

SIGNIFICANCE OF SPACE AND TIME IN MUSIC

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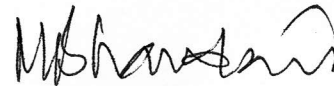
'Significance of Space and Time in Music'

by

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Guide



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INTRODUCTION

The object of this project is to study the relationship between space, time and music. An attempt is made here to briefly show how space and time are used to advantage in music, and how music is modulated to create effects of space and time.

There can be two distinct approaches for conducting this type of study. One would involve selection of a particular form of music like rock music, hindustani classical music, folk music or any other, followed by a study of how spatial and temporal effects are created in that musical form. This would require a thorough study of that particular form of music and access to a large number of compositions of the same.

The other approach would be to keep the spectrum of the choice of music wide, and exemplify through various forms of music, how spatial and temporal effects are achieved.

The method followed here is the second one, as the first one necessarily requires an extensive knowledge of one particular form of music.

The ideas expressed and interpretations made are personal and hence highly subjective.

ORIGINS OF SOUND

'Nada Brzhma'-
the
primal
word
in
Indian
spirituality
that
refers
to
the
classical
music
of
India.
'Nada'
is
a
Sanskrit
word
meaning
'sound'
with
additional
meanings
like

'sounding, droning, roaring, howling, screaming....'

'Brahma' is one of the three main deities of Hinduism with Shiva and Vishnu. Thus, 'Nada Brahma means' sound is God' or vice a versa 'God is sound!

However, 'Brahma is also depicted as having four heads, which look toward the four cardinal points of the world and hence 'Brahma' also means the universe, the cosmos. Hence, 'the world is sound' or 'sound is the world'.

Modern physics has led to a lot of startling discoveries about the sub-atomic particles. Basic questions regarding the solidity of matter have been raised through the Heisenberg uncertainty principle. 'Is matter mere vibration? and energy?' This has led to a lot of speculations and ideas. Some say that the cosmos and the earth, organic and inorganic things, plants and human beings are vibrations; and therefore, they are sound (as sound is vibration. These vibrations however may be within the hearing range or above or below it. The entire universe and everything contained in it may be creating various sounds but humans might not be equipped to hear it.

'Om' is the primordial sound as expressed in Hinduism, and it is the most important 'mantra'. In the Upanishads, 'Om' is divided into its phonetic components, whereby O is seen as a combination of A and U. 'Om' is the expression of the highest consciousness and the three

elements A,U and M are explained as three degrees of consciousness : the waking consciousness, the dream consciousness and the consciousness of deep sleep.

Indian philosophers have explained the subtle gradations of the process by which sound is released from the body. It arises in the sub-conscious, which is realized as intention in the conscious mind. Well up from the depths of the body, it is manifested in the throat, articulated into speech by the organs of utterance (palate tongue, lips) and discharged into the air as sound.

'Om' corresponds to 'Amen' in the Christian world and to 'Amin' of the Muslims.

Response to music being a highly subjective phenomenon, there exist a large number of 'definitions' for music ranging from highly technical or 'scientific' definitions to overly emotional ones. Music has often been defined as 'structured sound'; it would however be difficult to say what structure is, apart from the fact that structure is primarily based on culture.

At the other end, we have generalised definitions like 'music is overflow of emotion' or Richard Wagners definition 'The organ of the emotions is sound, its intentionally aesthetic language is music'. On account of its varied form, music cannot be categorised as deliberate or accidental, structured or unstructured...

THE ART OF MUSIC

It will be a fallacy to say that music is purely temporal. No doubt music is essentially based on time; its relation to space however, cannot be denied.

Music has often been compared to the other arts, architecture, for example. Johann Von Schiller has described architecture as 'frozen music'. This metaphor has been picked up, twisted and made equally apt by defining music as 'fluid architecture'. These two arts can be compared, as both have shape and design. At the same time they are different because architectural design is perceived in one instant, we see it before us, whereas music flows to us, we perceive it over a period of time, we don't hear it all at once. This applies to all visual art, where the aesthetic moment is for a flitting instant when the spectator perceives a work of art. In music the aesthetic experience is not a moment, it is stretched in time.

Sculpture, painting, architecture have visible forms, dance and theatre have visible movement, poetry entertains us with definite conceptions. Music pleases us through sounds, mental images, memory....

Attempts have been made to draw parallels between language and music. The difference lies in the way 'sound' is used in both: in language or speech sound is used as a sign, a means to express a thought or idea; whereas sound in music is the end or the object in view.

Music and the Arts

There are various ways in which the arts have been classified; based on the medium of expression, based on the sense of perception etc. One mode of classification makes a distinction between the arts of space and the arts of time, or the spatial and the temporal arts. Further classifications, more detailed are worked out from this latter mode.

Two of them are quoted below.

SCULPTURE PAINTING	POETRY DANCE
ARCHITECTURE	MUSIC

Reproductive arts
Figurative arts
Arts with determinate associations

Free arts
Abstract arts
Arts with indeterminate associations

Spatial arts
Motionless arts
Arts dealing with images

Temporal arts
Arts of motion
Arts dealing with gestures and sounds

ARCHITECTURE	MUSICRY	MUSIC
SCULPTURE	STORY	THEATRE
PAINTING	POETRY	DANCE

Arts that encl-
ose a created
dimension

Arts that occupy
a created
dimension

Arts that are
the dimension
they create

Arts of
space

Arts of
time

Arts of
'becoming'

Subjectivity

Though a lot is said about music and emotions, music is incapable of expressing definite emotions and equally incapable of expressing definite ideas. Music can however, represent some feelings or parts of feelings though not the subject matter involved in them. Some musicologists feel that music can represent only the dynamic properties of feelings. Speed, slowness, strength, weakness, increasing and decreasing intensity can be expressed by corresponding modifications of sound, and these are not specific feelings.

Appreciation of music is highly subjective and it depends upon a large number of variables like the environment, the mental state of the listener, the listeners impressibility, the listeners exposure to music and so on. Each listener has his own personal mode of perception and interpretation of music based on the above mentioned factors. Thus a particular piece of musical composition can have as many interpretations as there are listeners to it.

The beauty of music lies in its ambiguity. As mentioned earlier, music can express no definite or clear ideas, It is also probable that the same musical composition can evoke in the minds of two people totally opposing mental pictures or images. What music presents to the mind is an 'amorphous mass of idea' which is moulded and shaped by the listeners unconscious and conscious associations.

PERCEPTION AND EXPERIENCE IN MUSIC

The listening experience is particularly difficult to describe: not only because it changes in response to different stimuli and external conditions, but also because it depends heavily on one's early musical memories, ways in which one is taught to listen, conscious likes and dislikes, physical tensions, unconscious associations, and the like.

There are four generally accepted modes of perception of music. These are

Synoptic comprehension

Immediate apprehension

Coconstruction

Imagery

Synoptic comprehension

Literally, 'synoptic' means viewed side by side and this mode of listening is also called structural hearing. This is concerned with the unity of the entire composition, its design. To a certain extent this is conceptual and it depends on memory, as it is a realisation of what has just been perceived. Responding to a musical composition as a whole, realising and appreciating the

way the musical details fit into the whole is what synoptic comprehension is all about. Space and time one may say exist as a continuum, a whole, undivided and unfragmented. It is almost as if space-time and music co-exist as one without one fragmenting the other.

The listener reacts to music as an object and not a process. This mode of comprehension can be compared to what is known as the gestalt vision, rather gestalt audition.

Immediate apprehension

As against synoptic comprehension or structural hearing this mode of perception is referred to as associative hearing. In this case the mind does not experience the space time continuum as a whole but what one might call a spatio-temporal cross section. This cross section is often referred to as an aesthetic surface which is bound together by point-to-point, moment-to-moment, area-to-area relationships. These relationships might not produce a perceptible unit as a whole but might help to understand and relate to the immediacy of the music. The listener in this case is reacting to the music not as an object, but music as a process. This involves appreciation of the finer details of the music in themselves and not as related to the whole. For example while listening to a composition, it is very likely that

one chord or one note might give rise to immense pleasure: or the intricate melody woven by one violin in an orchestra can be highly appealing. The nuances in music matter a lot in this case.

Coconstruction

The listener in this case is constructing in his mind a parallel theme in relation to the music that is unfolding before him. There is a continuous attempt to 'guess' the notes 'just before' the listener hears them. The listener is creating his own mental music to match the actual music that is playing before him, and the excitement lies in the mismatch or gap between these two.

Imagery

Musical appreciation depends on a large number of subjective factors. Music is hence often related to the mental condition of the listener, and therefore each musical composition can give rise to a unique mental picture. This mental picture could be the surrounding environment when the listener first heard that particular composition, it could be the nostalgic image of a certain place or situation, or it could be fantasy oriented image building.

Sounds, in terms of strength, pitch, velocity and rhythm aid the listener in conjuring up a 'figure' which

carried certain visual impressions.

'There is a well founded analogy between motion in space and motion in time, between the colour, texture and size of an object and the pitch, timbre and strength of a tone and it is for this reason quite practicable to paint an object muscially' - The Beautiful In Music.

These processes or modes of perception are, however, often unconscious and the listener may or may not be aware of them.

ENGINEERING OF MUSIC

The psychology of music is divided into three large fields dealing with the musician, the music as a thing in itself, and the musical activity(mental) of the listener.

Music is essentially sound waves and there are certain parameters by which an audio signal can be expressed.

These are

Frequency

Intensity

Duration

Form

Physically an infinite variety of musical sound can be reduced to these four variables and measured in terms of them. The psychological attributes of these variables are pitch, loudness, time and timbre. Rhythm, harmony, volume and tone quality are compounds of these; thought, feeling, action, memory and imagination are in terms of these. In apprehending these four qualities four fundamental sensory capacities come into play. These are the sense of tone quality, the sense of consonance, the sense of volume and the sense of rhythm.

Frequency: Pitch

Frequency, number of vibrations per second, cycles and waves are terms which mean the same thing. The term pitch was used in two ways, in the narrow sense to

denote an attribute of the sound as heard, the mental experience; and in a broader sense to denote the total process, physical, physiological and psychological. In current practice, pitch denotes the psychological experience and frequency denotes the physical vibration.

Pitch is that qualitative attribute of auditory sensation which denotes highness or lowness in the musical scale and is conditioned primarily on the frequency of sound waves. Pitch is a qualitative attribute of tonal sensation and it denotes highness or lowness in the tonal continuum along the musical scale. The listener can never be directly aware of the rate of vibration as such, for what is heard is musical pitch. This is often called a transformation from 'matter to mind! Out of mere vibration, an ensemble of musical tones is built which in no way suggests vibration. Pitch discrimination is the ability to be able to perceive minute changes in the variation of pitch.

Loudness: Intensity

Intensity is frequently used to designate either the mental or both. One is less conscious of intensity in comparison to the other three attributes in music. The musical score shows only very crude indications of intensity. The dynamic aspects of music are reduced to intensity.

Sensitivity and discrimination are 2 measures which are basic to all dynamic aspects of tone. One is the natural capacity of the ear for becoming aware of sounds, the other is a measure of the capacity of the ear for hearing differences.

Duration : Time

Pitch and intensity are always recorded against time, expressing the duration of notes, pauses or any specific feature of these.

There are two aspects of the sense of time: namely that concerned with fine distinctions of short intervals of time and that concerned with the judging of the passage or flow of time in longer periods. The capacity for imaging the time value of tones and for remembering the time value of sounds is called the sense of time.

Wave form:Timbre

Timbre is described in terms of the form of the sound wave. It ranges from a simple pure tone to the highly complex and pitchless sound, noise. In musical tones, it is the **g**rouping of vibrations which gives richness to the tone. The violin string, for example, vibrates as a whole giving rise to the fundamental pitch of the tone. It also vibrates in a series of parts, each representing an overtone. The relative number of

overtones and their prominence decides the richness of the tone.

Physically, timbre of the tone is the cross section at the moment of the tone quality represented by the duration of one vibration in sound. Hence, timbre is determined by the number, the order and relative intensity of the fundamental and its overtones as expressed in the wave form. The physical structure of the complex sound is called its harmonic composition. Psychologically it is termed as overtone structure. The timbre is the most important aspect of tone and responsible for a large number of problems as well as variables.

Philosophy has always been involved with the problems of space and time and there have been different concepts proposed by the various philosophers who dealt with these problems. It is well beyond the scope of this project to explain the innumerable ideas expressed;

an attempt is made to briefly discuss the viewpoints of some influential European philosophers, and the Hindu concept of space and time. Some of the Pythagoreans identified so called empty space with air; and Parmenides and Melissus denied the existence of truly

empty space. The atomists made a clear distinction between atoms and the void that separated them. Lucretius thought of space as though it were receptacle; which was infinite. Descartes identified matter and space and said that there was no such

PHILOSOPHY OF SPACE AND TIME

thing as empty space. Matter, for Descartes was simply an extension.

All this while space was thought of as 'something' or some 'sort of stuff'. According to Leibniz space is no sort of stuff, but merely a system of relations. The mind looks for a relation extrinsic to the subject, and this is what we call space. Matter and space are not the same thing; however there is no space where there is no matter. Space and matter differ as time and motion; these things though different are inseparable. The parts of space are not distinguished but by the things which are in it. But space without things has nothing whereby it may be distinguished, and indeed not anything actual. Space hence for Leibniz is an order of co-existences, and an ideal thing.

As regards time, Leibniz says that nothing of time does ever exist but instants, and an instant is not even itself a part of time. Hence time is an ideal thing. Time is an order of successions. The quality of time may become greater or less by the fact that more or less successive and similar states may become interposed, without condensation or penetration.

Thus, space is an order of coexistences and time an order of successions.

According to Kant, space is not an empirical concept that can be derived from outer experiences; but a necessary 'a priori' representation which underlies all outer intuitions. One can not represent to oneself the absence of space, though it can be thought of as empty of objects. The receptivity of the subject, its capacity to be affected by objects must necessarily precede all intuitions of these objects. The constant form of this receptivity, which we term sensibility is a necessary condition by which objects can be intuited. as outside us; and if we abstract from these objects, it is pure intuition and bears the name of space. Nothing intuited in space is a thing-in-itself; space is not a form inhering in things-in-themselves as their intrinsic property. Space is, hence no stuff, nor a set of relation between things but a forms of outer objects which are mere representation of our sensibility.

Different times are not simultaneous but successive just as different spaces are not successive but simultaneous. Time is not an empirical concept that has been derived from any experience. Only on an 'a priori' presupposition of time can we represent to ourselves things as existing at one and the same time (simultaneously) or at different time (successively). Time is the subjective condition under which alone intuition can take place in us. Time is nothing but the form of inner intuition or sense, that is of the intuition of

ourselves and of our inner sense. It cannot be a determination of outer appearances; it has to do neither with shape nor position, but with the relation of representations in our inner state. If we take away from our inner intuition the peculiar condition of our sensibility, the concept of time vanishes; it does not inhere in object; but merely in the subject which intuits them.

Time and space are, therefore, two sources of knowledge from which bodies of 'a priori' knowledge can be derived. Time and space taken together are the pure forms of all sensible intuition. However, they apply to objects only in so far as objects are viewed as appearances and do not present things as they are in themselves. For Kant, hence, space is the form of outer appearances and time the form of inner intuition.

Newton has proposed concepts of absolute and relative space and time. Absolute time and mathematical time, of itself, and from its own nature, follows equably without relation to anything external, and by another name is called duration.

Relative, apparent and common time, is some sensible and external measure of duration by the means of motion such as an hour, a day, a month, a year.

Absolute space, in its own nature, without relation to anything external, remains always similar and immovable. Relative space is some movable dimension or measure of the absolute spaces, which our senses determine by its position to bodies.

Hindu philosophy does not consider space and time as distinct from one another; or separate. Time and space **itself** (not themselves) was without description, being unified and unmanifest. The universe, as distinct from one or another star, consisted of space and time or rather spacetime.

A celestial body occupies a certain space in the universe and first its own movement and subsequently the juxtaposition of that movement with that of other celestial bodies conditions its sense of time- just as a sense of its existence at all is related to a sense of the amount of space it occupies - and therefore gives it also a sense of space. Time, like space to the Hindu is relative to phenomena, for without phenomena there would be no time or space, just an unmanifest vastness. The essential universe is this unmanifest vastness which is without form or colour and not space or time which are coloured by the existence of phenomena. Space time, hence is the immediate condition of phenomena.

Space for Leibniz was relation between things. If a parallel is drawn to music, space in music could mean relation between melodies or instruments. Two melodies by their relation can weave or build space. Time, like wise, was an order of successions. In music it can be interpreted as an ordered positioning of notes in succession. The same note if played successively in a certain order can give the sensation of passing time.

It is attempted here, to elucidate the spatial aspect of music; mainly the techniques utilized to create an illusion of space through music.

Source → Destination

Music emanates from a certain source, and flows towards the listener or destination, through the intervening space. This is perhaps the most obvious relation of space to music. The source has a certain body or volume in the form of a group of musicians or a set of speakers and the destination also has a body in the form of an audience.

The space in between can have various forms based on these two bodies. A most simple case would be that of one musician to one listener, wherein the space in between has a linear dimension. The space achieves more complex forms with stereophonic, quadrophonic sounds or orchestral music.

SPACE AND MUSIC

Edgard Varese considered music as spatial, a phenomenon that moved in space. In the Brussels exhibition, the Philips Pavilion played a composition by Varese called 'Poeme Electronique'. Four hundred loudspeakers were placed along the hyperbolic and parabolic curves of the structure (designed by Le Corbusier), causing the sound to sweep in continuous arcs throughout the available space. In the sixteenth and seventeenth century church music the spatial effect was very evident, as the sound moved through the church and cathedral and around the listeners. Certain composers like Gabrieli, Monteverdi, Cavalli etc. made the listener aware of various levels between the foreground and the background, which was done by planned distancing of the musical ingredients.

In Western classical music the relative positioning of the various instruments is also considered responsible for the total effect of the orchestra. Interesting spatial illusions can be created by careful positioning of the instruments. For example, two French horns of the same pitch and intensity located at two ends of the stage will give a single tone which 'appears' to emanate from a source midway between the two. But if a third tone comes from a third French horn, the location of the tone will shift toward the source of the third tone. Stereophonic and quadrophonic sound systems attempt to recreate the spatial effect by controlling the relative intensity of sound emerging from the speakers. The

sounds emerging from the speakers seem to emanate from various points spaced on an imaginary line joining the speakers, depending on their relative intensities in the channels or speakers.

Form

All musical compositions have a certain form, design. It is often felt that music traces a certain path or constructs patterns in space.

Music and architecture can be compared in that both have a structure. It is seen that architectural structures often fragment a space into smaller spaces thereby creating a certain pattern. One may sense similar patterns in musical form or musical structure. If one draws parallels between the flowing of music and tracing a line on paper it is possible to identify music which gives rise to patterns like an inward or downward going spiral or upward and outward going spiral, or a line scattering or breaking into many lines etc. These musical forms are discussed below.

Circular or Spiral

There are musical compositions in which the sound appears to go round and round in a circle and at the same time move outward ie. spiral outward. This phenomenon can be illustrated by a piece from rock music (The dark side of the moon, Pink Floyd). The sound

seems to spiral downwards and the visual imagery involved is that of a whirlpool or a mass of quicksand. This type of effect can be produced by repetitive playing of one melody or theme with gradually increasing or decreasing intensity or pitch. Hence the effect produced by music is that of building spatial aural patterns in the forms of circles and spirals within the mind of the listener.

Linear

Music can have a definite direction. A prime example of this is the music written for marches; wherein there exists, on account of the precise rhythm, a defiant forward directional sense to this music. Music in this case does not weave complex patterns in space, but follows a simple unidirectional path giving space a very linear dimension.

Scattering or Collecting

If a large number of notes are played successively in a relatively short interval of time; it sounds as if the notes were scattered or thrown into space. The music sounds as if it were bursting out of a point source and spreading out into space. The sound of cymbals is an excellent example of this effect, usually used in the end or as a concluding note to a composition, wherein sound bursts into a million fragments and vanishes into space.

The sound of sitar strings can give an effect opposing to this, that is of grouping up or collecting notes.

Swelling

'In rock music one can have sounds as large as a cathedral'..... - Joachim Ernst Berendt.

Certain sounds have a large body and they give the effect of filling up halls or auditoriums. Extensity is the acoustic term used for this type of sound. Literally it means bigness and has an association with the size of the sounding body. Such large sounds are created by an ensemble of strings like violins or cellos. The build up of such sounds from zero to full intensity i.e. the growth of the body of sound gives the effect of an entity swelling up or ballooning out in space. This effect is strongly felt when an orchestra tunes up to the middle C before commencing the performance, when all instruments play one note after the concert master. In rock music keyboards can build such sound by using increasing intensity.

Meandering

When a single instrument is playing, it seems to follow its own unchartered path through space. The sound meanders in an unpredictable way without any fixed pattern. This is found in Indian classical music (in vocal as well as instrumental) wherein the leading melody is

a free flowing entity. In Western classical music this is found in sonatas.

Acoustics

Each tone has its characteristic frequency, intensity, form and duration. Extensity or bigness of sound which is explained earlier corresponds to wavelength, which is the reciprocal of frequency. A low pitch is produced by the vibration of a long string or a large cavity, whereas a high pitch sound comes from a short string or a small cavity. A low tone is more massive than a high tone, it has more body, it comes from a larger space. Low sounds have large wavelengths and often give the impression of rising up into one's body through the ground.

Echo

Echoing sound gives the effect of large open and surrounded space, and hence there is a direct relation between echo and space. This effect has been used in music to create illusions of openness or spaciousness. The amplifiers used for electric guitars have facility for creating a distortion effect known as reverb. If the output from a guitar is fed through the reverb, the resulting sound is not a pure note but a reverberating note giving rise to a spatial effect.

Use of Natural Sounds

Sounds in nature, that is, those of wind blowing through trees, or the sound of waves, or falling water are used directly in music or simulated on synthesizers. Such sounds give rise to visual images of the environments related to the sounds. As these environments are open spaces, such sounds directly convey a sense of wide openness.

Silence

Silence is an integral part of music. Music is something which is born into silence and ends into silence.

Silence is hence a necessary condition for music to be perceived in its true form. Silence in music is compared to emptiness in space. Silence, which is used as rests in Western classical music, is generally used for emphasis of certain notes. Such periods of silence when placed at strategic positions in a composition are perceived as empty spaces. For example in Hindustani classical music, often there is a period of silence before the initial note or the 'Sam', This silence is taut which is followed by a release of tension.

Psychic Space

Appreciation of music can be of two kinds. When the

involvement of the listener is superficial, time is an important factor in the sense that the listener follows the music, its variations, its silences and climaxes on the basis of time. Psychic distance or the space is large between the listener and the music. When the involvement is total or complete the listener becomes one with the music, merges into the melody and becomes unconscious to the world around. This is found in 'chanting' or 'bhajana's' where there is a very strong rhythm and a highly repetitive element in the music which carries the listener into a trance like state. In this case, the listener is not reacting to the music (as in the first case) but acting with it. Here the psychic space is near zero, and there is a condition of timelessness.

Music is basically a temporal art and hence it has a direct relation to time.

Duration

Music is something that flows into silence and also ends into silence. It is preceded and succeeded by silence. Thus it has a finite length in terms of time, and this is called the duration of the music.

Rhythm

Rhythm is constituted by strongly accented repetitive patterns which cause the listener to accompany the musical pulsations with some kind of muscular response like tapping toes, drumming fingertips, clapping hands etc. Rhythm makes a musical piece appear fast or slow. A musical piece with a faster beat seems to move faster in time than a piece which has relatively slower beat or rhythm.

TIME AND MUSIC

Contemplative temporality

The temporality of music is related directly to the listener. Time may seem to flow slow or fast depending upon the rhythm and tempo of the music. The music playing is not related to absolute time, but to a different time existing in the listeners mind, which may change with the music. Hence the temporality of music is contemplative .

Movement in time

Musical appreciation does not deal with time only in the present, but past and future as well. A certain tune is remembered, liked because one can go backwards in time and relate to whatever has just been played and has gone by. At the same time, one is trying to guess the notes before they emerge thereby venturing forward in time. Hence there is a process of moving backward and forward in time.

Timelessness

The concept of psychic distance explained gives rise to a feeling of timelessness when the psychic distance is reduced to zero. Religious chanting, frenzied music and 'bhajans' can lead a listener into a trance like state. The sense of time is totally lost and the listener becomes one with the music. This is achieved by playing an element of the music repetitively with a strong beat.

For example , in Ravel's Bolero, the same theme is repeated through the composition till a final climax.

Time theory of Ragas

In Hindustani classical music, the ragas are spaced out over the 24 hours of day, into two sections of 12 hours each. The first section from 12 noon to 12 midnight is called 'purva raga' and the other from 12 mid night to 12 noon is called 'utter raga' , The octave is also divided into two equal parts the first comprising of 'Sa', 'Re', 'Ga', 'Ma', and the second of 'Pa', 'Dha', 'Ni', 'Sa', . The purva ragas have the prima notes (vadi) from the first four notes and hence they are called 'purvangavadi ragas' and are rendered between 12 noon and 12 midnight. Similarly the 'uttarvangavadi' ragas' have their prima notes in the second half of the octave and are rendered between 12 midnight to 12 noon. Another time theory divides the day into six sections.

- a. 4 am to 7 am
- b. 7 am to 10 am
- c. 10 am to 4 pm
- d. 4 pm to 7 pm
- e. 7 pm to 10 pm
- f. 10 pm to 4 am.

All ragas in which the second note 'Re' and the sixth note 'Dha' are both flat and fall under the category of 'sandhi prakash' ragas or twilight ragas. These ragas correspond to the sections or the hours that immediately precede or succeed day break or sun-set.

If the fourth note 'Ma' is natural it corresponds to the time preceeding dawn; if it is flat it correspond to twilight after sun set.

All ragas having the second note 'Re' and sixth note 'Dha' natural fall into the divisions 7 am to 10 am and 7 pm to 10 pm. The ragas with the third note 'Ga' and the seventh note 'Ni' flat, correspond to divisions 10 am to 4 pm and 10 pm to 4 am.

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