

Pentatonic Scale, a Rich Source of Musical Patterns

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ABSTRACT

As is well known in the Indian Classical Music community, most raags are characterized (and even sometimes identified) by smaller patterns embedded in the ragas. In this work it is shown how the pentatonic raags (abbreviated p-raags) yield such mini - patterns that can be considered as root raags for generating new raags or interpreting the existing ones. Of course in choosing the p-raags as representing more complex hexatonic raags (h-raags) or septatonic raags (s-raags) the most important requirement is that their scales use notes that are contained in the h or s raag under study. But other considerations, the "chalan", vadi and samvadi have also have to be considered. Very often it is the chalan and not the vadi and sambadi features that will decide the selection. For example, raag Bhimpalas contains notes of all the p-raags Shivranjani, Durga or pentatonic Dhani (without Re) . However Dhani, whose chalan is closest to Bhimpalas, will be selected as the root raag even though the vadi-s and samvadi-s are different. On the other hand Basant Mukheri contains the p-raags Bairagi, Gunkali or Bibhas as mini-patterns. With regard to closeness of chalan to Basant Mukheri they seem equivalent. But, since out of the three, only Bairagi has common vadi and samvadi, the root raag of Basant Mukhari is taken to be Bairagi. Similarly one can show that the root raag of Bhairav, which is derivable from any of the above three pentatonic raags (viz. Bairagi, Gunkali or Bibhas) is Bibhas. We will attempt to present a representative list of such correspondences between the known pentatonic raags and the known non-pentatonic ones. It will be shown how this list can be used as an aid to teaching Indian raag system to advanced students of music. We shall also indicate some new raags that can be composed using this approach. We would like to introduce a note of caution, however, that, while one can correlate many known raags in this way, there may still be those that cannot be assigned any known pentatonic raag as the source.

Keywords: Formation/Structure of Indian Melodic Scales/Raags, Teaching Music Patterns, Pattern Logic in Music Compositions, Communicating music patterns.

I Introduction

Raags are simply aesthetically pleasing sequences of notes along with a set of rules (such as vadi, and samvadi, that are supposed to be visited much more frequently than other notes) allowing a musician to compose songs or do improvisations according to these rules. Raags represent a very unique and important part of the Indian heritage.

Indian raag system is very ancient dating back to the ancient times. The interest in the art has remained vibrant throughout Indian history having evolved constantly with enrichments and sophistications contributed by many brilliant musicians during different periods of Indian history.

There has, however, been a notable lack of systematization and discipline in the way the raags have been developed over the ages until the work of Pt. V.N. Bhatkhande [1] with his monumental work contained in six volumes dealing with many common and uncommon raags. In this work he has introduced the concept of ten broad categories called *Thaata-s* in which most raags can be grouped. The thaats are septatonic (sampurn) scales which unlike the raags have no rules of improvisation and are devised only to represent some basic discipline. In fact thaats turn out themselves to be

rules that the singer has to conform to while developing a raag. Thus a raag such as Behag, which have notes belonging to both Bilawal and Kalyan thaats, is assigned the thaata Bilawal by Bhatkhande [1], implying that while developing the raag the note tivra madhyam belonging to Kalyan should not be emphasized.

However, the thaata system can lead to serious ambiguities. Let us remember that thaatas are defined on the basis of the use of komal or tivra notes replacing some of the notes of the all-'shudh' septatonic scale. The thaata of the raag Bhoopali is ascribed by Pt. Bhatkhande [1] to be Kalyan, even though Bhoopali lacks the important note m (tivra madhyam) that in fact identifies the Kalyan thaata. The rationale usually given is that Bhoopali is supposed to have the same mood as Yaman, the 'ashray' or representative raag of Kalyan. It is said that students are instructed by their guru-s to imagine raag Yaman while singing Bhoopali. We shall show below a more logical way in which the same conclusion is reached.

II A New Insight into the Aesthetics of Raags

We use the following convention in denoting the notes: All regular or 'shudh' notes are denoted by the first letters of the Indian names of the notes in the upper case: S,R,G,M,P,D,N while lower case characters are used for the soft or sharp notes: r,g,m,d,n.

We propose in this work a new set of reference points for defining the aesthetics of raags. In contrast to the 'thaata' concept as introduced by Pt. Bhatkhande [1] as referred to above we will instead use one (or more) of the pentatonic (p) raags as defining the aesthetic foundation of the hexatonic (h) and septatonic (s) raags.

We shall now go into the details of our pentatonic scale approach to understanding (and creating) more complex raags. We introduce the concepts of compatible and complementary p- scales. We define compatible p-scales to be those whose notes are all contained in the raag to be analyzed. We consider two p-scales to be complementary if they differ by at most two notes. In analyzing raag Yaman, for example, the compatible pentatonic scales are Shankara, Hindol, Hansadhvani and Bhoopali. In order to determine the pentatonic scale that is closest in mood to Yaman, we can invoke the vadi-samvadi concept introduced by Bhatkhande. These are defined to be the notes that are more frequently used by the raag than any other notes. By this criterion, clearly, Shankara will qualify as the source raag for Kalyan. However the following analysis leads us to a different conclusion. Consider the chalan as defined by the ascending and descending note framework (to be hereinafter called 'arohavaroha') of Yaman, as recommended by Bhatkhande:

S R G, mP, D, NS*

S* ND, P, mG, R, S

The 'comma's are used to indicate that one is supposed to 'dwell' on the notes lying immediately preceding them. We clearly see that Bhoopali closely follows the 'dwelling' notes. Hence we will select Bhoopali as the source p-raag for Yaman, which contradicts the criterion of vadi-samvadi as determining the mood of the raag. In this context it is interesting to consider the comments of Courtney [2] on this topic: "The concept of Vadi and Samvadi has become so muddled and irrelevant that there is a growing move to just ignore it entirely". We do not agree with this view completely. For example in selecting the complementary p-raags, let us first consider the missing notes m, N in Bhoopali. Hindol by itself supplies these notes with D as vadi and G as samvadi. But N in Hindol is weak. Shankara which has a strong N and has the same vadi and samvadi as Yaman, is to be included as an additional complementary p-raag. We shall also include Hansadhvani since this represents the emphasis that Yaman has on the lower octave. Thus Yaman should sound more like

Hindol and Shankara (which are “uttarang-pradhan”) in the higher part of the scale and like Hansdhvani in the lower part of the scale. Actual development of the raag seems to bear out this inference.

Thus we can choose the following rules in deciding the structure of an h- or s-raag:

- 1) List all those p- raags that are compatible.
- 2) Select the root p-raag that closely resembles the dwelling notes pattern of the raag in question. If the dwelling pattern is the same for two p-raags, select the one which has the same vadi-samvadi as the raag being investigated
- 3) Consider now the missing notes. Add the complementary p-raags which contain these missing notes. In this pursuit those will be preferred that have the same vadi and (or) samvadi as the raag in question.

In creating a new raag our approach will be to select first a p- raag as the root. Then choose one or two notes (depending on if 'shadav' or 'sampurn' is desired) beyond what are already contained in the source and the corresponding complementary p-scale. There can be quite a few possibilities which are then aesthetically screened.

III Pentatonic Raags and Scales

Following is a list of p- raags and aesthetically acceptable p-scales that include those that are used in this work. The latter are extracted from standard raags whose ascending or descending scales are pentatonic. Just as in p-raags these scales are repeated in the reverse order. Thus Tilang (av) implies the full scale: S G M P n S*, S* n P M G S. The vadi and samvadi information are taken from Bhatkhande's "Hindusthani Sangeet Padhati" or are assigned by us.

Scale	Name of Raag (if any)	Vadi, Samvadi
S R G P D S*	Bhoopali	G, D
S R G P D S*	Deshkar	D, S
S R g P D S*	Shivranjani	R, D
S r G P D S*	Bibhas-D	D, G
S r G P d S*	Bibhas-d	d, G
S R G P d S*	Semi-Classical	d, G
S r g P d S*	Bhupal Todi	d, g
S R M P D S*	Durga	M, S
S r M P d S*	Gunkali	d, r
S G M P N S*	Tilang (ar)	G, N
S g M P n S*	Dhani	g, n
S g m P n S*	Madhukons	P, S
S G M D N S*	Bhinna-sharaj	M, S
S g M d N S*	Chandrakons	M, S

S g M d n S*	Malkons	M, S
S G m D N S*	Hindol	D, G
S R G P N S*	Hansdhwani	R, P
S R M P n S*	Megh	S, P (M)
S R M P N S*	Brindavoni (ar)	R, P
S R M P n S*	Brindavoni (av)	R, P
S R g M D S*	Abhogi	S. M
S G P D n S*	Kalavati	P, S
S G P N D S*	Shankara	G, N
S r M P n S*	Bairagi	M, S
S G m P N S*	Maru-Behag (ar)	G, N
S r G m D S*	Marwa (ar)	r, G
S R M P d S*	Asawari (ar)	d, G
S r M P d S*	Komal Asawori (ar)	d, G
S r g m d S*	Todi (ar)	d, G

IV. Application of our Scheme to Different Hexatonic and Septatonic Raags

Using the rules described above we attempt here to define the root and complementary p-raags of various h- and s- raags. In what follows we show the root p-raag or p-scale as well as the complimentary p-raag or p-scale for each of these raags. We have already shown the breakdowns for the raags Bhimpalas and Basantmukheri:

Bhimpalas: Dhani, Durga

Basantmukheri: Bairagi, Gunkali, Bibhas-d

We then consider the "Ashray" raags of the ten Thaats-s.

(1) Bilawal: Deshkar, Bhinna-sharaj, Shankara

(2) Alhaiya Bilawal: Deshkar, Tilang

(3) Yaman: Bhoopali, Hindol, Shankara, Hansdhwani

(4) Kafi: Dhani, Durga

(5) Khamaj: Tilang, Bhoopali

(6) Bhairav : Gunkali, Bibhas-d, Tilang (ar)

(7) Purvi: Bibhas-d, Tilang (ar), Maru-Behag (ar)

(8) Marwa: Marwa(ar), Hindol

(9): Asawari: Asawori (ar), Malkauns

(10) Komal Asawori: Komal Asawori (ar), Malkauns

(11) Bhairavi: Malkauns, Komal Asawori(ar), Asawori (ar)

(12) Todi: Todi (ar), Madhumanti-p

V. Creating New Raags

We shall illustrate the use of p-scales to generate new raags. Consider the p-scale Tilang (av) as the root raag. We will experiment with a new note, r. To this end we select the complementary p-raag as Bairagi. This leads to an arohavaroaha as follows:

S r G M P n S*

S* n P M G r S.

The chalan now can be adjusted to maximize the aesthetics.

VI. Conclusion

We have shown in this work how the p-scales can be used in interpreting existing raags as well as and creating new ones. Clearly this approach can be used as a more logical tool in explaining the intricacies of the raag system to new students.

References:

V, N. Bhatkhande, 'Hindustani Sangit Paddhati: Kramik Pustak Malika, Vol. I-VI, L.N. Garg (ed.), Hathras 1985-87, Sangit Karyalaya.
See link www.chandrakantha.com/articles/indian_music/vadi_samvadi.html