; it lowers the pitch a perfect fourth (5 semitones). Used singly and in combination these valves make the instrument fully chromatic, i.e., able to play all twelve pitches of classical music.

The pitch of the trumpet can be raised or lowered by the use of the tuning slide. Pulling the slide out lowers the pitch; pushing the slide in raises it. To overcome the problems of intonation and reduce the use of the slide, Renold Schilke designed the tuning-bell trumpet. Removing the usual brace between the bell and a valve body allows the use of a sliding

\textsuperscript{197} Ref. - Sibyl Marcuse; *Musical Instruments Comprehensive Dictionary*; Doubleday & Company, INC., Garden City, New York. 1964; Pg-539

\textsuperscript{198} E- source: "Trumpet, Brass Instrument"; dsokids.com; Retrieved 2008-05-03
bell; the player may then tune the horn with the bell while leaving the slide pushed in, or nearly so, thereby improving intonation and overall response.\textsuperscript{199}

A trumpet becomes a closed tube when the player presses it to the lips; therefore, the instrument only naturally produces every other overtone of the harmonic series. The shape of the bell is what allows the missing overtones to be heard.\textsuperscript{200} Most notes in the series are slightly out of tune and modern trumpets have slide mechanisms built in to compensate.

Range of Trumpet:

9. Tuba

The tuba is the largest and lowest-pitched brass instrument. Sound is produced by vibrating or "buzzing" the lips into a large cupped mouthpiece. It is one of the most recent additions to the modern symphony orchestra, first appearing in the mid-19th century, when it largely replaced the ophicleide.\textsuperscript{201} Tuba is Latin for trumpet or horn. The horn referred to would most likely resemble what is known as a baroque trumpet.
The tuba has been made in different sizes, from tenor to subcontrabass, and in different shapes. Members of this family are used both in the orchestra and in military or other wind bands; they are fitted with 3-5 valves. 202

The tuba has been used in jazz since the genre's inception. In the earliest years, bands often used a tuba for outdoor playing and a double bass for indoor performances. In this context, the tuba was sometimes called "brass bass", as opposed to the double bass, which was called "string bass"; it was not uncommon for players to double on both instruments.

When used in modern jazz, tubas usually fill the traditional bass role, although it is not uncommon for them to take solos. New Orleans style Brass Bands like the Dirty Dozen Brass Band and the Rebirth Brass Band use a sousaphone as the bass instrument. Bill Barber played tuba on several Miles Davis albums, including Birth of the Cool and "Miles Ahead". New York City-based tubist Marcus Rojas has performed frequently with Henry Threadgill.

Range of Tuba:

The treasury of Jazz and Indian music includes many other instruments. But here, the main focus has been drawn towards those few instruments which along with Indian and Jazz music, majorly contribute to Fusion music as well.

We shall now proceed towards understanding the application of these concepts, patterns, styles, and instruments in music. Let us begin with analyzing some recordings of Indian, Jazz and Fusion music in detail.

202 Sibyl Marcuse; Musical Instruments Comprehensive Dictionary; Doubleday & Company, INC., Garden City, New York. 1964; Pg 545,546