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(54) Title: GAMAKA BOX NOTATIONAL SYSTEM

(57) Abstract:

TITLE**GAMAKA BOX NOTATIONAL SYSTEM****FIELD OF INVENTION**

The present invention relates in general to music notation system and a method for teaching music.

BACKGROUND OF INVENTION

Music is an art form that uses organized sounds of definite pitches structured over time. Its main elements are melody, time and harmony.

Melody :A unique recognizable tune.

Time :Quantified by beats.

Harmony :Simultaneous sounding of more than one note used in an organized way.

Indian Music, the North Indian Hindustani and the South Indian Carnatic are highly evolved systems of music. They are melodic in nature. The use of harmony is next to minimum.

On the other hand, Western music is a highly evolved harmonic music system.

Both these systems use the seven note scale of "Sa Re Ga Ma Pa Dha Ni Sa", out of which Sa and Pa are fixed. The other five notes have two different pitches making it twelve notes.

However, while Western music employs the fixed pitches, only as they are, Indian music additionally employs Gamakas, very unique and exclusive to itself.

What is Gamaka?

The oscillations of notes including bending, curving or moving with graces of other notes are called Gamakas. They are the life and soul of Indian music.

Scale

A scale is made of a set of fixed-pitch notes, ascending (Arohanam) and descending (Avarohanam), performed invariably in their original positions.

Raga

Raga-s are formed when fixed-pitch scales are performed with gamakas. Thus, Indian Music is made of melodically intricate Gamaka laden Ragas.

Notation

Indian music has been handed over through the ages by the lip-ear route only. The disciples learnt directly from the masters. While Western Music developed side by side, notation system to record, communicate, perform and recreate music, Indian music traditionally did not believe in notation for music per se.

Evolution of Notations of Gamaka's -Efforts made so far

A skeletal notational system for Indian music came into vogue about a hundred and fifty years back (before which there was practically none). However, there is no definitive notation for the most important aspect of the music –the Gamaka, thanks to the inadequacies of the seven note representation to indicate these complicated oscillations.

Aware of this lacuna the great music scholar Subbarama Dikhshathar, the grand nephew of Muthuswami Dikhshathar, one of the Trinity of Carnatic music, devised symbols to notate and represent Gamakas on paper. This system of notation was influenced by the Western Staff Notation and its symbols.

In his Sangeetha Sampradhaya Pradarshini,(1904) he has a list of symbols to denote the fifteen Gamakas (Pancha-Dasa Gamakas) as classified by him. Some of the symbols were from the western music but to denote some other musical meaning.

Thereafter, many great musicians and legends like Ranga ramanuja Aiyangar, T.Viswanathan, Lalgudi Jayaraman, Karaikudi Subramaniam Dr.Mallikarjuna Sharma and others who were aware of this vacuum devised their own methods to notate gamakas using symbols to facilitate gamaka singing.However these have not found their way into practical use as they are complex in nature and difficult to adapt.

Also, the perception of the musicians and the musicologists that Gamakas are inexpressible through notation and that the same can only be assimilated through the ear contributed to the lack of to scientific approach to the problem. Therefore, Indian Notation has never represented the true music as performed.

OBJECT OF INVENTION

Need for Gamaka Notations in Indian Music

Just as in the Western music tradition Indian music styles have been changing over a period of a thousands of years. To study, practice and perform different styles of different periods there has to be an advanced system of notation that represents the music along with the oral tradition. This way the styles could be preserved with less distortion. While the west has an advanced system that evolved side by side making it possible to play Bach in the Baroque style and Beethoven in the Romantic, there is no such system in India.

We do not have authentic notation of any sort, not even the basic of say Thyagaraja (written by himself) or any immediate shishya of his. The music has passed on for centuries only through the aural route with no notation to rely on. This obviously means that the music that we sing today has to be most certainly different from what was sung two hundred years ago, either distorted or enhanced but definitely changed. It also means that the music literature that we have is only oral literature.

For any student of Indian music the Gamakas are quite complicated to imbibe. Only through rote and aural tradition has it been handed over to us.

The problem of not having a notational system has confined this great music to Indian sub continent. The north Indians hardly attempt to sing the south Indian ragas, the south Indian way and vice versa. Therefore the Hindustani and carnatic systems are almost confined to north and south respectively.

Without a system of proper notation there is no way to methodically codify Indian music which precludes any one to come forward to learn and play Indian music even if they are interested. And this includes the people in West.

Students in India being the product of the culture have it in their genes. However just as a language has to have a script a musical system too needs such a script without which all the problems of a language languishing without a script would befall Indian music.

Therefore Gamakas should be notated for understanding, recording, representing, reproducing performing and analyzing defining, analyzing, studying, learning, teaching, chronicling and preserving different styles of music and recording changes in and capturing the evolution and development of ragas.

BRIEF DESCRIPTION OF INVENTION

Gamaka Box is designed for easy practical use from the student to the researcher. It is a pedagogic and a research tool.

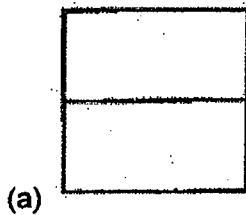
It is a framework and a template which can be enriched further as time goes by. It consists of lines denoting definite pitches and symbols that capture the movement of the Gamakas, as they are performed.

Many new symbols have been invented along with the Gamaka Box while, some of the old symbols which were very vague assumes definite and clear meaning here as it is *used with* the Gamaka Box.

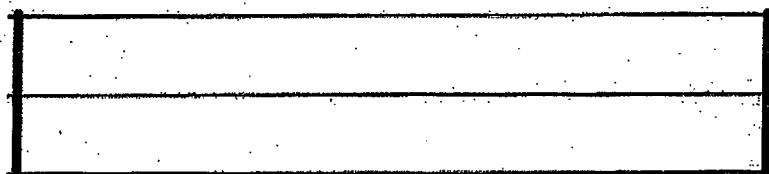
DESCRIPTION OF INVENTION

The system of Gamaka Box Notation consists of four main features

1. The Gamaka Box
2. The notation placed under it to give the pitch and time context
3. Symbols placed inside and outside of Gamaka Box attributed to notes
4. Lyrics
 1. Gamaka box (GB) consists of three horizontal lines and two perpendicular lines



(b)



2. Notation Line comes underneath the GB consisting of notes/swaras which are pitch degrees, time, beats and articulations. "The line written underneath the GB consisting of notes/swaras is already itself a notation showing pitch degrees, time, beats and articulations."

Note: Notation Line' in this article denotes any system that gives the time, beat, pitch context. GB notates the Gamakas of the notes supplied by any notational system.

ś , , , N ś D N | P , M P | G , M ,

Gamaka Box is placed over one note/swara



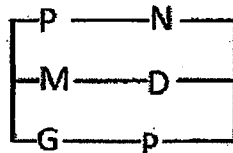
— P —

or on many notes/swaras

Pallavi:

ś , , , N ś D N	P , M P	G , M ,

The lines of GB are dynamic - they would denote the corresponding PN, UN and LN of successive notes/swaras written below the GB. That is, The note written below the GB functions like a key to the notes of the GB box's lines and spaces on the time axis, which is left to right.



Time axis



The horizontal space in the GB for every note equals the space for the same in the notation.

3. GB Symbols are characters that are placed inside and outside the GB in relation to the swaras written on the time axis underneath.

Some GB symbols:

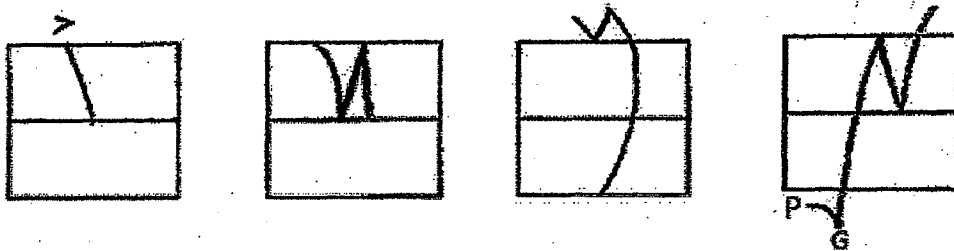
Quick Glide Up /

Quick Glide Down \

Sustain ____

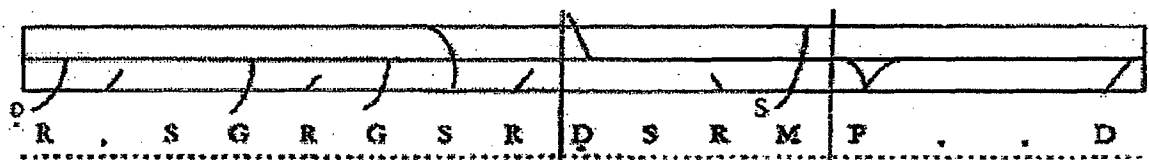
Vibrato 

Symbols and Gamaka box



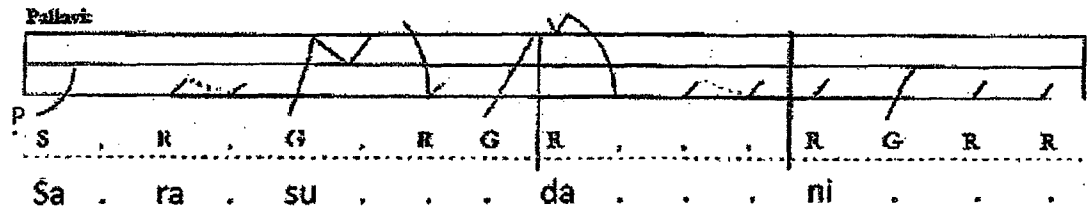
Gamaka box, notation and symbols

Example



4. Lyrics placed in context of the swaras

Example



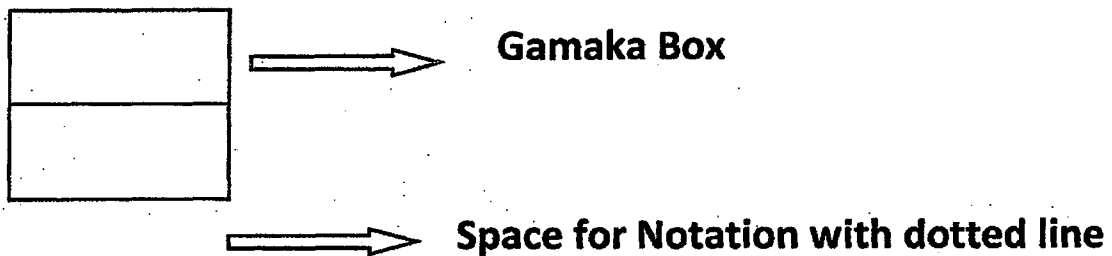
Irrespective of the language or system of the Notation Line, (whether it is staff notation or any other) and irrespective of whether or not there are lyrics, if the three line GB is appended to that notation line with the symbols in context of the notes, time and articulation then it would then be the notational system of GB.

Ex. with staff etc.

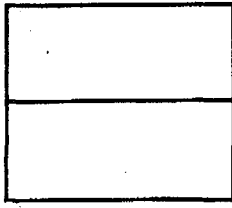
Note : All explanations in this manual is given with the Standard Indian Notational system.

Features of Gamaka Box.

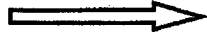
Gamaka Box



Principal note (PN) is the note written below the Gamaka Box, it is the one which is to be performed. It is the note to which the Gamaka is attributed. The can be performed as the pitch degree with or without solmization or lyric."



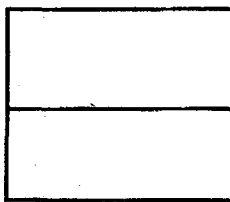
S



The PN in the notation line

Lines of GB

The middle line of the GB represents the PN. The top line and the bottom line represent the Upper Note (UN) and the Lower Note(LN) to the PN respectively.



UPPER NOTE (UN)



PRINCIPAL NOTE (PN)

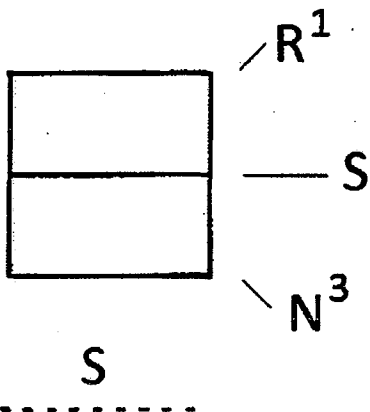


LOWER NOTE (LN)

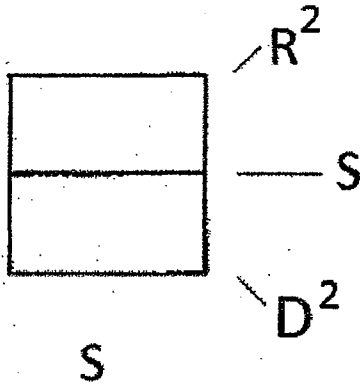
The Upper note and the Lower note would vary according to the constituent swaras, the *Arohanam* - *Avarohanam*, of different ragas.

The following example is in the *raga* '*Mayamalavagowlai*'. It has all the seven notes and is made of $S R^1 G^3 M^1 P D^1 N^3$ ascending and descending.

The note written below the GB is "S". Therefore, the note of the middle line, would be "S", the Principal Note(PN). The top line would then be "R" the Upper Note (UN) and bottom line "N" , and Lower Note (LN) to the PN, respectively.



For the *Raga Mohanam* which has $S R^2 G^3 P D^2 S$ ascending and descending, the UN and LN to S would be:

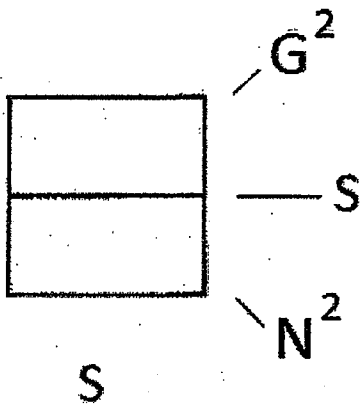


S

Mayamalavagoulai.

Notice that the LN is D in this case, and not N as in

In case of the *raga Hindolam* the ascending and descending notes of which is $S G^2 M^1 D^1 N^2 S$, the UN and LN to S would be:



S

Mayamalavagoulai.

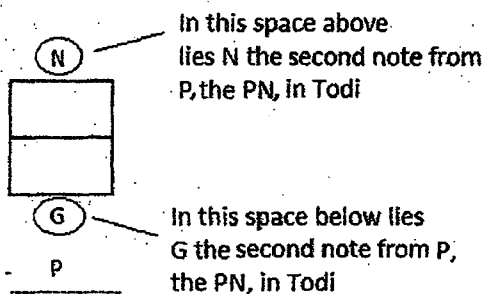
The UN to S is G here and not R as it was in

Notes in Spaces outside GB.

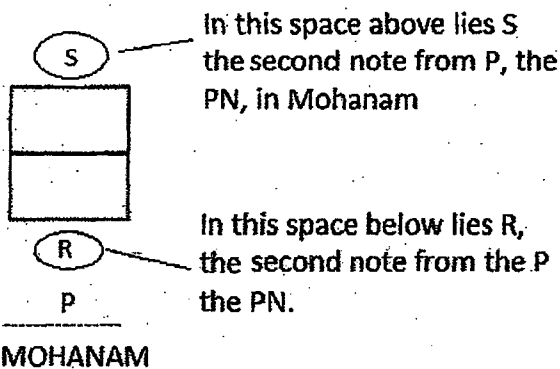
The next upper note to the PN lies in the space above the top line. Similarly the next lower note to the PN lies in the space below the bottom line. This will be in accordance to the total *Arohanam – Avarohanam*, the constituent notes of the Raga. ¹

In both the following examples the PN is P, but in different ragas, Todi and Mohanam. The notes represented by the spaces are therefore different based on the constituent notes of the ragas. Todi has all the seven notes, S R G M P D N and Mohanam has only five S R G P D.

Notes in spaces outside GB for P in Todi



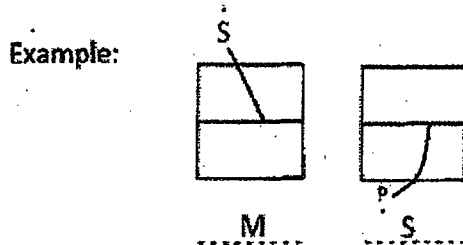
Notes in spaces outside GB for P in Mohanam.



¹ Go to chapter for different types of raga of different Arohanam avarohanam

Further High and low Notes.

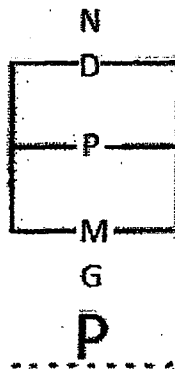
Further high/low notes are indicated by writing the notes in a smaller font which are involved in the Gamaka Box symbol. These are Indicative Notes.



Therefore for any given PN there would be five constituent notes of the concerned raga lined up in the GB; The three lines and the two spaces outside GB. These are called Raga-Note Positions.

Raga Shankarabharanam: Arohanam : S R₂ G₃ M₁ P D₂ N₃ Ṣ

Avarohanam: Ṣ N₃ D₂ P M₁ G₃ R₂ S



With the PN taking the middle line the top line and the space above it and the bottom line and the space below it, would take, in order, the upper two notes and the lower two notes to the PN, respectively.

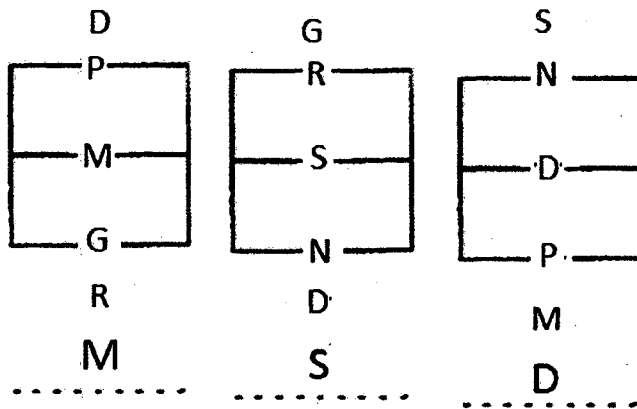
The notes they take would be based on the type of Ragas, classified by their *Arohanam Avarohanam*, the ascending and descending notes that constitute the scale.

For **Sampurna Ragas** which have all the seven notes both ascending and descending, they would take the constituent notes that lie above and below the PN, in order.

ShankaraBharanam

Arohanam : S R₂ G₃ M₁ P D₂ N₃ Ṣ

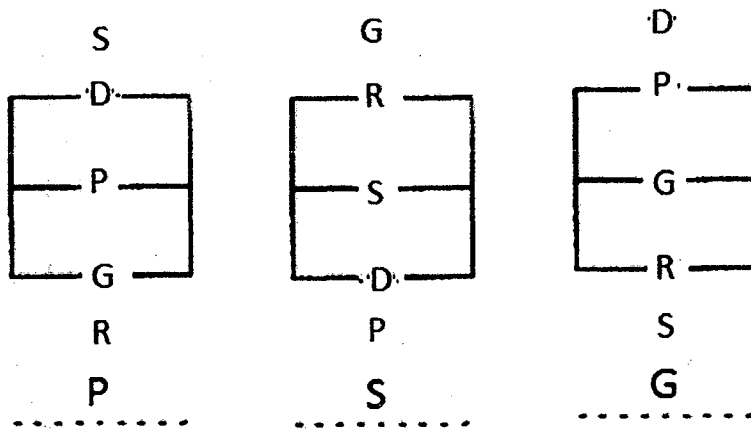
Avarohanam: Ṣ N₃ D₂ P M₁ G₃ R₂ S



For **Varja Ragas**, which omit one or more notes, and are symmetrical (made of the same notes both ascending and descending), they would take the constituent notes that lie above and below the PN, in order. The Raga Note Positions too omit such notes.

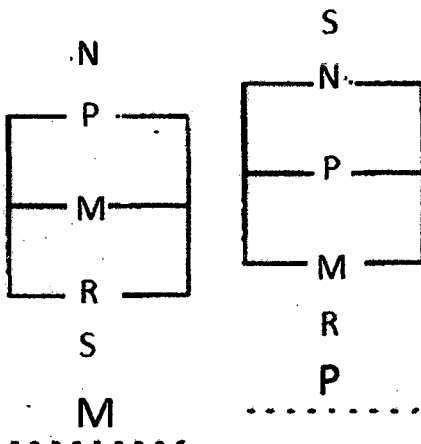
Mohanam : S R₂ G₃ P D₂ Ṣ

Ṣ D₂ P G₃ R₂ S



Hindolam : S G₂ M₁ D₁ N₂ S

S N₂ D₁ M₁ G₂ S

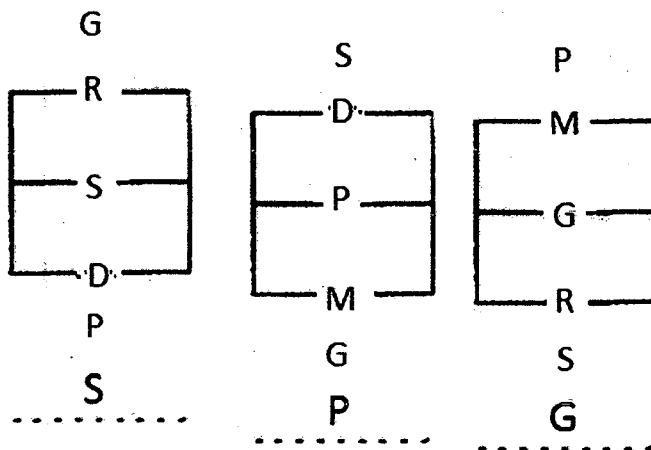


For **VarjaRagas**, which omit one or more notes ascending and omits different note/s and/ or includes one or more notes descending, or vice versa, the sum total of the notes in the ragawill be the constituent notes. Therefore, for any given PN, they would take the constituent notes that lie above and below the PN, in order.

Malahari: S R₁ M₁ P D₁ S

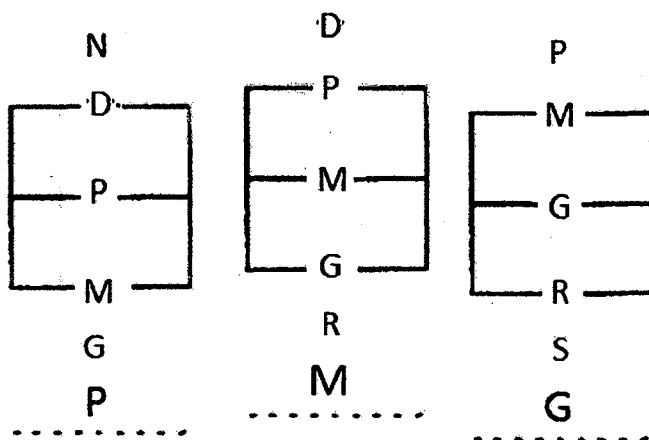
S D₁ P M₁ G₃ R₁ S

In this Raga "G" appears only in the Avarohanam. I.e. in the descending scale. However, "G" will feature in the Raga Note Positions.



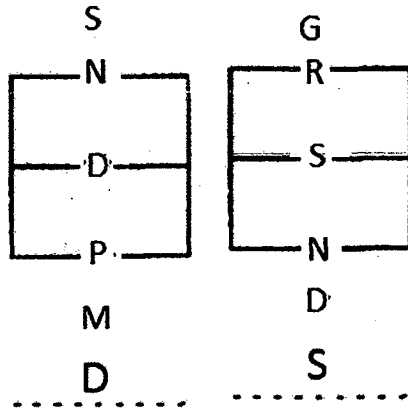
Bilahari : $S R_2 G P D_2 \dot{S}$

$\dot{S} N_3 D_2 P M_1 G_3 R_2 S$



Garudadhvani: $S R_2 G M_1 P D_2 N_3 \dot{S}$

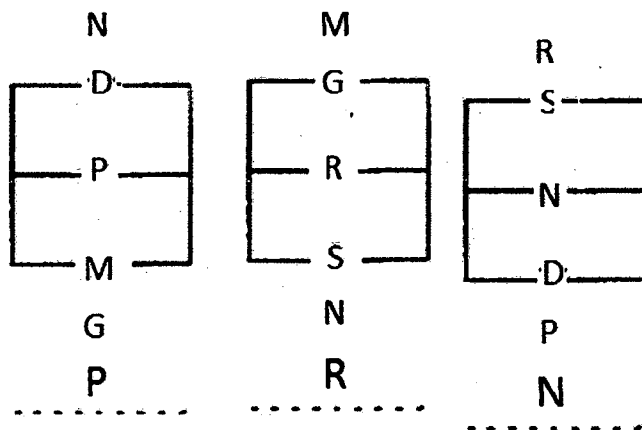
$\dot{S} D_2 P G_3 R_2 S$



For **Vakra**(zigzag) **Ragas** which has skips and turns the zigzag movements are ignored. The sum total of the notes involved in both ascending and descending scale would be the constituent notes. Therefore, for any given PN they would take the constituent notes that lie above and below the PN, in order.

Kamas : S M₁ G₃ M₁ N₂ D N₂ P D₂ N₂ S[•]
[•]S N₂ D₂ P M₁ G₃ R₂ S

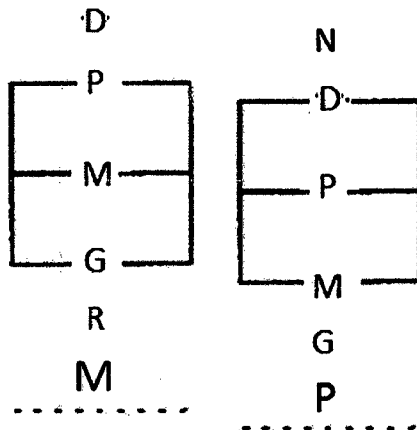
Here the swaras of the Raga Note Positions would be all the seven S R G M P D N S.



ReethiGowlai : S G₂ R₂ G₂ M₂ N₂ N₂ S[•]

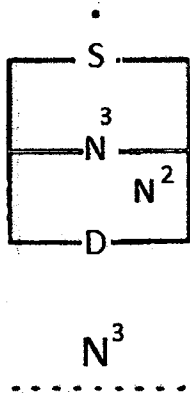
[•]S N₂ D₂ M G₂ M₂ P M₂ G₂ R₂ S

Here too the Raga Note Positions take the seven notes involved S R G M P D N S



For Ragas-like *Kambhoji* which use a foreign note which is not arraigned in the *ArohanamAvarohanam*, for the purpose of the above mentioned lines and spaces,- Raga Note Positions- the foreign¹ note (not diatonic to the Raga in question) shall not be considered as part of the constituent notes. However, when employed in a phrase, as a Raga Note, which it can be, it will appear in the notation line below taking the middle line of GB as PN.

² A Foreign note is a note not lined up in the *ArohanamAvarohanam*, and /or which is not part of the parent Raga but used legitimately in a special phrase of a raga. It may occur overtly as the N2 in *Bilahari* or discreetly as R2 in *Todi*



When N_3 which is the foreign note is the PN, then N_2 , the raga note would lie in the space between the middle line and the bottom line.

Notes of the same nomenclature.

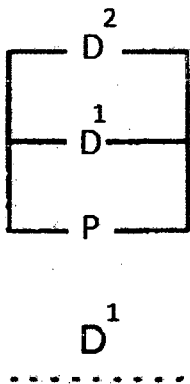
Notes of the same nomenclature will never take adjacent Raga note positions in the GB

Raga *Bhairavi*, though a *sampurana* raga, ascends with D_2 descends with D_1 instead. Both are constituent notes of the raga as they are incorporated in the *Arohanam* and *Avarohanam*.

Bhairavi: S R_2 G_2 M_1 P D_2 N_2 S

$\dot{S}$ N_2 D_1 P M_1 G_2 R_2 S

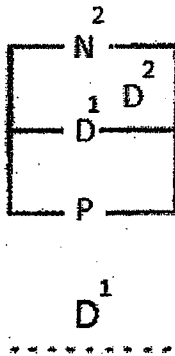
Even though both D are raga notes, the adjacent positions shall not take notes of the same swara name under any circumstance.



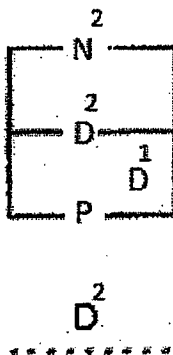
Wrong. This is never allowed.

Adjacent positions shall take only the next notes of the raga with different nomenclature.

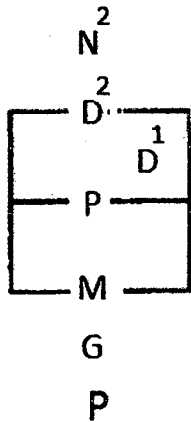
When D_1 appears as PN, D_2 lies in the space between D_1 and N_2 .



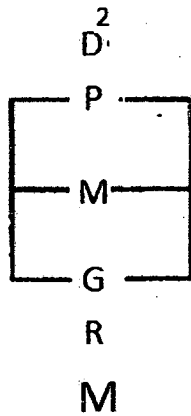
When D_2 appears as PN, D_1 lies in the space between D_2 and P.



If the two Raga notes of the same name is above any other PN, then the higher of the two would take the Top Raga Note Positions Viz. either the top line or the Space above it, as applicable; if below the PN, the lower of the two will either take the bottom line or the Space, below it as applicable.



With P as PN, D_2 the higher of the two varieties of raga notes of *Bhairavi* taking the Top Line; D_1 the lower of the two lies in the space between P and D_2



With M as PN, D_2 the higher of the two varieties of raga notes of *Bhairavi* naturally takes the Space above Top Line. As D_1 the lower of the two, technically lies between P and D_2 , both D_1 and D_2 lies in the same space. Therefore, in every such instance when the space is used in a Gamaka, it is imperative that it is indicated as D_1 or D_2 to make it absolutely clear.

This equally applies to Ragas like *SindhuBhairavi* and *Behag* which employ varieties of notes in the same nomenclature either arraigned in the scales or as foreign notes.

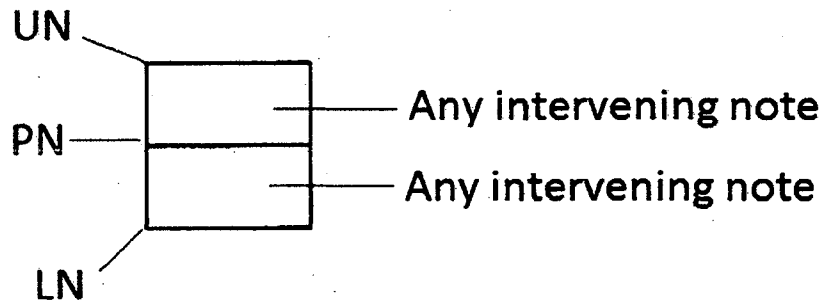
To sum up, the two cardinal rules to be followed are:

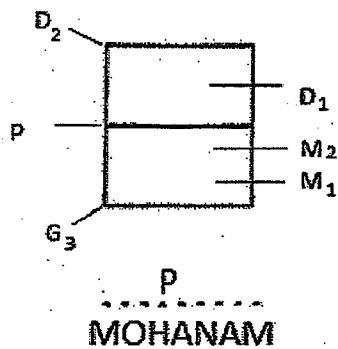
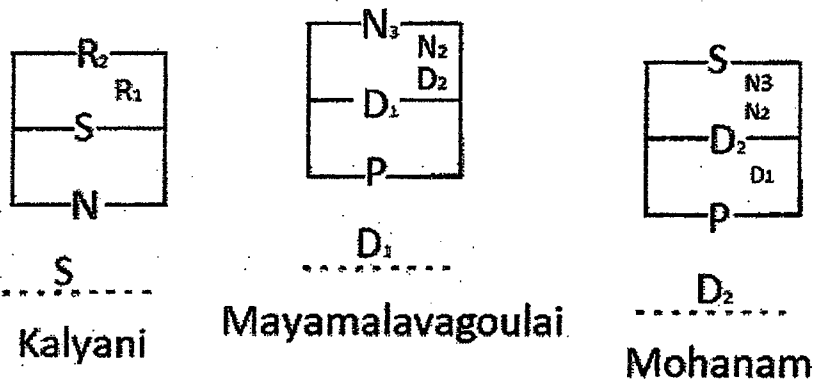
1. The Raga Note positions are always based on all the constituent notes of a Raga, in sequence
2. No adjacent positions (of the five positions) would take notes of the same name, even if they are constituent notes of a raga.

Space within of GB

With the three lines of the taking the notes of the *Arohanam and Avarohanam*, the notes of the Raga, the spaces within GB would take

(a) any interlying note/s between the constituent raga notes.

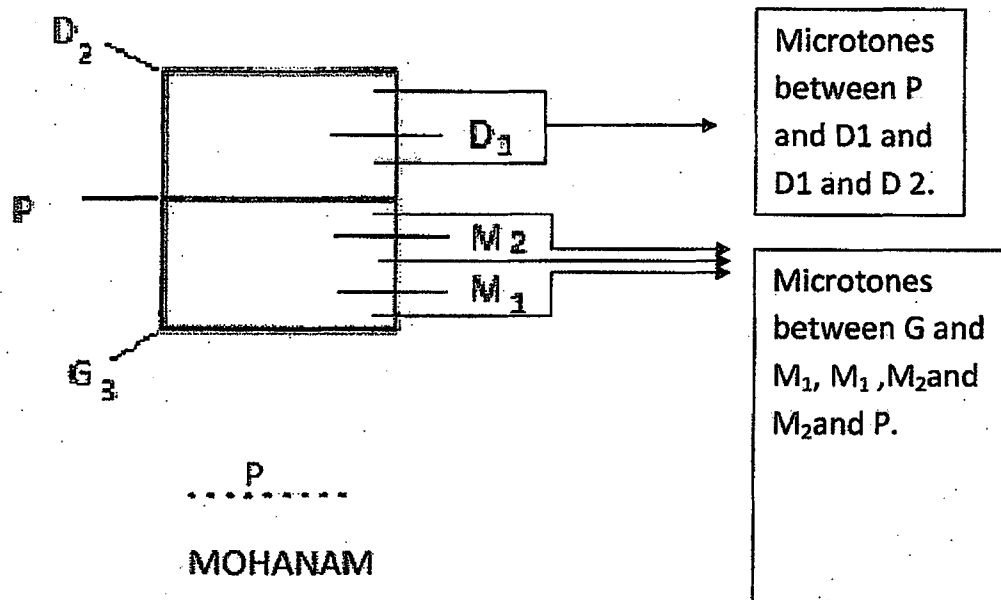




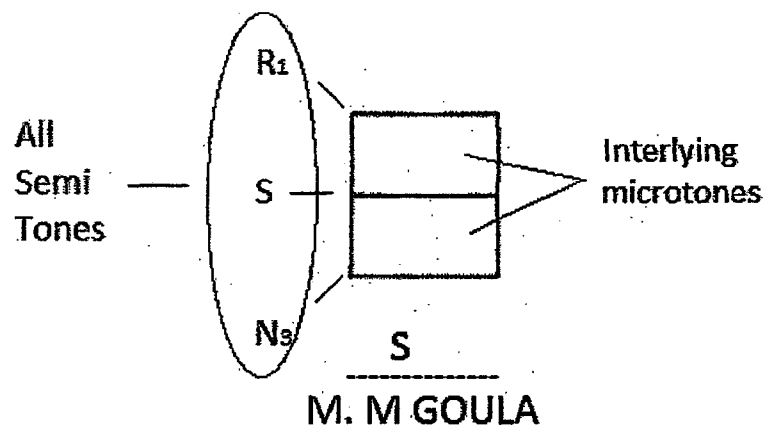
Notes, lying in the spaces within GB, for P in raga Mohanam

(b) And the micro tones ³between such interlying notes.

³ Micro Tones is used as an equivalent of Sruti.



(c) micro tones between the semitones⁴ that constitute the Raga scale

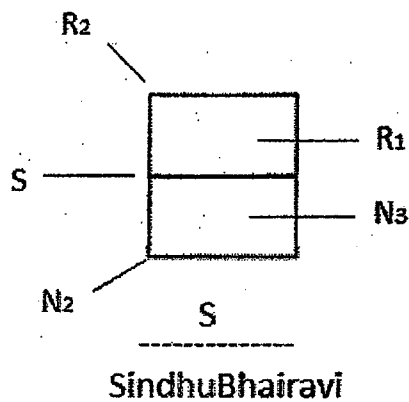


⁴The distance between all twelve adjacent notes are called semi-tones. Two semi-tones make one tone.

Micro tones, in the spaces within GB, in Raga *Mayamalava Goulai*. For the principal note S the spaces have only micro tones.

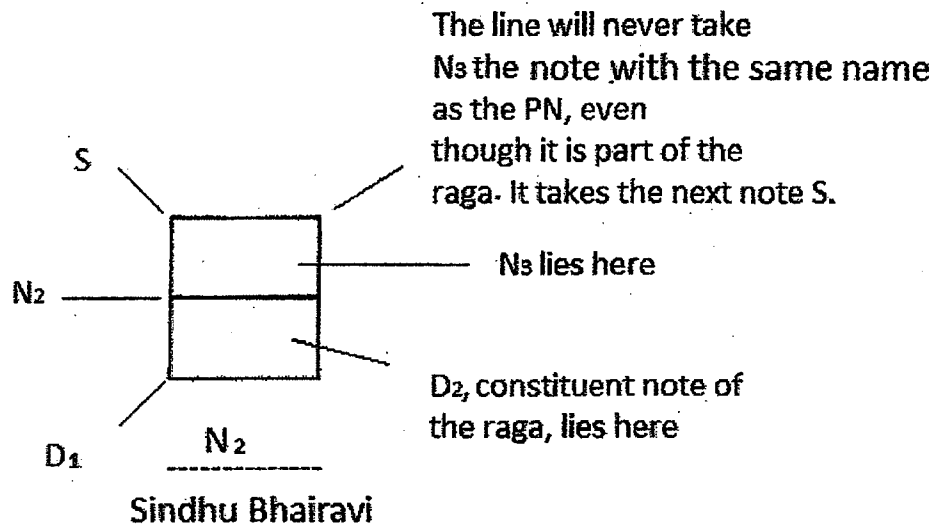
(d) even the constituent notes, in *Bhashanga ragas* (ragas that employ foreign notes).

Ragas like *SindhuBhairavi* have varieties of swaras/notes in the same nomenclature arraigned in the *Arohanam Avarohanam*. In these cases the interlying notes in the space within GB, could also be the constituent notes of the raga for a particular PN. The top line of GB, in these cases, takes the highest of the notes of the same name and the bottom line takes the lowest of same name.



Sindhu Bhairavi has both R_1 and R_2 and N_2 and N_3 . Therefore the bottom line is N_2 the lowest of N's and N_3 lies in the space. Likewise, the top line is R_2 the highest of the R's and R_1 lies in between.

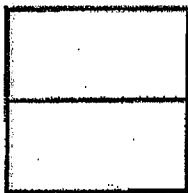
At no time would the lines and the outside spaces above and below take the same Swara/note name.



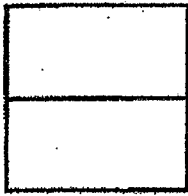
Therefore, the rule that the only lines of GB and the outer spaces take the notes of the raga is exempted here, to meet the demands of ragas (*Bhashanga ragas*) that use varieties of notes in the same nomenclature.

Notes with no symbols in GB:

A note with no symbol in the GB has to be performed in its position, the pitch degree or the *sthana* with no Gamaka, as per the length written below.



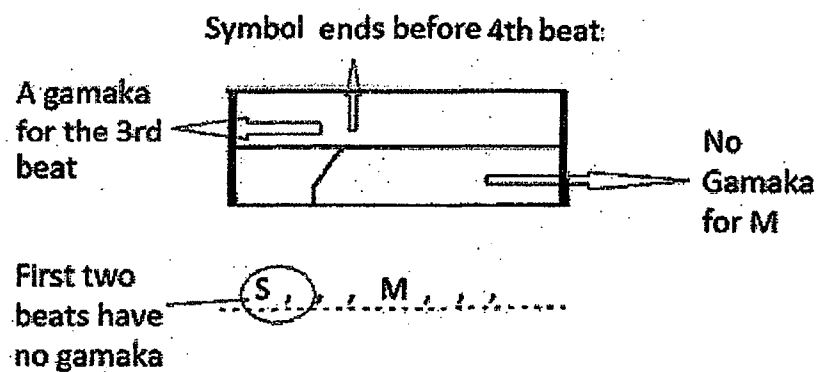
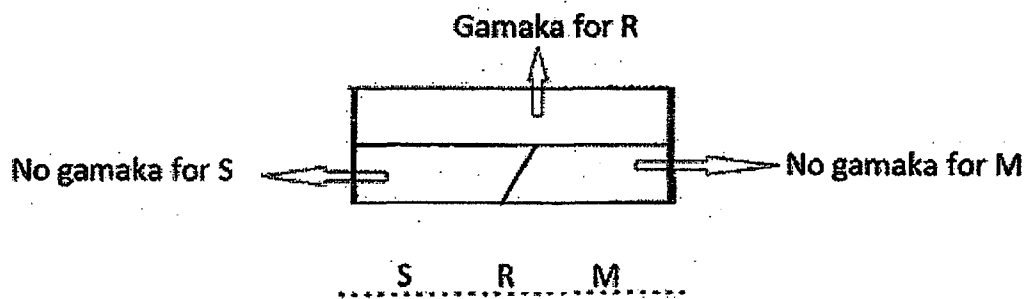
.....P..... P for 1 beat to be performed at its sthana the pitch degree.



P P for 4 beats to be performed at its sthana the pitch degree.

Gamaka symbols and alignment!

Gamaka symbols are to be aligned and justified to the note it is intended for, clearly at the point of incidence. Gamaka symbols affect only the note to which it is aligned.



Introduction to various Gamaka symbols :

Gamaka Symbols

The GB symbols are characters that give specific, clear and unique performance directions, describing the movement of notes in order to realize a particular sound, when read in conjunction with the GB and the Notation Line.

1. Sustain' _ '

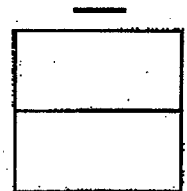
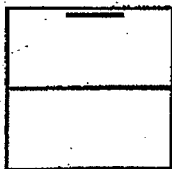
A horizontal line indicates the sustain of a note as aligned in the GB.

Kalyani



M

The sustain symbol can occur at various positions in GB examples.

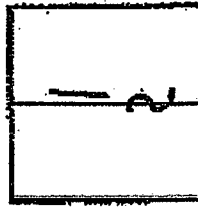


Note :

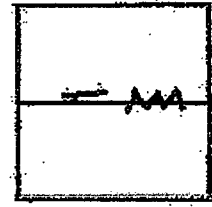
Though, a Principal Note with no symbol in the GB would mean that it has to be performed without any Gamaka or any articulation as a sustained note, for the length as in the notation line, there would be many an instance that would require the sustain symbol to be used especially when another symbol precedes or succeeds a long Principle Note.



R



R



R

Vibrato /Kamplitham

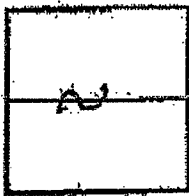
Vibrato is a 'self' oscillating gamaka, which moves within its own range, without involving other swaras.

There are two varieties of Vibrato namely

Slow vibrato ~

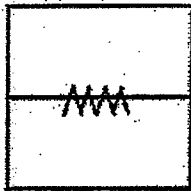
Fast vibrato ^^^

(a) Slow Vibrato on the line without touching any other note



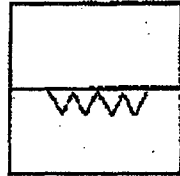
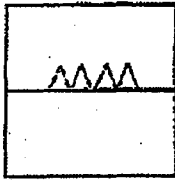
R

(b) Fast Vibrato on the line without touching any other note



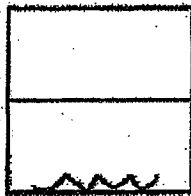
R

When the Vibrato symbol is right on the line, it denotes a shake or oscillation within the note's own ambit. In cases where it is slightly above or below, even while touching a line, it would mean a slight increment or decrement of the pitch to which it is aligned.



Examples of Vibrato

Vibratos can also occur for any note in any other part of the GB.

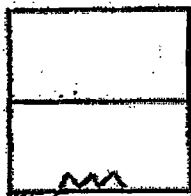


G ,

ABHOGI

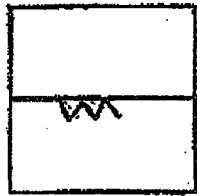
Other instances of Vibrato

(a) Above the note starting on the note



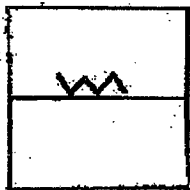
D₁

- (b) Below the note starting on the note



M_2

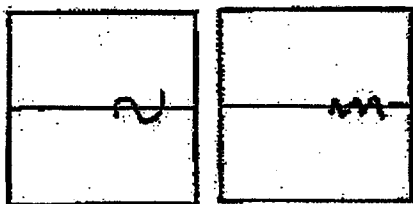
- (c) Above the note starting from above from an indeterminate pitch (a micro tone).



M_2

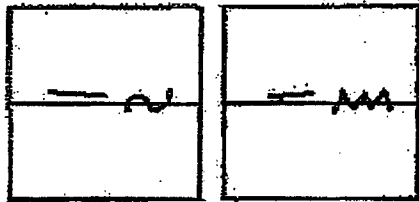
Vibratos in Long Notes

Vibratos should be written at the point of incidence, aligned to the beats. In the example below, the beginning two beats have no Vibrato and the vibrato happens in the last two. Therefore in the examples below, the straight plain note is left alone. Only the vibrato is notated.



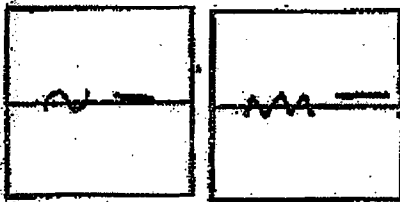
R , , , , R , , , ,

However, as an option, the above two can also be notated with a sustain symbol for the first two beats, for clarity, like in the following examples.



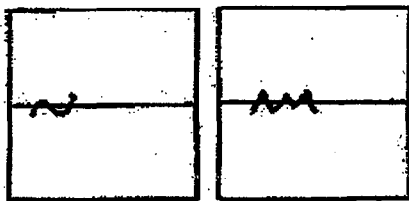
R R

When a note begins with a vibrato, slow or fast, and is followed by a sustain in its position, it is *imperative* that the vibrato be followed by a straight line to indicate that it is performed without vibrato.



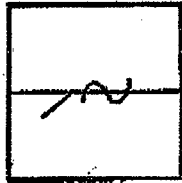
P, , , P, , ,

When vibrato sustains throughout the length of the note, writing the symbol in the beginning would suffice.

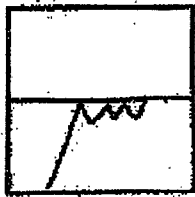


G N

A slow vibrato with lower touch

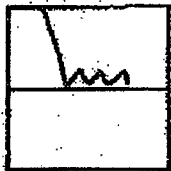


A vibrato distinctly starting from the note below



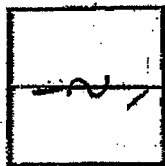
D₁ -----

A vibrato distinctly starting from the note above



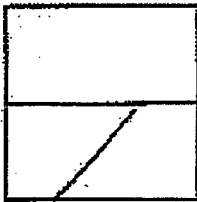
D₁ -----

Vibrato using sustain and short glide up



Quick Glides (Jarū)**Quick Glide Up**

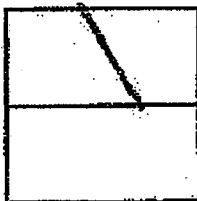
This Gamaka indicates the quick upward movement/glide from one note to another. They appear at various points in the GB.



S

Quick Glide Down

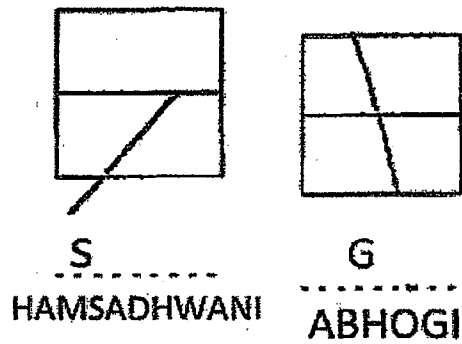
This Gamaka indicates the quick movement downwards between the swara connected by the symbol. They appear at various points in GB.



M

Quick Glides passing through lines.

Quick glides passing through the lines of GB would mean that the note moves without stopping at the line that it passes.



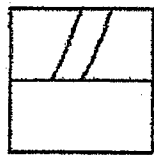
In the first example, P passes through without stopping at N, which is the bottom line, while, M goes through directly to R in the second.

Quick glides come in various length and position in GB. They can come in pairs and can also come in combinations.

Many Slow Glides forming oscillations will occur together to express a single Gamaka.

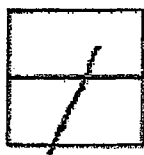


Quick glides Combinations



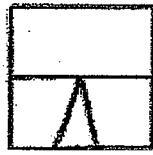
N

KALYANI



D

KALYANI



S

SAVERI



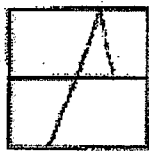
M

KALYANI



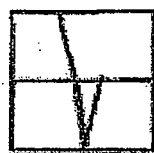
G

S'BHARANAM



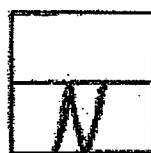
M

KALYANI



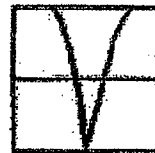
N

S'BHARANAM



M

S'BHARANAM



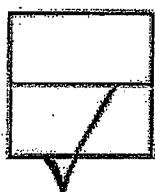
M

SAVERI



P

S'BHARANAM



R

S'BHARANAM



M , ,

KALYANI



M , ,

KALYANI



M

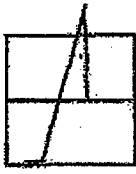
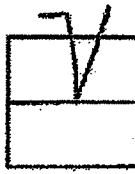
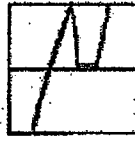
KALYANI



M ,

BEGADA

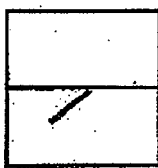
Quick glides combination with Sustain

				
D , , MOHANAM	M , , KAMBHOJI	D KALYANI	M SAVERI	M , SAVERI
				
N , BEGADA	N , , KAMBHOJI	M , BEGADA	M , BEGADA	D SAVERI

Short Quick Glide

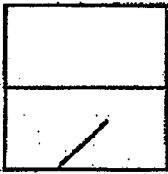
The **Short Quick Glide Up** ' / ' is used to denote micro tones/ *sruti-s*, frequencies less or more than pitch degrees (*swarasthanas*).

1. An up glide that starts from a microtone (*sruti*) just less than the pitch degree to which it reaches.



S ,
M.M.GOULAI

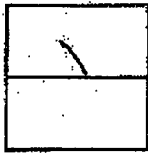
2. An up glide that starts from a pitch degree, ending in just more than the pitch it comes from.



R
SAVERI

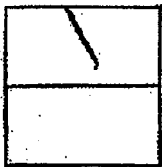
The **Short Quick Glide Down** '↘' is used to denote micro tones/ *sruti*-s, frequencies, less or more than pitch degrees (*swarasthanas*).

1. A down glide that starts from a microtone (*sruti*) just more than the pitch degree to which it reaches.



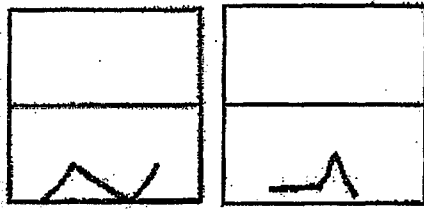
R ,
M.M.GOULAI

2. A down glide that starts from a pitch degree, ending in just less than the pitch it comes from.



S
KALYANI

Short Quick Glides combinations will be used for oscillations between such frequencies.



R , R ,

Short Quick Glides are different from Vibratos as the number of oscillations are specified in context to the beats and the oscillations are of larger frequencies.

Vibratos on the other hand, would mean unspecified number of oscillations *ad lib*⁵. The difference between these two symbols can be recognized by the extremely narrow zigzag unique vibrato symbol and the relatively broad Short Quick Glide symbols.

Short quick glide oscillations can be differentiated from vibratos which have a worm like form, as below.

Fast Vibrato



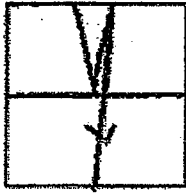
D , , , ,

ABHOGI

Double Quick Glides with arrow heads

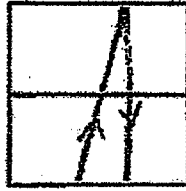
This Gamaka symbol is to doubly hasten a quick glide. Arrow head is written on the line of a Quick Glide up or down re emphasizing the direction but to indicate super speed.

⁵ At the performer's liberty.



G

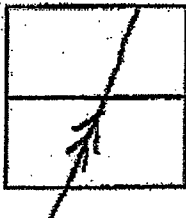
TODI



N

SAHANA

Two such arrow heads may be used together to indicate if any glide is to be performed at a blinding speed.



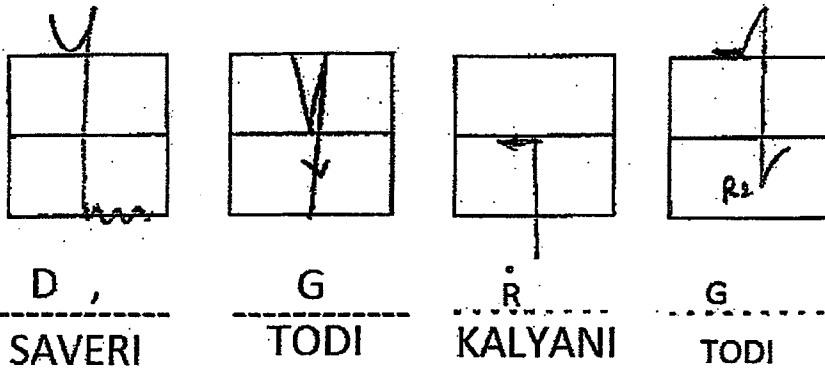
M

SAVERI

The Vertical Glide

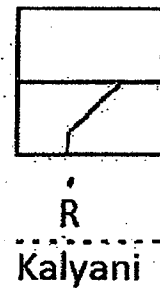
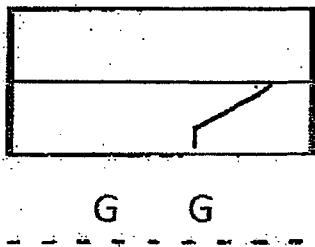
The vertical line ' | ' is an alternate symbol to indicate a blinding glides up or down in certain circumstances. As the GB and its symbols have to be read from left to right, it is impossible to interpret the Vertical Line from right or left, if it stands alone. Therefore, it should always precede or succeed another symbol. Though interchangeable with the Quick Glide with arrows, it has its own effect and uses.

In the example here where it succeeds and also precedes another Gamaka, it is clear that it is a very fast downward glide:

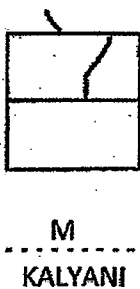


Struck Glide Up (*Spuritham*) :

The Struck Glide up symbol '✓' denotes rather than a mere accent the 'striking' of, a low note before moving quickly up. It is normally used for the second of a pair of a same swara called the '*Jantai*'. The Gamaka is called *Spuritham*. However it can also be used on a single swara, not only on the second of a pair.



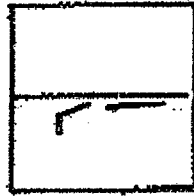
This can also be used in other positions of the GB and also in combinations with other symbols.



Sustain and Struck Glide up can come together preceding and succeeding each other. In this example the struck glide reaches the note from an indeterminate pitch, a microtone, just below the note, not from the LN.



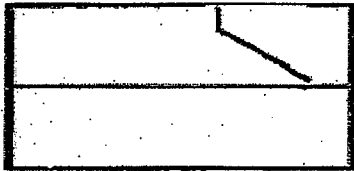
S



S

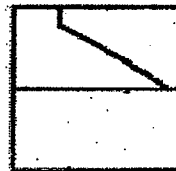
Struck Glide down (Prathyagatham) :

The symbol '↘' denotes a strike rather than a mere accent of an upper note and a quick glide down. It is normally used for the second of a pair of a same swara called the 'Janta'. The Gamaka is called *Prathyagatham*. However it can also be used on a single swara.



G G

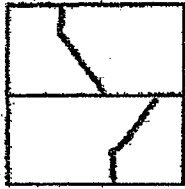
Kalyani



R

Kalyani

This can also be used in other positions of the GB and also in combinations .

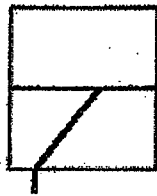
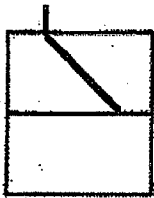


M

KALYANI

The *Spuritham* and *Prathyagatham* are not confined only to the neighbor notes but can also occur involving any note below or above.

Struck Glides employing notes in the outside spaces.



Slow Glide Up ' / ' (Jarū)

This Gamaka indicates the slow upward movement/glide from one swara to another.



D

P

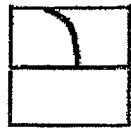
Karaharapriya S Bharanam

Slow Glide Down ' \ ' (Jarū)

This Gamaka indicates the slow movement downwards between the swara connected by the symbol. They appear at various points in GB.



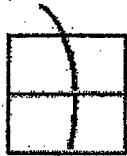
R
Saveri



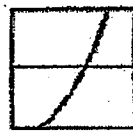
G
Saveri

Slow Glides passing through lines.

Slow glides passing through the lines of GB would mean that the note moves without stopping at any line that it passes.



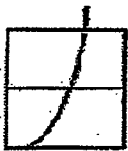
D
Saveri



N
Kalyani

In the first above, the glide moves from the Space note S, through to P, and in the second, the glide is from D to S without stopping at N.

Examples



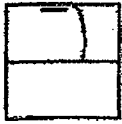
D
Saveri



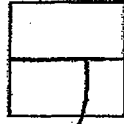
P
Hamsadhvani



M
S bharanam

Slow Glides with sustain

D
HINDOLAM



S
M.M.GOULAI

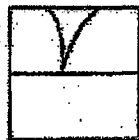
Rising Slow Glides Up

This Gamaka is a variant of Slow glide Up that has to be used in certain circumstances.



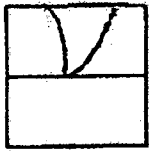
D
SAVERI

For example, it is preferable to use this variant in combination with Slow Glide Down



M
SAVERI

Rather than

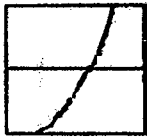


M

SAVERI

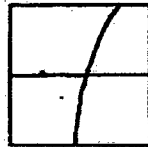
This is not only because the latter is comfortable to the eye but also because of the nature of sound which is aptly depicted.

Rising Slow Glide Up expresses a take- off relatively quickly and reach slowly, while the Slow Glide Up takes off slowly and reaches the higher note relatively quickly.



N

Kalyani



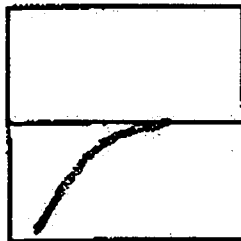
D

SAVERI

These Rising Slow Glide Up and falling Slow Glide Down are a cross between fast and slow glides and there is the fine difference quite discernible.

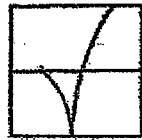


S , , ,

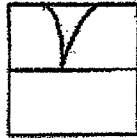


S , , ,

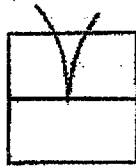
Combinations of various Slow Glides



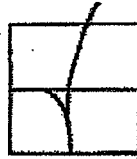
D
SAVERI



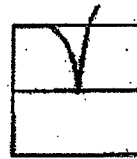
M
SAVERI



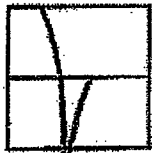
M
SAVERI



D
SAVERI



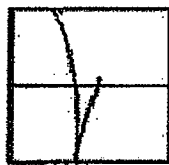
M
SAVERI



P
S



S

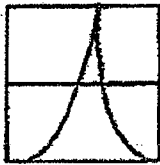


S

Falling Slow Glides Down ' \ '

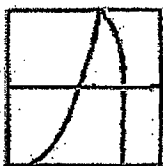
This Gamaka is a variant of Slow Glide Down. Falling Slow Glide Down goes down relatively quickly and reach slowly while the Slow Glide Down goes down slowly and reaches the lower note relatively quickly.

For example, it is preferable to use this variant, as in the combination with Slow Glide Up



M ,
KAMBHOJI

Rather than :



M ,
KAMBHOJI

for the same reasons explained earlier.

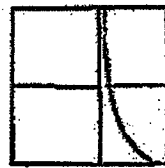
This symbol invariably used to succeed a glide up rather than alone.



M ,
KAMBHOJI



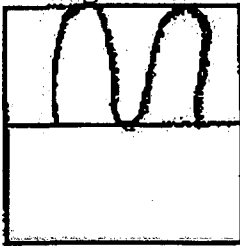
R ,
KAMBHOJI



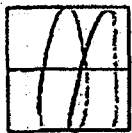
M ,
KAMBHOJI

Looping slow glides.

Many Slow Glides forming oscillations will occur together to express a single Gamaka. These slow oscillations are written not straight as



But with a loop as follows

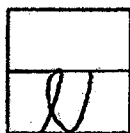


M ,

BEGADA

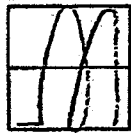
This is to express the particular 'nuance' of the gamaka, replicating the gestures inherent in carnatic musical 'feel'² an exception is made to the general rule that the gamaka symbols shall be written over a time axis from left to right.

The reversing lines forming a loop before proceeding to the next oscillation should not be taken as going back in time as that would make it impossible to perform.



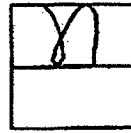
R

SAVERI



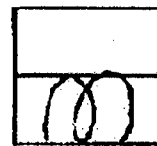
M ,

BEGADA



N ,

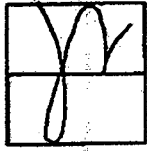
KALYANI



M

S.BHARANAM

² The feel is the way the Gamaka is perceived and executed ; sort of re iteration at the loops, that is difficult to explain in words but certainly musically applicable and discernable, Therefore it is looped instead of writing them straight.

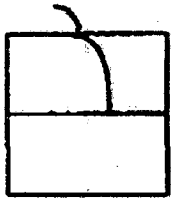


M ,

BEGADA

Cascading Curves

This symbol expresses one single Gamaka which has two movements in *the same direction*. The two curves though joined will be distinct from each other. The Gamaka involves three notes.

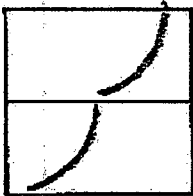


D

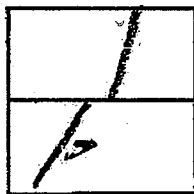
SAVERI

In the above example, there are two successive slow glides between SN and ND in the same direction. Even though the curves and glides may look smaller in the spaces they denote proper pitch degree.

Note that in these semi continuous Gamaka a break- continue gamaka, the angles should be changed to indicate two movements.



G , , ,



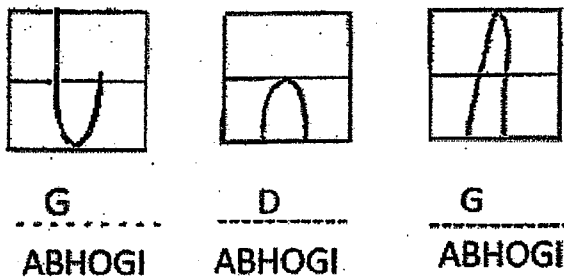
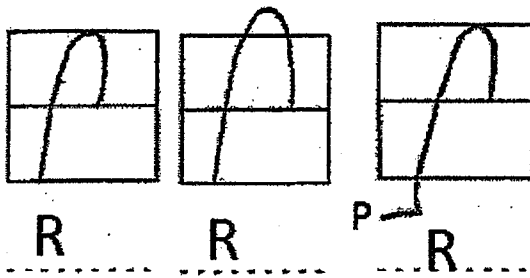
G , , ,

Kharaharapriya

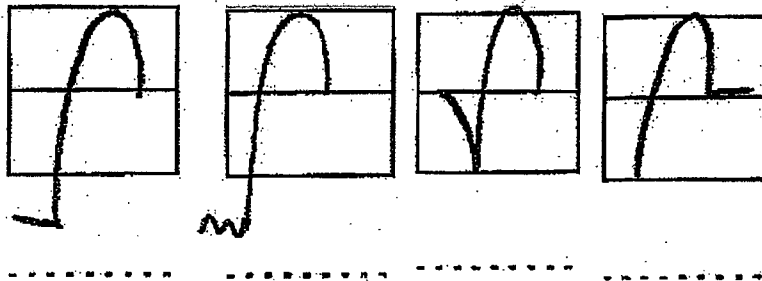
One movement Gamaka: Hook and Horse shoe

The Hook symbol  and its reverse  and Arc/ Horse shoe

These are single symbols – though looks like combinations of R S Glide and S G D, etc. expressing a single smooth movement Gamaka. These can occur at various positions of GB.



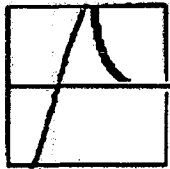
These can be combined with other symbols as well.



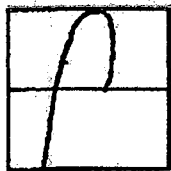
While (a) is a two movement Gamaka made of quick and slow glides with an slight emphasis on the return

(B) is of only one movement a single flow gamaka, though made of the same notes.

(a)



(b)



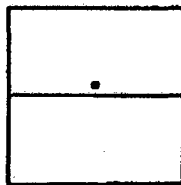
R

The Dot 'In GB

Apart from the use to denote octaves in the notation line, the Dot is used within the GB is to express the following:

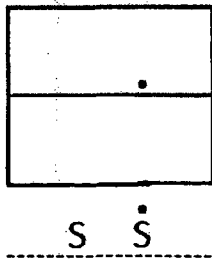
1. A Staccato

When a Dot is assigned to note and is placed in the GB over the middle line it means staccato. The note shall be performed at its position, the swarasthana shorter than the written duration.



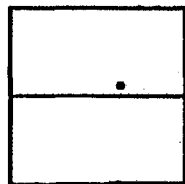
S

Dots in Notation and in GB.Staccato for the octave S.



2. A Rest.

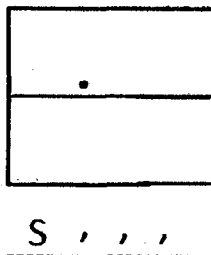
When placed over a beat it would express a rest at that beat.



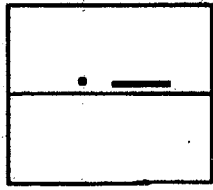
S for one beat and rest on the 2nd beat.

3. Beginning of a period rest

If there are more beats to the swara after the rest in the notation, then such a rest on a beat would continue, unless and until it is broken by a Gamaka symbol for the same swara or, by the incidence of another swara in the notation.

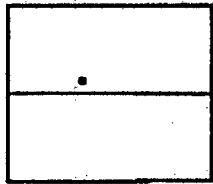


"S" to be performed for one beat's duration and the rest commencing from the 2nd beat continuing till the 4th.



S , , ,

Rest after 'S' on the 2nd beat broken by the sustain starting on the 3rd.



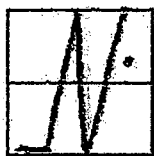
S , , N

Rest from the 2nd beat till the 3rd broken by N in the notation.

4. An Articulation

The Dot ' .' would also indicate an articulation, the sound of the peculiar style of south Indian music of tapering the end of the last glide of a Gamaka. Tapering here would mean either a sliding off at a micro tone (an indeterminate pitch) before reaching the note the Gamaka approaches, or in some cases to stop at the very moment when it reaches the pitch.

Shankara Bharanam



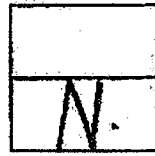
M



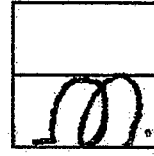
M



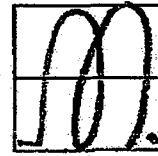
M



M

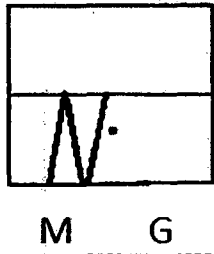


M

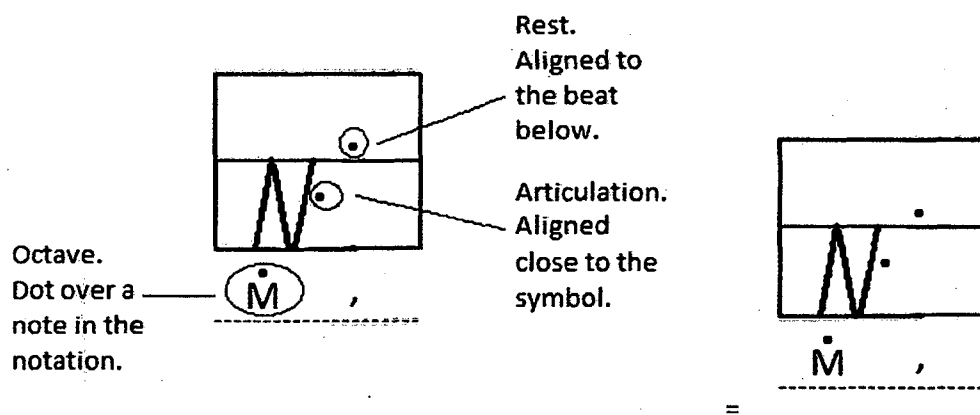


M

This Dot has more to do with the pitch rather than the beats. Therefore, should be aligned close to the symbols within its own beat, steering clear of the beats to which it does not belong.



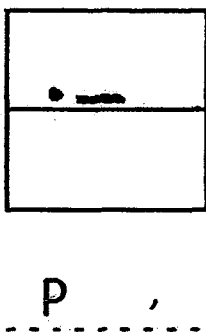
The Dot here is an articulation and not a rest and clearly aligned to the symbol.



Dots in notation line, when placed above or below a note, stand for higher or lower octaves respectively.

5. A pause

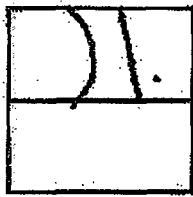
When the Dot precedes a symbol then a undefined miniscule pause is to be taken adlib before the swara is performed. This Dot will be written in the first beat of the note to which it is assigned along with the symbol.



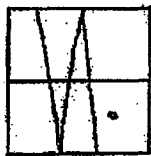
The Dot should be read in combination with the sustain and is not a staccato. Both the Dot and the Sustain are aligned to the 1 st beat denoting an initial

miniscule delay ad lib before the sustain. The sustain continues to the second beat as there is no rest indicated.

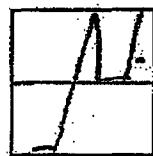
Only a Dot can mean a break in the continuity of a gamaka even though Gamaka symbols may be 'disjointed'. In the following example, there is no break between the 'disjointed' slow and fast glides for G as there are no dots in between. However there is a break at the end of the fast glide as there is a Dot.



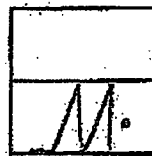
... G ...



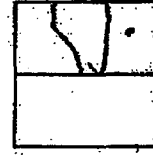
M ,
BEGADA



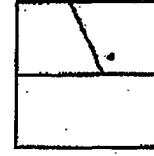
N ,
BEGADA



M , ,
S' BARANAM



M ,
BEGADA



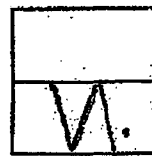
R
BEGADA



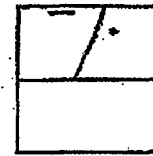
M , ,
KAMBHOJI



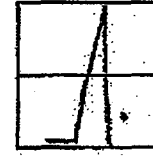
M ,
S'BHARANAM



M
S'BHARANAM



M
KALYANI



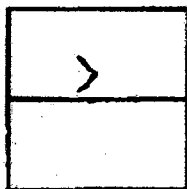
G ,
ABHOGI

G	M ,	N	G	S	
ABHOGI	BILAHARI	BHAIRAVI	BHAIRAVI	BHAIRAVI	
R ,	N ,	N ,	R ,	R ,	R ,
SAVERI	SAVERI	KALYANI	SAVERI	SAVERI	SAVERI
G ,	R ,	N	M		
SAVERI	SAVERI	BHAIRAVI	KALYANI		

Accent and Weight (Azhutham):

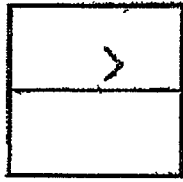
The symbol '>' is used to indicate two different articulation- Accent and Weight (Emphasis).

- (a) Accent. When written just above the middle of a line for a note it means that the note is to be accented. This will be without employing any other note, as a swarasthana even though the symbol is above the line.



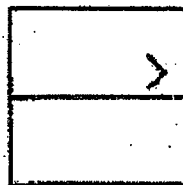
P

In the example below the second S should be performed with an accent, while the first will be performed without any, at its position.



S S

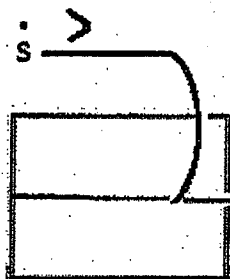
The > sign can also be placed at a particular beat in the notation for a swara, not necessarily at the very beginning. In other words, the ' > ' sign can be placed to indicate an Accent, in course of a sustained note as below.



S

Here, the accent is the fourth beat of the four beat long sustain of S. The sustain is understood here even without the symbol but if needed, it may be added.

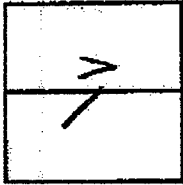
' > ' can also be used to accent a note other than the PN in a Gamaka.



S

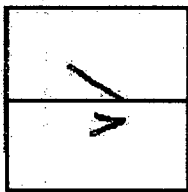
The accent is on the second beat for the S at its octave.

However, in vocal music, it will be quite difficult to execute this. It would usually be performed, due to the nature of voice wherein the pitch tends to lower naturally before it reaches the intended pitch with an approach from below.



P

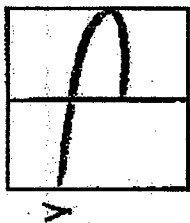
Or, from above.



P

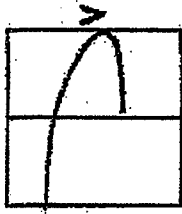
However, all these varieties are easily possible for instruments.

- (b) Weight/ Emphasis. When placed in the course of a Gamaka symbol '>' would mean the unique 'weight'-emphasis called *Azhutham*, with a certain intensity, that should be added/articulated. It will have to be performed at the point in which it is written.



R

The emphasis 'weight' in the beginning of the gamaka.



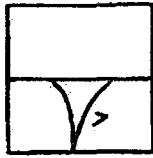
...R..... The emphasis, in the middle of a Gamaka.

The 'weight'/ emphasis can occur at any point and many points in the same gamaka.

D , ,	D	M	M , ,	G
MOHANAM	KALYANI	SAVERI	SAVERI	KALYANI
G ,	M ,	D	R ,	D ,
SAVERI	M.M. GOULAI	MOHANAM	KAMBHOJI	KAMBHOJI

When '>' is used to denote Weight or *Azhutham* at a particular point in the course of a gamaka, it should be close enough to be seen as aligned to the symbol within its beat. It should never be aligned to a beat to which it doesn't belong.

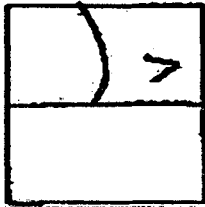
Below is an example that denotes the weight for the Gamaka in the first beat. It is clear that '>' does not belong to the second beat.



M ,

M.M. GOULAI

This on the other hand has a gamaka without accent in the first beat and has an accent in its position in the second.

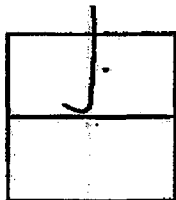


R ,

The flick

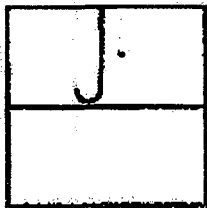


Looking like an inverted walking stick, this Gamaka is a symbol that denotes a very quick upward flash with an 'accent' at the end of the flash to an unvoiced pitch. An unvoiced pitch is a pitch at which the sound is stopped suddenly- i.e. that which goes without voice. Though there is an inherent rest at the end of the flick it is also possible to write an intended stop with an additional Dot '.'



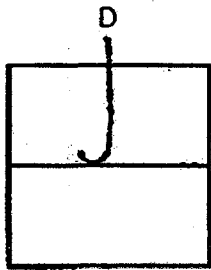
Even though the flick ends in the space above the line, it would still mean that it is unvoiced.

However a flick, the momentary flash, can denoting after which note it should become 'unvoiced' ending at the line above, to denote the top line note



-----G-----

And by indicating the note when in the space above the top line:

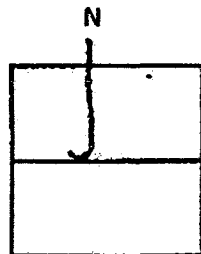


-----M-----

Exception: where a note naturally falling in the outsidespace is indicated.

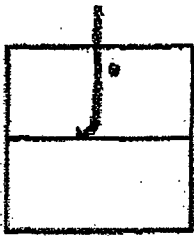
Even though, the space denotes D, which is the space note that naturally falls there, it is indicated, the redundancy in this case indicates that the flick, normally unvoiced, should be voiced.

Voiced flicks employing higher notes have to mention the note involved .



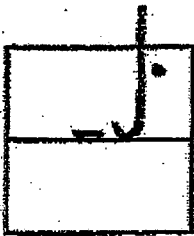
-----M-----

Indicative 'N' for a voiced flick.



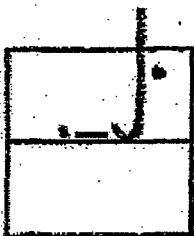
S

A flick on the beat.



S

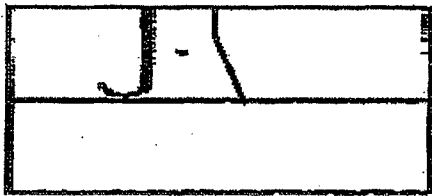
A flick after sustain on the beat.



S

A delayed sustain and a flick.

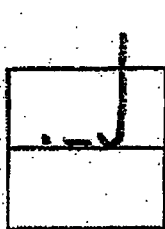
A Flick occurring first in a phrase of three notes for the first note, voiced but with an immediate rest.



G R S

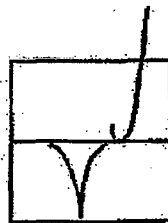
MOHANAM

The Flick can also come in combination with other symbols mostly occurring at the end of a swara..



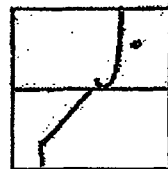
S

KAMBHOJI



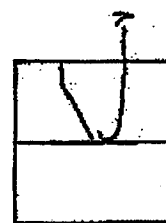
P ,

KAMBHOJI



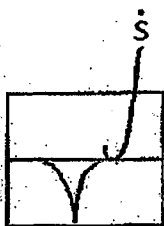
M ,

BEGADA



D

KALYANI

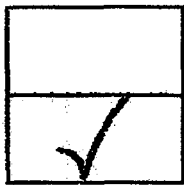


P ,

KAMBHOJI

Pick up " \ "

This symbols used to denote a pick up from a microtone /sruti an indeterminate pitch moving in the opposite direction to a succeeding Gamaka. Therefore this would invariably come at the start of another Gamaka symbol. This looks like a short slow glide down and can be identified by its beginning which would be short to mean a microtone an indeterminate pitch in most cases.

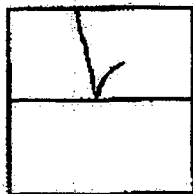


R

SAVERI

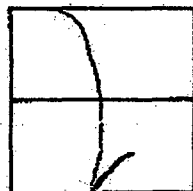
The Leave Out symbol " / "

This symbol looking like a short slow rising glide would denote a glide to be left-off smoothly at a microtone, an indeterminate pitch. It moves in the opposite direction after arriving at a note. This symbol would always follow another symbol.



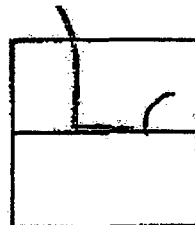
M ,

SAVERI



S

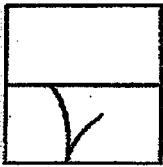
SAVERI



D ,

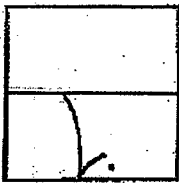
SAVERI

In normal circumstances, in spite of the fact that it is named 'leave-out', there will be no break at the end of the Gamaka, but a tapering that flows into the next note.



.....

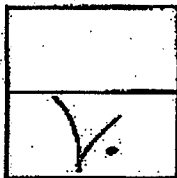
This can also be used with a Dot forcing a rest.



R

SAVERI

In such cases when a dot is used to denote a break, it will be like a very short unvoiced flick.

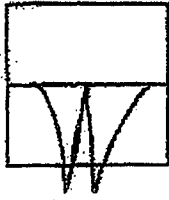


.....

The Snap



This Gamaka is a combination of Slow Glide, Quick Glides and Slow Glides and is a unique Gamaka in south Indian Music.



P ,
S'BHARANAM

This is a significant symbol of a Gamaka often used. The narrow middle indicates a very fast glide of notes. Starting with a slow glide, the note snaps back and forth in no time towards the final slow glide which is often sung markedly.

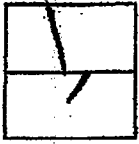
Briga : The blinding turn.

The Briga ' / ' is a Short Quick Glide Up and a Short Quick Glide Down, occurring together. This denotes an extremely quick flash of a four note turn consisting of the upper note, the PN, the lower note and the PN. The alignment of the symbols would indicate the relative high or low pitches to be performed.

In the Gamaka alignment below the pitches R and N are to be picked up closer to S rather than their pitch degrees.

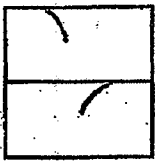


S ,
M.M.GOULAI



R
SAVERI

In the above example the Quick Glide down is from the pitch degree proper and glides fully. The Short Quick Glide Up starts closer to R.

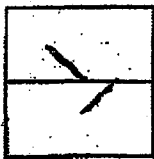


D
SAVERI

The top glide, very quick and short starts from a proper pitch degree, the note above PN here, and very quickly moves to the next glide starting from just below the PN.

Note: The Briga sign of  should never be written as >. The shape and placement of Briga and Accent symbols are very different and should be written clearly.

Briga



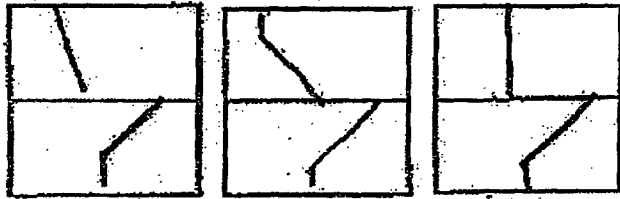
Accent



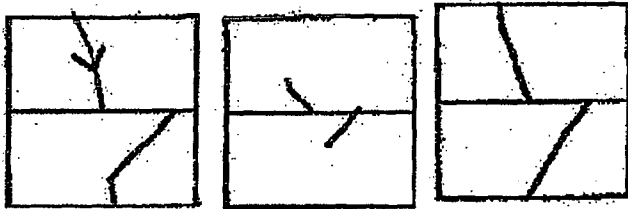
TURNS:

Quick touch of the upper and the lower notes and the principal note in between eg :
'DPMP'

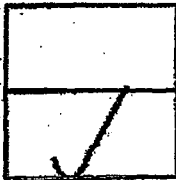
The examples below, are some of the ways Turn can be written.



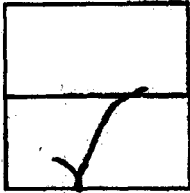
P

**Scoop:**

Scoop is a gamaka which would express a single flight of movement with a small pick-up, mostly from an indeterminate pitch.



This will be different from the Pick-up gamaka and a Rising Slow Glide combination which is a combination of two movements.



Though they employ the same notes they are different and are made of single and double movement respectively, the former with no emphasis on the turn, while the latter with a nuanced emphasis. The first one is of one sweeping movement with while the second moves down and rises up with a natural emphasis.

Therefore, when transcribed they would yield the same swaras. Gamaka symbols can be re-transcribed to the swarasthana notation albeit sans expressions.

Transcriptions serve many purposes. They confirm the accuracy of the intended Gamaka transcription as GB symbols. They expand every Gamaka manifestation. They clarify to the performer the component swaras as also the rhythmic- beat divisions of the notes...and so on..There is a separate heading that's below.

Indicative Notes Outside GB- Higher Pitches in the Outside Spaces

To represent any higher pitch the same space above and below GB are used by simply indicating the name of the notes involved in the symbol

Any higher pitch/note beyond the two Raga note positions outside GB which is neither confined to the immediate upper note nor the constituent notes of the raga can be indicated..

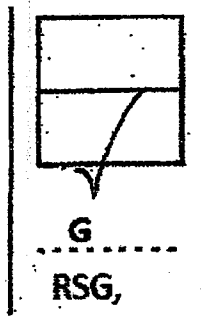
Indicative Notes with Leger Lines

If and when a gamaka uses two notes beyond the space above GB, Leger Lines have to be used along with Indicative notes.

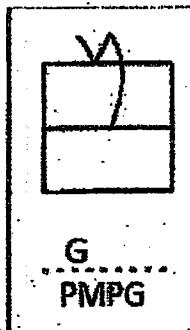
Where Indicative Notes are not Necessary.

Any Gamaka employing raga notes that naturally lie in the outside spaces of GB do not need Indicative Notes.

In the example below, the bottom line is R and the space is S. the Gamaka falls to S from R, the Bottom Space Note and rises to G, the PN. No Indicative note is necessary.

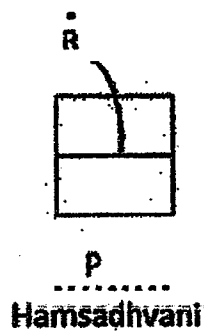


P, the note in the space above, falls to M and rises up to P and again falls to G. No Indicative note is necessary.

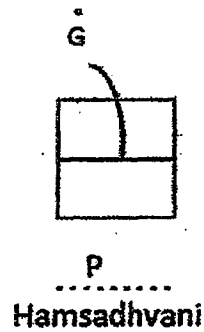


Indicative Notes – Space above GB

When a Gamaka uses only one single higher pitch beyond the Space above GB, it is to be denoted by an Indicative Swara

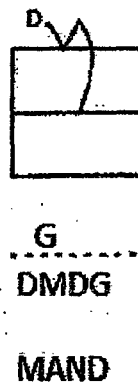


In the above raga the space is S for the PN P. Therefore the high note R, beyond the upper space of GB is indicated. It is *the only one above the space* which is employed in the Gamaka.



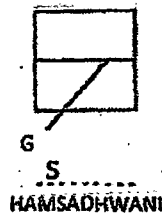
Indicative Note provided for G, a further high note. However, it is the only one used beyond the space in the Gamaka.

In the following instance, along with a note on the line, the Gamaka employs only one note 'D', which lies beyond 'P', the upper space. It is therefore indicated.

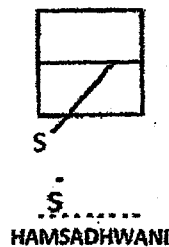


Indicative Notes – Space below GB

When a Gamaka uses only one single lower note beyond the Space below GB, it is to be denoted by an Indicative Swara only.

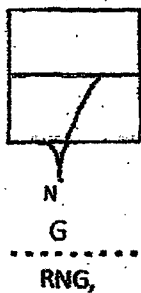


In *Hamsadhwani*, the lower space is P for the PN "S". Here the note is G which below P. It is therefore indicated. It is the *only one below the space* which is employed in the Gamaka.



Indicative Note provided for the octave S, a further low note. It is *the only one* used beyond the space in the Gamaka.

In the following instance along with a note on the line the Gamaka uses only one note N which lies beyond the space. Therefore N, is indicated.

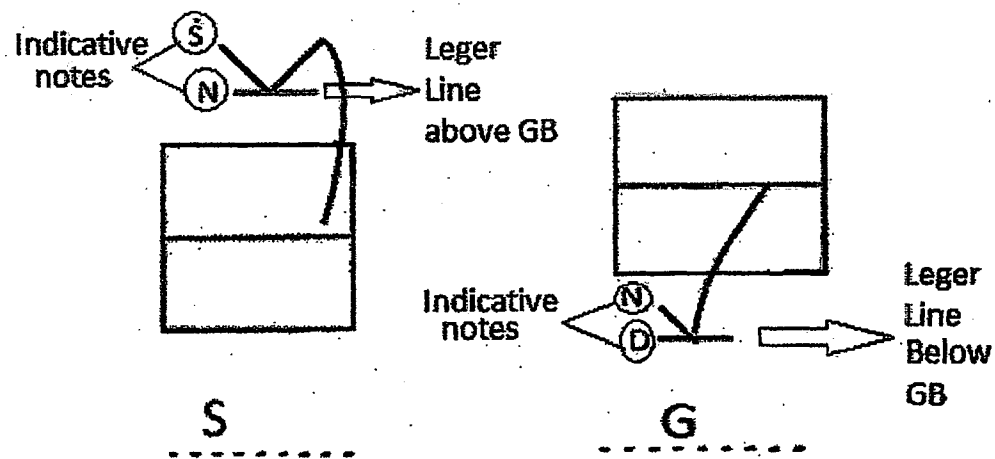


HAMSADHWANI

Indicative notes with Leger lines

When a gamaka employs *two or more notes beyond the space note*, above or below GB, Indicative Notes come with Leger Lines.

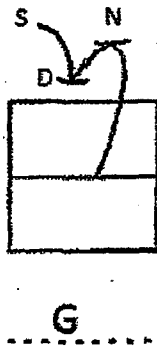
Leger lines are the extra horizontal lines to be used with symbols to denote notes, in the spaces above, below and inside the GB.

Leger Lines and Indicative Notes, Outside GB.

Gamakas employing two notes beyond the outside spaces with Leger Lines and Indicative Notes. Leger line should normally be used for the lower of the two.

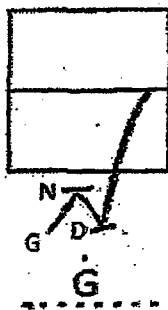
Pairs of Leger lines can also be used outside the GB.

For Gamakas above GB, involving more than two notes, the highest note should be in space and leger lines should be provided for all the other notes showing the relative higher/lower pitches that are involved. All the notes are to indicated.



S is the highest note, placed in space, D the lowest and N in between, clearly positioned, with leger lines and with indicative notes for all.

For Gamakas below GB, involving more than two notes, the lowest note should be in space and leger lines should be provided for all the other notes showing the relative higher/lower pitches that are involved. All the notes are to indicated.



G is the lowest note, placed in space, N the highest and D in between, clearly positioned, with leger lines and with indicative notes for all.

Spaces Created by Leger Lines outside GB

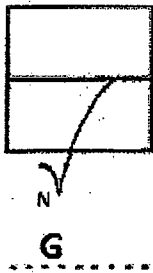
The rule that notes lie within the spaces of lines of GB, do not apply for the spaces created by leger lines outside GB. Leger lines outside GB, denote notes irrespective of whether it is a raga note or not, and the space created by such leger lines are not taken into account except for showing the relative higher or lower pitches.

Courtesy Notes for Space Note.

Courtesy notes are Indicative Notes for facilitating quick easy identification of notes if it borders on ambiguity. They are used to dispel any doubt.

In the instances where the space note and other notes beyond is used in a Gamaka, There are two ways of doing it. 1. with Indicative notes only, and 2. With leger lines.

Here the space note S which can be identified straightway, has been left alone without indication. Only N the lower note is indicated.

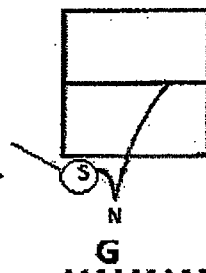


S.BHARANAM

SNG

While the above conforms to the rule that only the note beyond the space is to indicated and would suffice, a courtesy indication for the space note may be provided, if necessary.

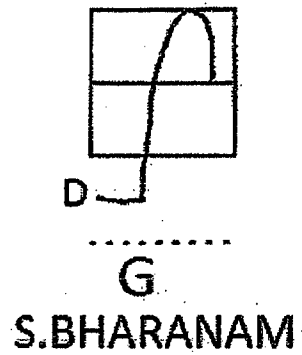
Courtesy
Indication
for S, the
space note.



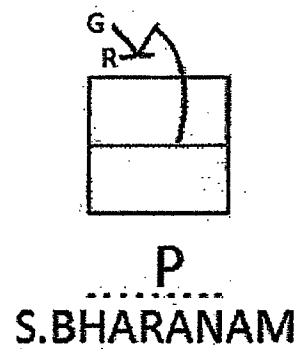
S.BHARANAM

SNG

1. Indicative Notes should appear at the earliest point – to the left of the gamaka symbol, leger line, etc for quick recognition.

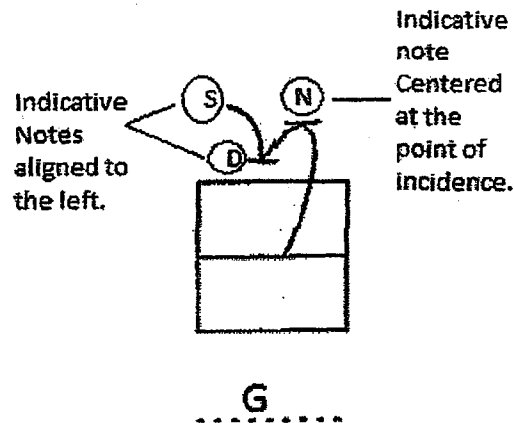


2. When two or notes are involved, the first indication should appear left most first, and the second one second, and so on.

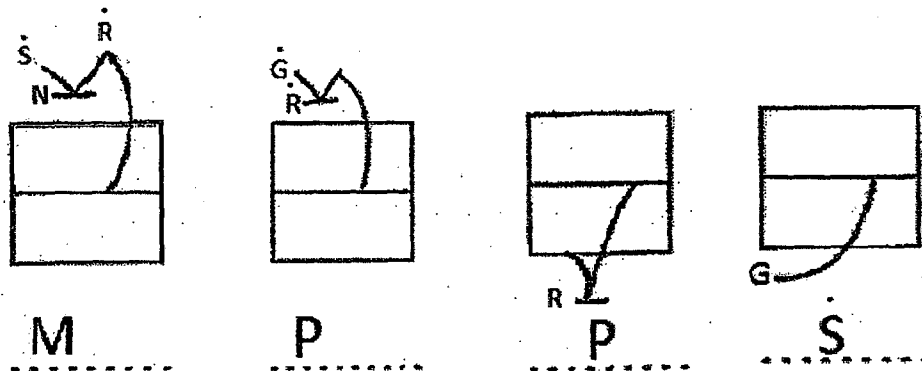


G appears first, then R

When more notes are involved and if it cannot be placed at the left, without cramping, they may be placed at the point of incidence of the note.



Placing the indications to the right of the notes should be avoided as far possible.



S.BHARANAM

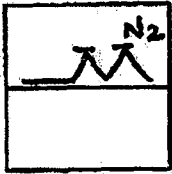
Indicative notes within GB spaces

Indicative Notes may be used within the inner spaces of GB

- With leger lines
- Without leger lines.

Indicative notes with Leger Lines within GB.

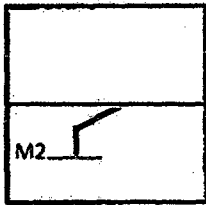
Indicative Notes in the inner spaces denote a pitch degree, *if and only* used with a leger line.



D

KALYANI

The Indicative Note and Leger Line mean the proper pitch degree N_2 . The top line here is N_3 .



P

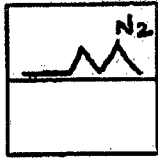
----- This expresses a MayamalavaGoula gamaka as played on the Veena traditionally using the pitch degree M_2 a non raga³ note. It is denoted by an Indicative Note together with a Leger Line.

Indicative swaras with no leger line within GB

When Indicative Notes appear inside the spaces of the GB alone, without leger lines, it will not mean the perfect pitch degree but a pitch that is around that degree and passes for it giving its 'color' or 'chaaya', indicating a slight increment / decrement from a swarasthana. In other words a miniscule increase or decrease of frequency/ pitch from the sthanas commonly solmized by the next higher or lower note name.

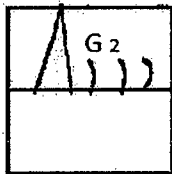
³ Maya malavagoula has M1 and not M2 . It is technically not possible to play the actual note in the veena in this gamaka and M2 is employed instead albeit so quickly that it is not revealed creating an illusion of M1.

Gamakas may employ only the 'Color'⁴ of the note indicated- up to a note or almost the note, but not the note itself ; that which would pass off for that pitch degree even though it might be about and around it.



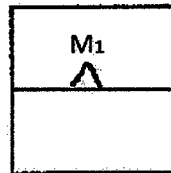
D

Kalyani



R

MOHANAM



G

MOHANAM

These are easily produced in the voice. However, the possibility of producing these would depend upon the different instruments and their capabilities. For example, the violin can produce these nuances without difficulty, while for a fretted mandolin or Saxophone only illusions⁵ of "lesser than a pitch" can be created by a high class technique and musicianship.

Gamakas without Indicative Notes inside spaces.

When Gamaka symbols appear with no indicative swara either, it would then mean a small increment or decrement of pitch from the note that is aligned



D

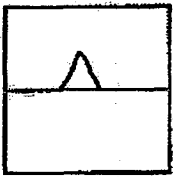
..... 'D' sustains, rises only slightly and falls.

⁴ Though not a pitch degree nor a gamaka inflected note it is still identified in the swara name. the third identity that a swara name may denote.

⁵ A study of such illusion which should be many would throw light on the understanding of Carnatic music

This would express such an increment – a special sound of Carnatic music that “will not be heard” as employing any foreign note ; that which would be within the ambit, limit and range of the note to which it is aligned ; that little increase which can only be interpreted as the same – not leaking to the higher/lower note.

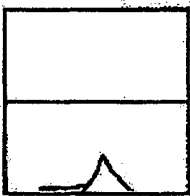
The ‘G’ is to be performed only with a slight increment in the frequency not amounting to the pitch of M_1 which lies in between and is foreign to the Kalyani raga.



G

KALYANI

In instances when any two adjacent lines of GB represents semitones, even without an indicative note a symbol would mean micro tones or srutis that lie in between.



R ,

SAVERI

The adjacent swaras are semi tones R_1 and S used in this Raga Saveri. The Gamaka sustains in S and rises a wee bit not up to R_1 but less.

Difference between Indicative notes within and outside GB

All Indicative Notes with or without Leger Lines used outside GB denote pitch degrees.

Within GB, Indicative Notes denote swāra, not swarastahanas when they appear alone and would mean swarasthanas ONLY when accompanied by Leger Lines. Interestingly when “G” is inflected with a subtle oscillation in Kalyani there will be a very slight increase in the pitch not amounting even to M_1 . However, it will be expressed as GMGM to indicate arise in the pitch even though that rise is very close to P N.

This is necessary because micro tone pitches in and around the PN which are still called by swarasthana names and the swarasthanas themselves are employed together, necessitating

Swara denoting – Stand alone Indicative Notes

Swarasthana denoting – Leger Line-Indicative Notes combination

Since No such possibility exist beyond the immediate notes around PN, a standalone Indicative Note IN would mean only the pitch degree.

Alternatively, it can be made mandatory to use Leger Line –Indicative Notes outside GB, This would mean that every time a note is above GB is employed a leger line should accompany the indication.

Relative positioning of the notes with leger lines in spaces.

Features of Indicative Notes.

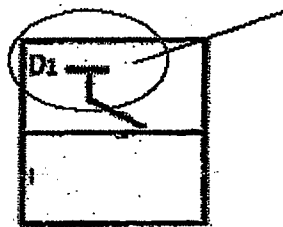
1. Indicative notes can be either notes of the raga or a note not diatonic to the raga.
2. Indicative notes have no rhythmic meaning at all.
3. If an Indicative note appears without leger line, then it should be marked on the point of incidence
4. Indicative notes should appear before the leger lines.
5. Care should be taken to keep the indicative notes absolutely clear and legible. They should steer clear of each other if there are many.
6. When in the lower space, they should not bump into the notation below. Indicative notes and notation notes have to be in different planes, that is, in different vertical positions.
7. Dots indicating the octaves of indicative notes should also be written wherever necessary

Difference between Leger lines and sustain symbols

Leger lines are different from 'Sustain' lines though they look alike. The difference can be spotted by the following.

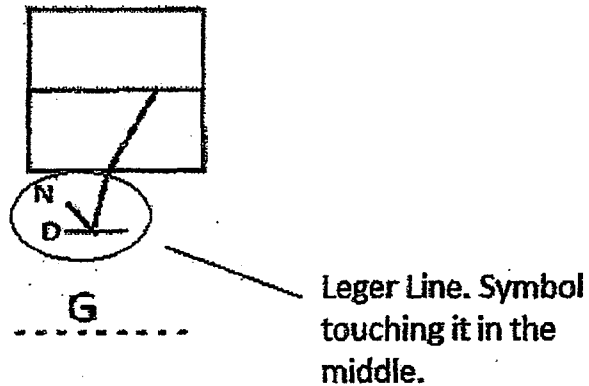
Leger Line

1. Leger Lines never stand alone.
2. They always come with Gamaka symbols accompanied by Indicative Notes.
3. Leger Lines are touched in the middle by Gamaka symbols and never at all at the ends.



Leger Line. Symbol touching it in the middle.

P

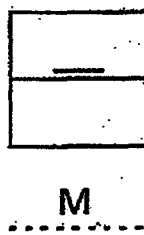


Sustain

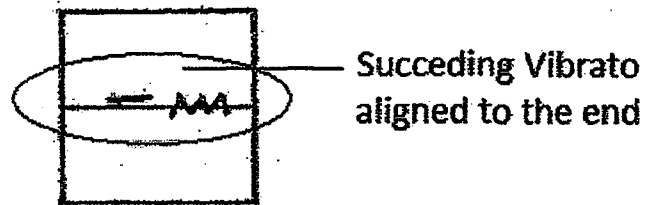
1. Sustains may come alone
2. They may also come in combinations with the other symbols. The symbols may precede and/or succeed them touching them at or aligned to, the ends.
3. Sustains are never touched by Gamaka symbols in the middle at all.

Sustain standing alone.

Kalyani

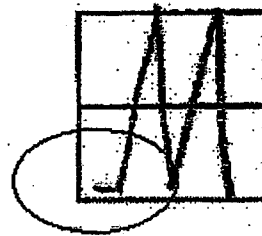


Sustain preceding Vibrato

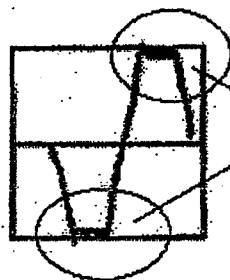


R

Quick Glides touching Sustain at the end



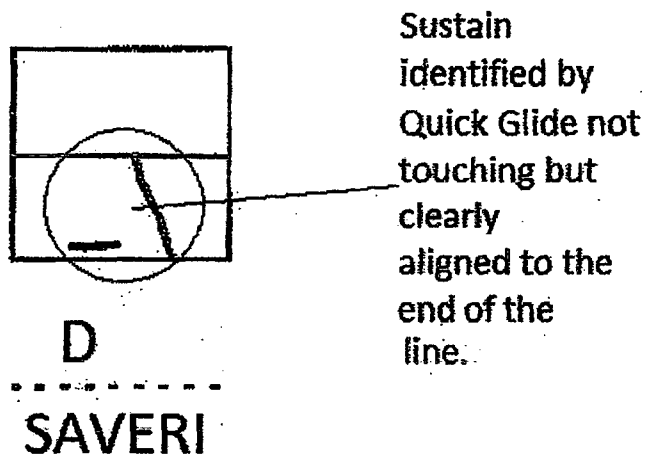
G



Sustains touched at both ends by glides

M

A sustain symbol can be identified even by 'disjointed' symbol continuing from the end of the line. It is not necessary that they should touch but alignment will be unmistakably to the ends.

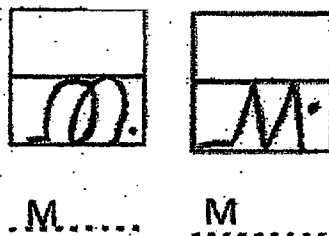


Oscillations:

Execution of Quick and Slow Glides :

Sharp angles and straight lines always denote quick gamakas which turn 'square', The curved lines would indicate slow rounded gamaka articulations.

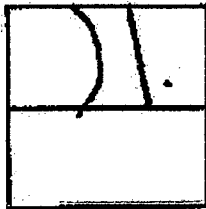
Examples



When transcribed back to the normal swara notation, both Gamakas would mean G,MGMG (without the stop denoted by the Dot here).

However, it is clear that the articulations are different. The first one is slow, rounded with an inherent natural emphasis while the second one is faster and square.

In the following, a Gamaka involving the same set of notes MG MG is expressed with different articulations in the GB.

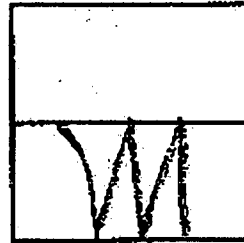
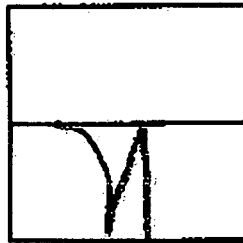
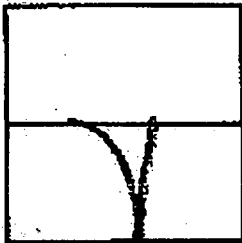


---G---

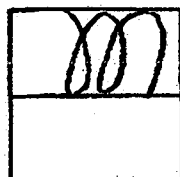
The first MG is slow while the second is fast with a rest.

The slow and fast glides can be combined in as many combinations as is necessary.

EX



Position of oscillations – An oscillation is a number of, to and fro movements, between pitches. It may be either slow or quick.



G

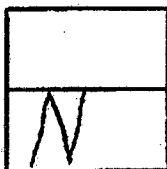
GMGMGM

G

MGMGMG

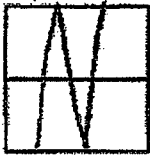
It can happen at anywhere in and around the GB.

When the lines touch the notes within the GB, the oscillations would be between the pitch degrees.



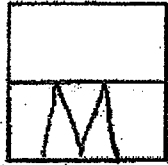
M

----- The gamaka for M oscillates between LN and PN GMGM



M

..... The gamaka oscillates between LN and UN through PN GPGP



M

GMGMG

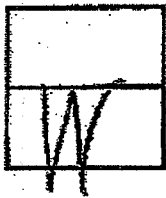
..... The gamaka oscillates between LN and PN and stops at G.



M

..... The gamaka oscillates between LN to UN, comes back to PN and moves again to the UN GPMP

When the spaces below and above are used in such glides, then it would still mean the pitch degree, that is the swarathana as per the Arohanam Avarohanam.

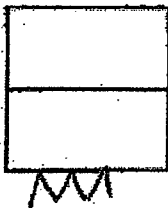


P

..... Space outside the GB would mean the pitch degree and oscillations would be between P and G.

When the outer spaces are used with the line the height of the glide lines could look slightly less but should be tall enough so that it is not be mistaken for vibrato.

Oscillation, not Vibrato.



All the above involving only the pitch degrees can be called 'full oscillations'.

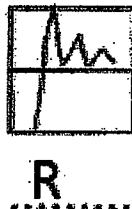
Tapering Oscillations.

Often the oscillation for a note tapers (narrowed frequency band width) in performance (considered correct and aesthetically beautiful), which we can be called Tapering Oscillations.

As against the full oscillation involving pitch degrees ,

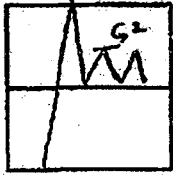


The oscillation might taper involving micro tones less than the pitch degree, like



In this case, as it can be seen, the oscillation becomes narrower after touching the pitch degree. Often this is performed with a mild retard ad lib.

When you use a leger line and indicate a swara, then the oscillation would employ that swara-sthana the pitch degree.

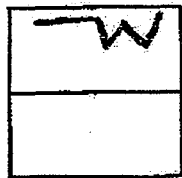


R..... The raga is Shankarabhranam. The top line is G_3 and the leger line in the space indicated G_2 proper. This is the way a mandolin player might perform using the actual pitch degree G_2 but not showing it, to give an illusion of only the color of G_2 , and not G_2 .

When only the indicative swara is given without leger line, then the pitch employed in the oscillation is slightly less, when approached from below (flatter) and slightly more when approached from above (sharper) than pitch degree.

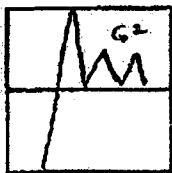


N , , ,



N , , ,

Kalyani



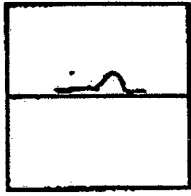
R.....

Here without the leger line the Gamaka employs a pitch approximately around G_2 .

However the note name of the *swarasthana*⁶ would be used for want of an expression.

When no indicative swara is given, it would mean that there is only an increment/decrement of frequency of the note from the note to which it is written.

⁶As discussed before another instance where the swarasthana nomenclature is used to denote pitches less or more than the swarasthana in question.

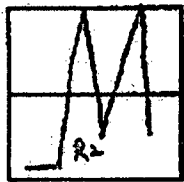


G
KALYANI

The raga is *Kalyani* and the M_2 is the top line. M_1 lies between G_3 and M_2 . The M_1 will not sound in this at all. The gamaka is still anchored in G and does not lean to any *anyaswara*/foreign note.

This oscillation will be within the ambit of the note to which it is written. At no point of time, should any foreign note to the raga be heard in this case.

In other instances (in ragas like *Todi*), foreign notes to the raga, (notes not lined up in the *Arohanam* - *Avarohanam*) are part and parcel of such oscillations.



G
THODI

Here, from R_1 the movement is up to M_1 both constituents of *Todi* but when coming down the R_2 – foreign note to the *Todi* is employed.

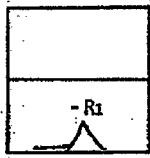
Micro Tones

Indicative signs ‘-’ and ‘+’

The ‘-’ and ‘+’ may be used to indicate flatter or sharper pitches, if more specifics are intended.

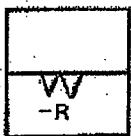
Quarter notes can be specifically denoted + and – signs. This is used with an Indicative swara, indicating if it is sharper or flatter to its normal pitch degree. Though this is so

they are called by the swarasthana names compounding the problem of the practice to call three different things in the same fashion



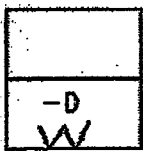
R ,
SAVERI

Quarter Tones that lie between semi tones are part and parcel of Indian music. Gamaka symbols that are short and not connecting or indicating *Swarasthanas*, denote Quarter tones. They occur particularly in the spaces within GB. Quarter tones are 'sharper' or 'flatter' depending on the alignment of the symbol to a swarasthana or pitch degree. It should be noted that they are however expressed in swarasthana nomenclature. While GB notation can show them here is no separate way to express them except by explanations and demonstration.



R
SAVERI

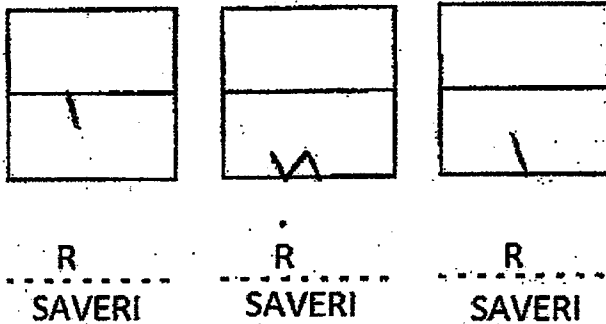
The quarter tone employed in the above example, will be flatter than R the PN as the Gamaka is aligned just below the middle line.



D
SAVERI

The micro tone employed in the above example, will be sharper than P as the Gamaka is aligned just above the bottom line.

Various micro tone symbols



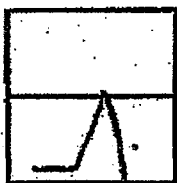
Note: Though Leave out and Pick up symbols often use the spaces in the GB they are special symbols they indicate only colors of the constituent notes of the raga except in cases where courtesy notes are provided..

Rhythmic aspects:

In order to very clearly express the movements of the gamakas, it will be prudent to express a swarasthana in higher resolution/ quantization (*melkalam*,) which gives us an expanded time axis- the extra horizontal space for the GB to put the appropriate symbol with the appropriate rhythmic implications.

Rhythmic expansions:

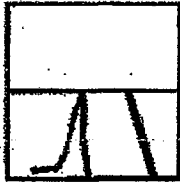
Rhythmic implications of the Gamakas should be clear from the vertical alignment of the symbols to the notations below.



M

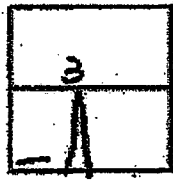
M is for 2 beats and the implication is the first beat has G, and the second MG (two notes per beat).

For faster gamakas, symbols have to be narrowed confining to the beats within which they have to be performed as



M ,

Here for the first beat of M it is G.MG- four notes to a beat and for the second MG.



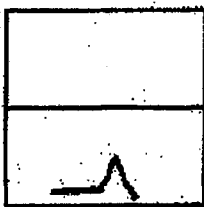
M P D



M P D

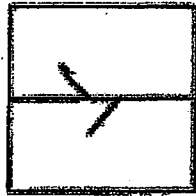


In case where a Short Quick Glide is used, the rhythmic implications are the same and the gamakas are not quickened because of the short glide. The rhythm is with the beats.



R ,

An exception to this is the Briga symbol (Turn) which looks like two Short Glides down and up.



S

This denotes a very fast movement and should be performed as fast as possible. But in case, there is a any need to be specific, the notation may be expanded as below and the Briga placed appropriately.



S

Here the single beat S is expanded, appropriately underlined.

Movements of the Gamakas can be shown clearly by expanding the notation below and aligning the Gamaka Symbols to the beats appropriately.

The temporal aspects of GB notation:

The time axis is from left to right. The notation line clearly indicates the pitch time relationship stating which note is to be performed when and for how long. This will correspond to the tempo, that is speed of the piece and the tala or number of beats.

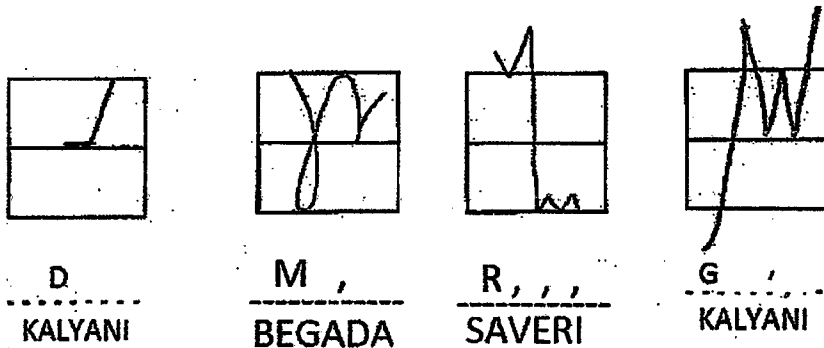
While this is so, the gamaka symbols themselves would express the sub-divisions of the gamaka as to a beat.

There are 3 aspects of rhythm in the GB. The first aspect is expressed in the notation line which clearly tells what notes to play, when to play and how long to play as also rests.

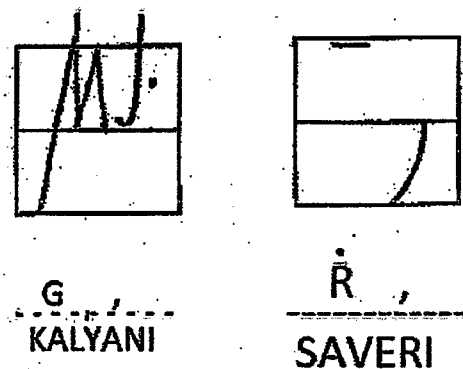
Number of Gamaka symbols to a Swara.

Absence of a symbol in the GB for a note written below also denotes a definite indication that the swara has to be played at its own place. Any number of symbols may be attributed to a swara but they should be properly aligned indicating clearly the rhythmic implication.

More than one Gamaka symbol may be combined into one for a swara



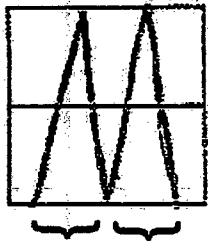
or they may stand closely aligned to a swara without being joined.



Notwithstanding this they are to be performed smoothly and connectedly at all times except and only when there is a Dot indicating a rest.

Gamaka symbols have to be aligned to the 'Beats' in the notations below. The larger the width, the slower the gamaka and the narrower the width, the faster the gamaka.

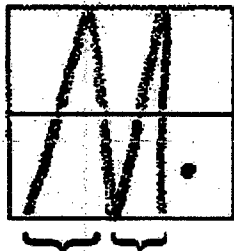
Example 1: Both the glides to be performed in the same speed as the width of the glides are the same.



M

KALYANI

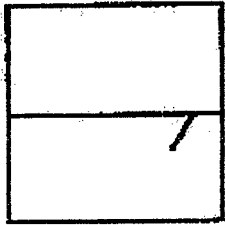
Example 2: The width of the second glide is narrower - to be performed quicker than the first. Additionally, the Dot indicates that the last glide shouldn't really reach G or that G should never be sustained.



M

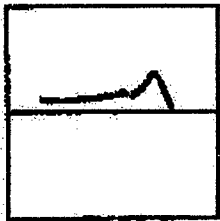
KALYANI

When a long note occurs, an incidence of Gamaka may be appropriately placed at the point where it occurs.

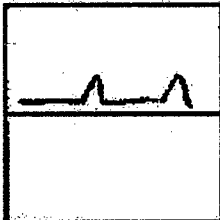


S In the four beat sustain of S, the Gamaka is in the fourth.

In the above a courtesy sustain symbol may be added if so desired.



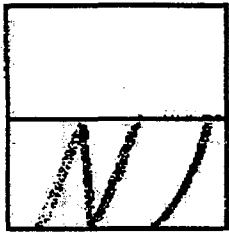
G In the three beat G, after two beats of sustain the third beat will have Gamaka.



G In this Gamaka, the third and fourth beat has gamakas.

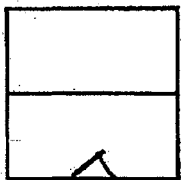
Gamakas pertaining to beat should be written within the space for the beat clearly indicating the rhythmic implication.

The Gamaka in the first beat will be faster as there are two movements to one beat. The second beat will be slower as there is only one movement to that one beat.



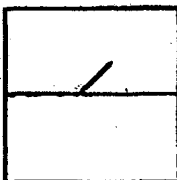
M ,

Alignment of the short glides, whether slow/quick will express increase/decrease in frequencies from the swara to which it is aligned.



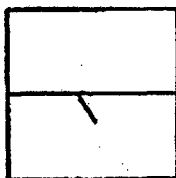
R

SAVERI



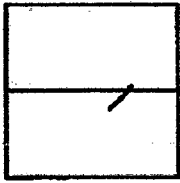
R

SAVERI

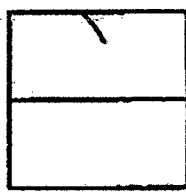
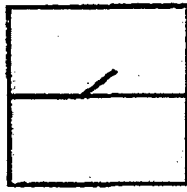
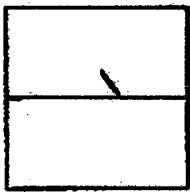


R

SAVERI



.. S S ..
SAVERI



.. S S ..
SAVERI

.. N ..
SAVERI

.. N ..
SAVERI

ADDITIONAL EXPLANATIONS AND CLARIFICATIONS

Lines and spaces (Constituent notes would mean all the raga notes derived from the arohanaavarohana.)

If a note is not lined up in the arohanaavarohana it should be construed as foreign to the raga.

Some Ragas explicitly use foreign notes (KambhojiBilahari) the swarasthana and some ragas use them discreetly. (Todi)

In Ragas like Bhairavi the two varieties of D are constituent raga notes. The lines in and the spaces outside GB take the higher of the two.

There are five positions in the GB which by default take the raga notes based on the ArohanamAvarohanam, to any given PN.

The essential difference between the spaces in the GB and outside (above & below) GB is

- (a) The outer spaces always denote the notes of the Raga and not the foreign notes/anyaswaras that lie between the notes of the scale.

The inner spaces normally take (non constituent) 'foreign notes'/anyaswaras that are between the notes of the Raga which take the line

However in some rare ragas which use varieties of the same pitch classes and in the same nomenclature the leger line may denote Raga notes too.

Inside GB indicative notes would denote a pitch degree only when used with Leger Line. When it comes alone it would denote the Chaaya of the indicated note.

Bracketed Notes.

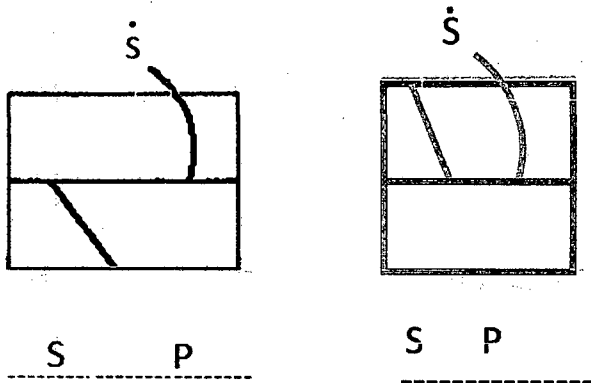
The Gamaka notation would depend on the subjective perception as the same Gamaka may be interpreted differently by different people.

This works on the principle that each note entry is a separate and distinct event. *As there are different ways a Gamaka can be expressed, Therefore, when a Gamaka is expressed and such note is expressed in the GB.*

A Gamaka can be expressed in different swara expressions by different people. The component notes of a Gamaka can expressed by naming the component notes separately or by attributing them to one note. GB recognizes this phenomena and treats a note on its own terms.

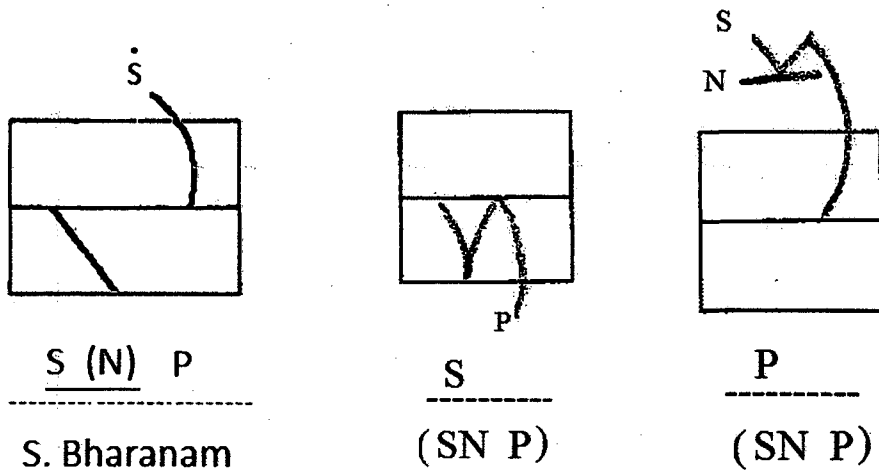
In a possible instance a Gamaka “ $\dot{S}$, P,” might have a ‘N’ as an anuswarato $\dot{S}$. It can be perceived recognized or interpreted as $\dot{S}$, P, or $\dot{S}$ NP, with the N perceived as inherent to S as in the first instance or as a separate entity in the second, It would therefore expressed or spelt or pronounced while singing. With both expressions quite acceptable, to reflect the way it is expressed the notation N should either be left out or written with brackets, in the notation below to show that ‘N’ though inherent in $\dot{S}$ it is being pronounced or perceived as a separate entity.

The notation below GB expresses the perceived swaras as $\dot{S}, P,$. Please note that the P too has the upper S in its ambit yet is expressed only as P.



S. Bharanam

The same Gamaka, the same sound but with a different swara perception or swara expression (for S) as $\dot{S} N P,$ has been notated below, with N in brackets.



S. Bharanam

(SN P)

(SN P)

Here the N does not affect the GB notation and therefore is bracketed. If written without brackets then N would be Principal Note at that point, leading to confusion as where the Quick Glide from S is reaching, for, if the PN is N at that point, the bottom line would then become D.

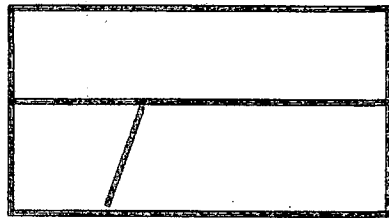
Please note that SN has also been duly underlined to indicate the rhythmic expansion in the notation.

In all instances where a Gamaka ends in a swara- that which can be taken as an anu-swara to a PN- and if that swara is pronounced or perceived as a separate entity, the bracketed notation is to be used to reflect such an expression.

Here is an instance where a Gamaka is expressed in two different ways to reflect the perceived or expressed swaras.

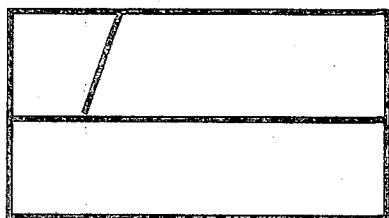
Here in the first instance the glide is for P (to D) with the D pronounced at the very end of the glide, after it reaches D. The swara expression would be as if the intra sub division of P and D is P,D (triplet) or P,,D, with the D pronounced at the last moment of the glide.

By bracketing D and insulating the GB the proper depiction of swara expression is made.



P D M G

However in this second instance, the glide is for D and therefore written thus, with no brackets.



P (D) M G

The essential difference between these two is the recognition that gamakas are attributable to, and express-able as different notes, and there relative nuances.

The actual sound of the glide would be from P to D in both the instances, though they look at different planed to the eye.

However, when these two above are performed, it will be seen that there is a percussion at P and the D respectively, which make completely different from each other ; P-with D as secondary note in the first and D- with secondary P in the second.

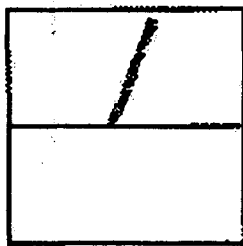
The notes in the notation below the GB separate Events and the component notes of a Gamaka is not.

A Gamaka is one Composite Event made up of many notes. A swara transcription of a Gamaka would however yield only a notation of separate events.

Gamaka notes lose their individual identities with the Gamaka. They are not separate events but the ones merges to become another identity, a single composite identity.

Expanded Notation

Alternately an expanded notation may be written below the standard notation to clarify the nuance.



P , M G

P,,D

This will do away with the need of bracketing the intended swara formation to be written

Transcription to Swara Notation.

Gamaka Symbols can be transcribed back to swarasthana notation. Gamaka symbols are but the depiction of the movements between notes and also the micro tones as applicable. Realizing the swara notation from the symbols serves many a purpose like checking the accuracy, understanding the components and clarifying the rhythmic implications of the Gamaka symbols.

It is important to note that swarasthanas, swaras and also microtones are referred to in the same nomenclature. This is the limitation of Swarasthana notation.

For example, D might refer to:

1. The Pitch Degree N_2 , the swarasthana expressed a N_2 .
2. A Gamaka inflected N_2 , using other swarasthanas, for example, $D_2SD_2SD_2$, where the S and D stand for their respective pitch degrees, the swarasthana
3. A Gamaka Inflected N_2 expressed as $N_2D_2N_2D_2$, where the D_2 stands for not the pitch degree D_2 but a micro tone which is closer to N_2 .

While GB system removes this ambiguity and gives these manifestations their own unique identities, it is important for many reasons that the symbols are transcribed back to swarasthana notation.

The above mentioned points are but enumerations of the current and age old practice of reference to the notes of Indian music. It would therefore be in order to transcribe GB symbols keeping them in mind.

Guide to transcription.

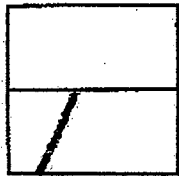
Transcription of Gamaka symbols and rhythmic subdivisions.

Transcriptions of Gamakas are essential to proper writing and reading and understanding.

In transcribing a Gamaka the intra rhythmic subdivisions are normally taken as four to a note in medium tempo.

Quick Glide.

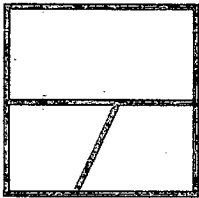
In slow to medium tempo quick glides take one beat of the four subdivisions it is broken into, and the note which it reaches hangs on for the remaining three.



S , , ,

N taking one beat and S sustained for 3 beats. Therefore the transcription would be NS , , ,

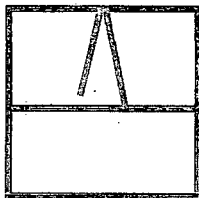
In faster tempos the subdivisions become less in number. Here the glide from N takes one of two beats that it will be broken into and S takes the second.



S ,

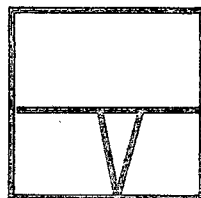
N and S takes one beat each, to be transcribed as N S.

Transcription of Quick Glide up and Quick Glide down.



S

SRS,



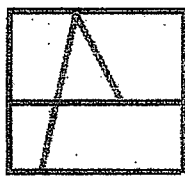
G

GRG,

This is a symbol of two glides one up and one down. It is interpreted by the human mind interestingly. The symbol is always understood as having sub divisions of four with sustain even without a sustain symbol at the end.

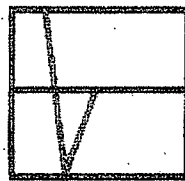
Therefore, the above symbol stand for SRS, and GRG, respective and should be transcribed thus.

Transcription of other glides of two.



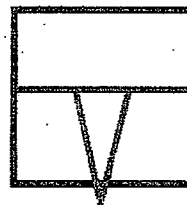
R

SGR,



P

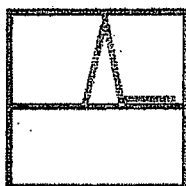
DMP,



P

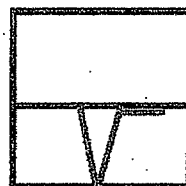
PGP,

However the same can be symbolised as below, to make it amply clear, that there is indeed a sustain at the end.



S

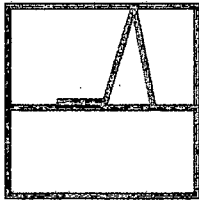
SRS,



G

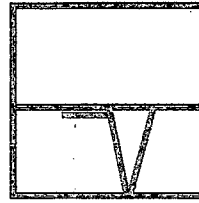
GRG,

The transcription being SRS, and GRG. In the case where there is a sustain in the beginning, it would precede the glides in the GB as below and would be transcribed as S,RS and G,RG respectively.



S

S,RS



G

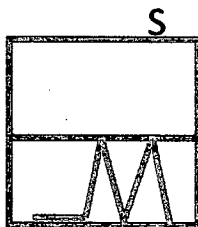
G,RG

To express a triplet of SRS for example, the number 3 is to be written as shown below. This would naturally mean that the sub divisions are not four but three.

The above would be transcribed as SRS and GRG.

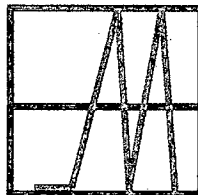
3 3

Various symbols and their transcriptions.



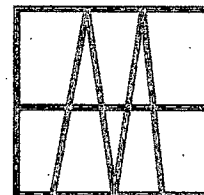
M

GMGMG



M

G,PGPG



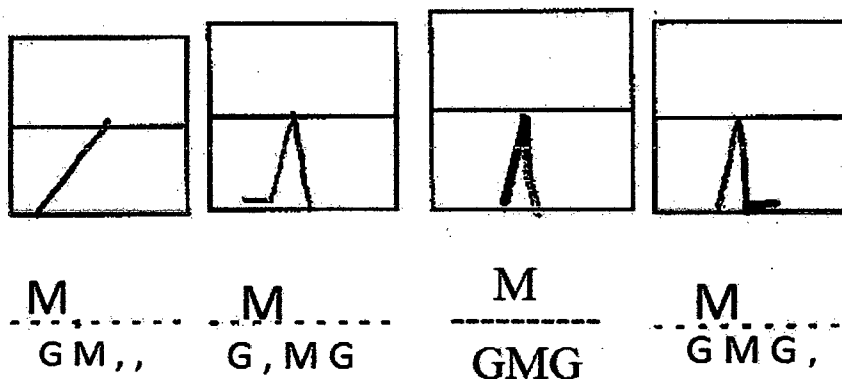
M

GPGPG

The above symbols are transcribed truly with no sustain at the end, unlike in the case of symbols involving only two glides. The moment a third symbol features in the GB the anomalous interpretation of the human cognition vanishes.

The second aspect is that GB symbols will have its own rhythmic sub-divisions (intra rhythmic), independent of, but aligned to the notation written below.

The third aspect belongs to the musician, his interpretation and subjective decision, that would be applied in the Vibrato, Dot preceding the sustain or any pause that might be notated.



While the notation line expresses that the M (swarasthana) is to be played for 1 beat and nothing more, the gamaka symbol expresses the rhythmic sub-divisions and the notes or pitches involved in the gamaka. The symbols give clearly, the rhythmic aspects of the swara. In short, the Inter note rhythmic aspect is in the notation line and the intra Gamaka rhythmic aspect is expressed in the GB layer.

It is to be noted that the invention provides notation for 'Gamakas' an unique element associated with Indian music and also in other world music like Persian Iranian Japanese Chinese i.e. oscillation of notes are also included in the notation system as per this invention which is novel and unknown in prior art.

Further the notation system can be represented visually to the singerperformer/student. The notation system is applicable for usage as printed document digital document or combination thereof without limiting the contents of the invention to the user / singer.

In one aspect, the invention relates to a method of representing gamaka notation system for Indian music comprising swaras, taalas and ragas, the said method using a grid box corresponding to musical notations representative of pitch and time duration of the swara along a horizontally extended time axis providing a grid box (1) display correspondingly along the axis to a standard musical notations and above the said musical notations, applying selected gamaka note symbols within on, outside and around the gamaka grid box to indicate the gamaka notes to be sounded in selected time intervals corresponding to musical notations underneath, each of the gamaka note being visually representative of a predetermined selected gamaka note quality in accordance with a predetermined gamaka note quality protocol and for a predetermined duration of the musical notation correspondingly to the swara underneath the said gamaka note, applying a selected graphical treatment to each gamaka note symbol, each selected graphical treatment being representative of a specific gamaka tone quality in accordance with a predetermined gamaka tone quality protocol, and providing corresponding swara lyric for each musical note along the axis, said lyrics provided directly beneath the said corresponding musical notes.

In another aspect it applies all melodic and oscillated music of the world.

In another aspect, the invention relates to gamaka tone quality is representative of oscillation of notes to be sounded.

In another aspect, the invention relates to the gamaka grid box is arranged as rectangular matrix like structure having a plurality of vertical columns (4), and a set of three parallel horizontal lines forming two rows.

In another aspect, the invention relates to space within each of said column of the grid box is representative of atleast one or more gamaka tone quality from a predetermined gamaka tone quality protocol.

In another aspect, the invention relates to horizontal length of each column of grid box is representative of time intervals referred as a beat in the music.

In another aspect, the invention relates to each vertical column representing a beat has an terminating right hand side vertical line referred as beat bar line; which is represented as a single vertical line (2).

In another aspect, the invention relates to plurality of vertical columns collectively representing a groupings of beat referred as a taala cycle, has a terminating right hand side vertical line referred as taala bar line which is represented as a set of plurality (double) of vertical lines (3).

In another aspect, the invention relates to the horizontal length of the columns encompassing each gamaka note symbols along the gamaka grid box is equal to the horizontal length along the axis of its corresponding musical notation underneath.

In another aspect, the invention relates to the top horizontal line of the gamaka grid box corresponds to upper note of the swara (UN), the bottom horizontal line corresponds to lower note of the swara (LN), and the middle horizontal line corresponds to principal note of the swara (PN) (of a specific raga on the basis of arohanam – avarohanam of the said raga).

In another aspect, the invention relates to the selected graphical treatment of each gamaka note symbol may comprise using one or more geometric shapes, each geometry representing a particular gamaka tone quality in accordance with a predetermined gamaka tone quality protocol.

In another aspect, the invention relates to the graphical gamaka note symbol is marked on the grid box, within a column corresponding to the musical swara note imprinted below when the note is intended to be held for one beat.

In another aspect, the invention relates to the graphical gamaka note symbol is marked on the grid box, along a number of columns of the grid box, when a musical swara note is intended to be held for more than one beat.

In another aspect, the invention relates to most of the gamaka note symbols are read from left to right along the horizontal axis of grid box.

In another aspect, the invention relates to some of the gamaka note symbols may be read from left towards right along the horizontal axis of the grid box.

In another aspect, the invention relates to some of gamaka note symbols may be read from right to left along the horizontal axis of the grid box.

In another aspect, the invention relates to the said grid box may be a digital display.

In another aspect, the invention relates to the grid box may be a printed display.

In another aspect, the invention relates to the space immediately above the top horizontal line, represents a next upper note to the principal note (PN) of the corresponding swara (of a specific raga on the basis of arohanam – avarohanam of the said raga).

In another aspect, the invention relates to the space immediately below the bottom horizontal line represents a next lower note to the principal note (PN) of the corresponding swara (of a specific raga on the basis of arohanam – avarohanam of the said raga).

In another aspect, the invention relates to the space above the top horizontal line may include musical note in text to represent a higher note which is beyond the next upper note to the principal note (PN) of the corresponding swara (of a specific raga on the basis of arohanam – avarohanam of the said raga).

In another aspect, the invention relates to the space below the bottom horizontal line may include musical note in text to represent a lower note which is lesser than the next lower note to the principal note (PN) of the swara (of a specific raga on the basis of arohanam – avarohanam of the said raga).

In another aspect, the invention relates to more than one note is to be imprinted in the said space a Leger line indicates a pitch which pitch is not same as swara pitch.

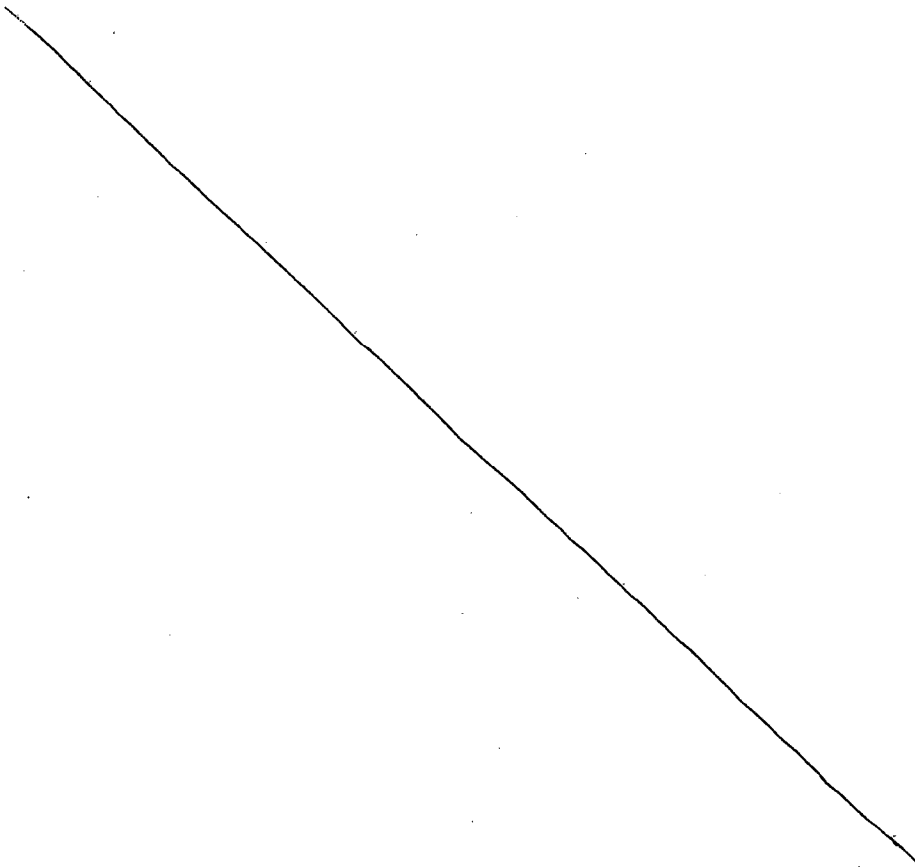
In another aspect, the invention relates to the space encompassed within the horizontal lines represent any of the notes lying within upper note of swara (UN), lower note of swara (LN) and principal note of swara (PN) (of a specific raga on the basis of arohanam – avarohanam of the said raga).

In another aspect, the invention relates to the gamaka note symbol is aligned and justified with respect to corresponding swara underneath at the point of incidence, whereby gamaka note symbol affect only the corresponding musical note to which it is actually aligned.

In another aspect, the invention relates to the grid box is empty if there is no gamaka corresponding to the swara underneath.

It is submitted that many modifications and deviations will be readily known to skilled persons in the art all of which are covered within the scope of invention and is not limited by illustrations, examples and references given in the description.

Incorporate the aspect of staff notation or any other notation in combination with GB.



WE CLAIM

1. A method of representing gamaka notation system for Indian music comprising swaras, taalas and ragas, the said method using a grid box corresponding to musical notations representative of pitch and time duration of the swara along a horizontally extended time axis :
 - a. providing a grid box (1) display correspondingly along the axis to a standard musical notations and above the said musical notations,
 - b. applying selected gamaka note symbols within on, outside and around the gamaka grid box to indicate the gamaka notes to be sounded in selected time intervals corresponding to musical notations underneath, each of the gamaka note being visually representative of a predetermined selected gamaka note quality in accordance with a predetermined gamaka note quality protocol and for a predetermined duration of the musical notation correspondingly to the swara underneath the said gamaka note,
 - c. applying a selected graphical treatment to each gamaka note symbol, each selected graphical treatment being representative of a specific gamaka tone quality in accordance with a predetermined gamaka tone quality protocol, and
 - d. providing corresponding swara lyric for each musical note along the axis, said lyrics provided directly beneath the said corresponding musical notes.
2. The method as claimed in claim 1, wherein gamaka tone quality is representative of oscillation of notes to be sounded.
3. The method as claimed in claim 1, wherein the gamaka grid box is arranged as rectangular matrix like structure having a plurality of vertical columns (4), and a set of three parallel horizontal lines forming two rows.
4. The method as claimed in claim 3, wherein space within each of said column of the grid box is representative of atleast one or more gamaka tone quality from a predetermined gamaka tone quality protocol.

5. The method as claimed in claim 3, wherein horizontal length of each column of grid box is representative of time intervals referred as a beat in the music.
6. The method as claimed in claim 3, wherein each vertical column representing a beat has an terminating right hand side vertical line referred as beat bar line, which is represented as a single vertical line (2).
7. The method as claimed in claim 3, wherein plurality of vertical columns collectively representing a groupings of beat referred as a taala cycle, has a terminating right hand side vertical line referred as taala bar line which is represented as a set of plurality (double) of vertical lines (3).
8. The method as claimed in claim 1, wherein the horizontal length of the columns encompassing each gamaka note symbols along the gamaka grid box is equal to the horizontal length along the axis of its corresponding musical notation underneath.
9. The method as claimed in claim 1, wherein the top horizontal line of the gamaka grid box corresponds to upper note of the swara (UN), the bottom horizontal line corresponds to lower note of the swara (LN), and the middle horizontal line corresponds to principal note of the swara (PN) (of a specific raga on the basis of arohanam – avarohanam of the said raga).
10. The method as claimed in claim 1, wherein the selected graphical treatment of each gamaka note symbol may comprise using one or more geometric shapes, each geometry representing a particular gamaka tone quality in accordance with a predetermined gamaka tone quality protocol.
11. The method as claimed in claim 10, wherein the graphical gamaka note symbol is marked on the grid box, within a column corresponding to the musical swara note imprinted below when the note is intended to be held for one beat.

12. The method as claimed in claim 10, wherein the graphical gamaka note symbol is marked on the grid box, along a number of columns of the grid box, when a musical swara note is intended to be held for more than one beat.
13. The method as claimed in claim 1, wherein most of the gamaka note symbols are read from left to right along the horizontal axis of grid box.
14. The method as claimed in claim 1, wherein some of the gamaka note symbols may be read from left towards right along the horizontal axis of the grid box.
15. The method as claimed in claim 1, wherein some of gamaka note symbols may be read from right to left along the horizontal axis of the grid box.
16. The method as claimed in claim 1, wherein the said grid box may be a digital display.
17. The method as claimed in claim 1, wherein the grid box may be a printed display.
18. The method as claimed in claim 1, wherein the space immediately above the top horizontal line, represents a next upper note to the principal note (PN) of the corresponding swara (of a specific raga on the basis of arohanam – avarohanam of the said raga).
19. The method as claimed in claim 1, wherein the space immediately below the bottom horizontal line represents a next lower note to the principal note (PN) of the corresponding swara (of a specific raga on the basis of arohanam – avarohanam of the said raga).
20. The method as claimed in claim 1, wherein the space above the top horizontal line may include musical note in text to represent a higher note which is beyond the next upper note to the principal note (PN) of the corresponding swara (of a specific raga on the basis of arohanam – avarohanam of the said raga).

21.The method as claimed in claim 1, wherein the space below the bottom horizontal line may include musical note in text to represent a lower note which is lesser than the next lower note to the principal note (PN) of the swara (of a specific raga on the basis of arohanam – avarohanam of the said raga).

22.The method as claimed in claim 20 & 21, wherein when more than one note is to be imprinted in the said space a Leger line indicates a pitch which pitch is not same as swara pitch.

23.The method as claimed in claim 1, wherein the space encompassed within the horizontal lines represent any of the notes lying within upper note of swara (UN), lower note of swara (LN) and principal note of swara (PN) (of a specific raga on the basis of arohanam – avarohanam of the said raga).

24.The method as claimed in claim 1, wherein the gamaka note symbol is aligned and justified with respect to corresponding swara underneath at the point of incidence, whereby gamaka note symbol affect only the corresponding musical note to which it is actually aligned.

25.The method as claimed in claim 1, wherein the grid box is empty if there is no gamaka corresponding to the swara underneath.

PATENT COOPERATION TREATY

PCT

DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT

(PCT Article 17(2)(a), Rules 13ter.1(c) and Rule 39)

Applicant's or agent's file reference G2165A	IMPORTANT DECLARATION	Date of mailing(<i>day/month/year</i>) 16 May 2017 (16-05-2017)
International application No. PCT/IN2017/000014	International filing date(<i>day/month/year</i>) 20 January 2017 (20-01-2017)	(Earliest) Priority date(<i>day/month/year</i>) 21 January 2016 (21-01-2016)
International Patent Classification (IPC) or both national classification and IPC G10G1/00 G09B15/00		
Applicant RAMESH VINAYAKAM		

This International Searching Authority hereby declares, according to Article 17(2)(a), that **no international search report will be established** on the international application for the reasons indicated below

1. ☒ The subject matter of the international application relates to:
 - a. ☐ scientific theories.
 - b. ☐ mathematical theories
 - c. ☐ plant varieties.
 - d. ☐ animal varieties.
 - e. ☐ essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes.
 - f. ☐ schemes, rules or methods of doing business.
 - g. ☐ schemes, rules or methods of performing purely mental acts.
 - h. ☐ schemes, rules or methods of playing games.
 - i. ☐ methods for treatment of the human body by surgery or therapy.
 - j. ☐ methods for treatment of the animal body by surgery or therapy.
 - k. ☐ diagnostic methods practised on the human or animal body.
 - l. ☒ mere presentations of information.
 - m. ☐ computer programs for which this International Searching Authority is not equipped to search prior art.

2. ☒ The failure of the following parts of the international application to comply with prescribed requirements prevents a meaningful search from being carried out:

☐ the description
☒ the claims
☐ the drawings

3. ☐ The failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions prevents a meaningful search from being carried out:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

4. Further comments:

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040 Fax: (+31-70) 340-3016	Authorized officer SOMMERMEYER, Katrin Tel: +49 (0)89 2399-7677
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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 203

A meaningful search is not possible on the basis of all claims because all claims are directed to a notation system for Indian music. A notation system refers to a convention between people of how to represent information.

Presentation of information defines non-technical subject-matter, i.e., subject-matter as defined in Article 17(2)(a)(i), Rule 39.1(v) PCT.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.