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JATI ANALYSIS IN TILLANA COMPOSITIONS OF CARNATIC MUSIC

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Abstract

Music is a form of art, bundled with sound, melody, rhythm, harmony and emotions. Music is a part of joy and sorrow in the human society. The presence of music can be felt even in rivers, wind, birds and trees. Indian music can be classified into two main branches Hindustani and Carnatic music. Music and Mathematics have a great relationship and mathematical aspects in Tillana compositions of Carnatic music reveal interesting facts. Some hidden patterns can be studied in Jatis related to Tillanas.

Keywords

Carnatic Music, Tillanas, Jatis

I. INTRODUCTION

The Indian word for music is Sangeeta, which is formed of Swaras (Notes) and talas (Rhythm). The seven notes of music are Shadja (sa), Rishabha (r), Gandhara (g), Madhyama (m), Panchama (p), Dhavata (d) and Nishada(n). The time measure or rhythm in music can be called Tala. There are mainly seven Talas and most of the compositions are composed in these Talas. Adi Tala with sixteen beats can be a combination of different beats or notes like 4+4+4+4 or 5+4+7 or 8+8 etc. A complete cycle of tala is known as an Avarta.

Tillana is a form of music composition which is lively and crispy in nature. Rhythm is a dominant factor in Tillanas. It is an important piece of presentation in dance performances also. Abhinaya is performed for the lyrical part and for rest of the piece Nritta is performed. A dancer can exhibit his/her footwork skills when the Jatis are repeated number of times.

A Tillana composition mainly consists of Jatis which do not have any particular meaning. Some of the frequently used Jatis are Taka, Tadiginatom, Tadikita, Tarikita, Talangu, Dikita etc. Jatis are important in percussion lessons also. Tillanas can also have lyrical part which sometimes can be on some deity or a king or a patron. Generally a Tillana composition will have Pallavi, Anupallavi and Charana as components. Let us consider a Tillana in the raga Hindola which is in Adi Tala (32 beats per cycle) composed by R.K Suryanarayana.

Pallavi of the Tillana is

Nadiri Diridani Dirdani | Tom Tana | Dheem Taditrana||

4 6 6 6 2 2 6

Tam Tajam Tatakadhimi Takanakatom | Tadimita Takajanu | Tadigina Tomtata ||

2 3 5 6 4 4 4 4

The Jatis can be represented in matrix form as

$$\begin{bmatrix} 4 & 6 & 6 & 6 & 2 & 2 & 6 & 0 \\ 2 & 3 & 5 & 6 & 4 & 4 & 4 & 4 \end{bmatrix} \begin{matrix} \longrightarrow \\ \longrightarrow \end{matrix} \begin{matrix} 1^{\text{st}} \text{ Avarta or cycle of Pallavi} \\ 2^{\text{nd}} \text{ Avarta or cycle of Pallavi} \end{matrix}$$

We shall consider the first Avarta . We can alter or change the position of Jatis in various ways like :

6 6 4 6 2 6 2

4 6 6 2 6 2 6

6 6 6 6 2 2 4

6 6 2 2 4 6 6

2 2 4 6 6 6 6 and so on.

Similarly for the second Avarta, we can have different variations by changing the position of Jatis :

2 5 3 6 4 4 4 4

5 2 3 6 4 4 4 4

6 5 2 4 3 4 4 4

4 4 6 5 2 3 4 4 and so on.

This method can be used for all Avartas of the Tillana where only Jatis are present.

This means, with each variation for every Avarta, a new Jati phrase can be created. Using different variations for other Avartas also, a new Tillana can be composed. The Jati phrases obtained will be useful for dancers and percussionists also. This is for one raga and one song. The same method can be applied to various Tillanas of different ragas. This shows the possibility of creation of a large number of Tillanas using Jati analysis. There is another way of analysing Jatis for the same composition which can be extended to other Tillanas also.


We can use different Jatis in different places like if Taka is used somewhere, Dimi can be used in its place as both are two Aksharakala Jatis. In place of a four Aksharakala Jati , Nadira, Takadimi, Tarikita, Taditaka, Takajanu etc can be used. That is , as we change the position of Jati, even the Aksharakala of the Jati can be changed which again shows the possibility of creation of a very large number of Tillanas. Simple concepts like combinations and matrix representation (Avarta contents in rows and columns) can yield an exciting result.

This analysis can be applied to Swarajatis and Jatiswaras also.

The question can be , why consider only Tillanas and why not Kritis?

As Jatis and notes do not have any particular meaning, depending on the aesthetic beauty of the ragas, different combinations can be thought of. In case of Kritis, altering the position of lyrics may change the entire meaning of the Kriti itself.

A sequence can be termed as an arrangement or list of elements which follow a specific pattern. We can see some sequence related aspects in column or rangoli designs. A sequence can determine the number of patterns. Splitting the sequence and placing the dots in different ways can generate different patterns. Joining the dots in different ways also can yield different patterns. That means a sequence when divided can give different patterns. Such valid splits can be applied to Jatis of Tillanas to analyse different possibilities of finding various patterns which can lead to a different dimension of Jati analysis in Tillanas.

The dot representation,  say can be

1	2	3
4	5	
6	7	

 written as

The dots can be joined in many ways, using all the dots or leaving a few.

One way of joining the dots is



Here 1 is connected to 2, 2 to 3 etc which can be written as

1→2→3→5→7→6→4→1. This can also be represented as

$$\begin{bmatrix} 0 & 1 & 0 & 1 & 0 & 0 & 0 \\ 1 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 1 & 1 & 0 \end{bmatrix}$$

II. ANOTHER DIMENSION OF JATI ANALYSIS IN PATTERN RECOGNITION OF TILLANAS

Let us consider Jatis of Pallavi and Anupallavi of a Tillana composed by Sri Madhurai Krishnan in the Raga Kannada, set to Khanda Eka Tala, according to the beat structure. The composition is on Nartana Ganapati.



Pallavi:

Udana Tom Tanadheem Rana| Natru Dirana Tom Trutru Tanadirana||

Anupallavi:

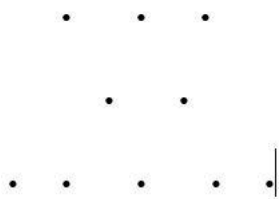
Tadaratani Udarata|ni Dani Tajam Jhanu Tajam| Dimita Jham Takita Dimitakita| Talangu Tadiginatom Talan|gu Tadiginatom Talangu Tadiginatom

The **Jatis** can be written as

[3 2 5 3 4 5 6 3 3 5 4 2 3 5 3 5 4 7 3 8 4 7 5 5 6 4 7 4] and so on.

We can group the Jatis as we like. Many Jatis can be considered together or a few can be split and considered and the Jati numbers are put in Rangoli or kolam form one below the other. The dots can be joined according to one's creativity to get designs or patterns.

Suppose we consider 3, 2, 5 dots as in Rangoli



it is surprising to see the hidden patterns even the composers probably did not think of. This dimension of Jati analysis links two branches of fine arts; Music and Drawing or Painting. A few extended lines and curves are used with dot structure to get the Patterns. An extended work may lead to a very large number of musical patterns which may find application in Sari motifs or Jewellery designs.

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