

Beyond Scale and Structure: Investigating the Cognitive and Aesthetic Foundations of Rāga Identity in Hindustani Classical Music

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Abstract

This article portrays the complex cognitive and aesthetic reasons behind why Rāga identity in Hindustani classical music is formulated, going deeper into traditional views and basic scheme of Rāga only as a scale. Rāga has been traditionally established through its scale (Aroha-Avaroha), Vādi-Samvādi, and Pakad, i.e. characteristic phrases. This investigation, however, puts the scale and other such technical citations in the background since they are not sufficient to explain what all Rāga are. The article is centred on an assortment of views on the origin of music, the foundation of music cognition, and the cognitive-aesthetic philosophical aspect of a musical performance, which point out the fact that Rāga can be more of a complex kind than its scales. With the help of the instances of the analysis and subjective remarks, this paper offers evidence that Rāga intake to the listener's mind is communicated through tradition, memory, context and thereby ranks perception in a reference framework of mental imaging. The study raises awareness of the role of non-notational elements such as microtonal nuances (Shruti), ornamentation or decoration (Alankār), and time theory in the support of Rāga distinctiveness. This transdisciplinary study tests a new theoretical framework which must be open to the recognition of Rāga as a continual cognitive-aesthetic entity and not as a mere melodic template. The cross-disciplinary essence of the results is to contribute to Indian musicology by advocating a more insightful approach by which Rāgas are identified, perceived, experienced, and transmitted between generations, going beyond mere theories.

Keywords: Cognitive, Musical memory, Rāga identity, Rasa, Mental Schema.

1. Introduction: The Drawbacks of Structuralism in Rāga Theory:

In the study of Hindustani classical music, rāga has traditionally been conceptualized as a melodic framework, a system of notes organized within defined ascending and descending sequences, governed by specific melodic rules (āroha-avarohana, vādī-samvādī, pakad). This structuralist approach, codified in systems such as Bhatkhande's thāt framework, offers clarity and pedagogical utility. However, such a model falls short in explaining the lived, experiential identity of rāgas as perceived by listeners and interpreted by performers.

As Deepak Raja insightfully observes in *The Rāgness of Rāga*, rāga cannot be reduced to a mere aggregation of notes; its identity emerges through an intricate interplay of aural memory, emotional resonance, and contextual nuance. Structural definitions, while necessary, are not

sufficient to account for the Rasa (aesthetic flavour), Bhāva (expressive sentiment), and improvisational vitality that characterize Rāga in actual performance. (Raja, 2019)

Moreover, structuralism struggles to explain why Rāgas with nearly identical note structures—such as Desh and Tilak Kamod—evoke entirely different emotional worlds. Nor can it fully accommodate the flexible expressions of rāga across gharanas, performance settings, or instrumental versus vocal interpretations.

The article takes a step further from these limitations by introducing a rāga identity model that is multidimensional an account that tackles the cognitive, aesthetic, and contextual dimensions. The study, by delving into the internalization of rāga, its performance, and the emotional experience, seeks to fundamentally change the way we perceive rāga by illustrating it as a moving, perceptual phenomenon and not a stable form of melody.

2. The Traditional Framework: Scale, Pakad, and Grammar:

From a theoretical viewpoint, Rāgas are usually put in the Thāt system that was made popular by Pt. Vishnu Narayan Bhatkhande. One of the ten scales is the basis of each Rāga that is defined by its own specific scale (āroha-avarohana), important notes (Vādī and Samvādī), time of performance, and the signature melodic phrase (Bhatkhande, 1990). Certainly, while the Rāga system offers a conventional method for differentiating Rāgas, it appears unable to do justice when it comes to Rāga Desh and Rāga Tilak Kamod, both of which have nearly identical note structures yet different characters and emotional effects. Moreover, it fails to account for the fact that a mishra (mixed or Jod) Rāga could still be quickly recognized. It follows that although the structural descriptions are the body, the soul and the real Rāga are outside of that.

3. Cognitive Foundations: Mental Schema and Musical Memory:

While Rāga is usually presented and broken down through its structural aspects such as scale, pakad (catch-phrase), and ornamentation, it is, in essence, a **cognitive experience**. Rāga identification is built from the **listener's brain** operation influenced by the experiences, recall, and learning process that unfold over time. In the last several years, the fields of cognitive musicology and neuroscience have been the sources of some very good models that really help us in this endeavor (Levitin, 2006; Patel, 2008).

3.1 Mental Schema: Internalized Rāga Templates:

Mental schema in cognitive psychology are organized groups of ideas that fit together and help people to understand and predict the world. For Hindustani music, a raga schema is a mental template established by frequent listening to the Rāga in different versions both vocal and instrumental (Levitin, 2006).

This framework consists not just of the note sequences but also contains:

- **Regular melodic expressions** (e.g., Kampan, Andolan, Meend)
- **Specific ornamentation patterns** unique to the Rāga

- **Motivic ideas** (short motifs or hooks often emphasized)
- **Special feelings or rasas** (Characteristic Moods)
- **Typical phraseology and emphasis points** (Nyās Swaras)

For example, in **raga Yaman**, the mind expects **Tivra Ma** to appear in a particular context (**after Ni or Ga**), the ascending kind of phrases that lead easily to **Pa**, and the phrases "Ni Re Ga" or "Ga Ni Dha Ni" are also certain. It means that if a different Rāga is not conveyed by these cues, and not adequately contextualized, it could be interpreted as being from a different Rāga. On the one hand, this inner model, which is based on the acquired experience, is utilized for the process of identifying Rāga. It doesn't matter if a performer brings modern ideas because the act will only be recognized as the Rāga Yaman as long as key components of the tradition are preserved.

3.2 Musical Memory and Pattern Recognition:

Musical Memory which refers to the capacity to symbolize and retrieve music, has a significant role not only for the listeners but also for the performers. It has been learned through studies in cognitive musicology, that listeners do not retain individual notes but rather **patterns, gestures, and emotive arcs**. This is more applicable to Indian classical music where improvisation is vital (Patel, 2008).

Listeners rely on:

- **Short-term auditory memory**, which helps track real-time phrasing
- **Long-term musical memory**, which stores typical Rāga features, heard over years
- **Affective memory**, which consists of associating musical phrases with emotions

For an instance- When listeners listen the glide from **Re to Pa** with a slow oscillation on **komal Ga** in **Rāga Darbari Kanada**, that surmounts the feeling of recognition, it is also a representation of the full sensory and emotional memory of that Rāga. These micro-movements are the representation of the **cognitive fingerprints**.

Surprisingly, this particular process is the one that provides an explanation of why people who are engaged in music and have the ability to feel the textures of sound can recognize one raga at the very beginning of the **ālāp** long before the full scale is uncovered. Their brains check new musical data against the ones they have stored and they also establish new connections at a high-speed rate.

4. Expectation and Violation: The Cognitive Dynamics of Surprise:

Leonard Meyer's theory on musical meaning, which is particularly based on **expectation and its fulfilment or violation**, appears to be a very pertinent issue to Rāga performance. In the improvisational forms like **alap or jod**, musicians usually take the liberty to play around with the audience expectations giving them a hint of a typical phrase and then switching the resolution in terms of its time or form.

Such interactions hugely elevate the listener engagement. An expert musician, to illustrate, could exploit delayed gratification hinting the oncoming vādī swara (main note) or doing a meend to enhance the aesthetic effect. The means of the brain responding to such deviations and their subsequent resolution is at the same time cognitive and emotional, that makes the Rāga more vivid.

4.1 Schema Flexibility and Rāga Variation:

While schemas help in Rāga recognition, they do not remain the same throughout. The human brain can handle variability within certain limits very well.

For example, the Rāgas **Desh** and **Tilak Kamod** have in common many melodic features. However, the trained listeners can filter subtle differences in **swara's treatment and phrase resolution**, creating new identities in the mind for the two Rāgas. This **flexibility** happens to be the method the Rāga system stays in existence and how it becomes modified whenever needed. Each gharana, each artist, and even each performance can offer a **slightly different schema** without losing their synchronization with the Rāga's core identity. (Raja, 2005)

4.2 Implications for Teaching and Learning:

Knowing one's Rāga so well that it is part of one's mental process is a highly fruitful way of teaching.

- Repetition of a similar or same phrase with only a little change builds mental schemas. Through this method, teachers not only often repeat a saying but also lend a help through flexibility.
- Students are encouraged to use their cognitive swatches for understanding and recognition and that through active and deep listening, the former will grow stronger. Teachers have to know how they can shape the minds of students by letting them listen to different maestros or bands.
- Visualization and vocalization (e.g., singing, sargam or bol-alap) are the most effective ways to perform the mental encoding of single episodes in the broader sequence of memories. The imaginary space where the oral skill of performance is carried out is the locus of Mental representation of memory.
- By comparing and analysing different groups of Rāgas and knowing their differences, pattern and schema recognition is improved in the brain.

Rather than memorizing set of rules, students are given the chance to go through a process in which rules are learnt to **internalize patterns, moods**, and the flow of music.

5. Emotional Core: Rasa, Bhāva, and Aesthetic Suggestion:

Indian classical music is not only the arrangement of musical notes and meter, but the **transmission of emotion and aesthetic** perception. Raga, as understood in the context of

Indian music theory and philosophy, is by nature a **rasa (aesthetic flavour)** and **bhāva (emotion or sentiment)** conveyer. This section examines how Rāgas have an effect on the listener's soul and foster emotional experience, vigorously entering the field of aesthetic psychology and philosophical knowledge, particularly in Indian poetics (Ghosh, S., 2009).

5.1 Rasa: The Goal of Aesthetic Experience:

The word rasa originated from Bharata's **Nāṭyaśāstra** and denotes the aesthetic experience that is not limited to the personal feeling but exposed in the entire universal form. In the concept of Rāga, rasa is something that stays, not only an emotion but a deep involvement that eventually leads to **emotional** contemplation and **aesthetic catharsis** (vibhāvanubhava). Every Rāga has a signature sthāyi bhāva that is strongly associated with it and as such they serve as the basis for the corresponding rasa (Ghosh, S., 2009):

- Rāga Bhairav evokes śānta rasa (tranquillity) with its grave and sober phrasing.
- Rāga Darbari Kanada with the slow oscillation of the string instrument and high-low pitch modulation conveys karuṇa rasa (pathos).
- Rāga Desh however, with its sweet notes could be presenting śṛṅgāra rasa (romantic/erotic sentiment).

The most significant thing is that the **emotions of Rāga** are entirely **not random**. They are embedded in the Rāga's **svara hierarchy, intervallic dissonance, laya of raga** and the **time of the performance** all of which produce an emotional synaesthesia akin to the Indian concept of rasa (Rāga-rasa).

5.2 Bhāva: The Vehicle of Expression:

Rasa is the listener's aesthetic experience while bhāva refers to the emotional content that the performer enunciates. Indian aesthetic theory makes a distinction between:

- **Sthāyi bhāva:** The stable, dominant emotion a Rāga expresses (e.g., devotion, melancholy).
- **Vyabhicārī bhāva:** The transient emotions that color the main sentiment (e.g., fear, hope, hesitation). S
- **Sāttvika bhāva:** Involuntary physiological responses (e.g., tears, goosebumps) arising from deep involvement (Ghosh, S., 2009).

One of the ways a Rāga manifests its bhāva and holds it over the course of time is its **project and sustain** function, which also help the listener reach the rasa perception. The performer's **internal emotional state** and **interpretive** choices are the main factors for this transmission because it is

a matter of something more than simple technique. The same Rāga performed by different artists can evoke distinct shades of bhava due to differences in **tempo**, emphasis, phrasing, and even silences. Therefore, Rāga performance is a **dialogue between the artist's internal bhāva and external sound**, driven by the motive of beauty.

5.3. Dhvani and Aesthetic Suggestion:

The theory of dhvani (which means suggestion), was first introduced by Ānandavardhana in the 9th century CE. It allows you to delve into the process of creating Rāgas that are able to evoke different feelings in people (Anandavardhana, n.d.).

Dhvani theory: “The quintessence of poetry (and if we extrapolate this to music as well) is not that which is described, but that which is **suggested** and personal.” This directly applies to the raga music genre, which doesn't articulate the story in a straight forward manner. Instead, it **suggests emotional and spiritual states** through abstraction. The aesthetic effect is not a direct transfer of the musician's emotion to the listener, but a **co-creation** of rasa in the mind of the rasika (aesthetically sensitive listener).

A particular composition of the Rāga namely **Malkauns** is a good example of this. Here, the subsequent notes after the absence of Re and Pa and the prominence of Komal Ga and Dha produce the feel of a dark and inwardly reflective sound world. The manner which phrases are gradually introduced, the use of correct meends between notes, and the unfolding of an **aura of mysticism or detachment** all are suggestive of the mood without every stating it in direct words. This is how the very nature of Dhvani operates.

5.4. Rāga as a Sādhana: Emotional Transformation:

In the Indian classical worldview, engaging with Rāga is not just entertainment (vinoda), but a form of **emotional discipline and spiritual practice**. The continuous engagement with Rāgas associated with peacefulness (e.g., **Miyan ki Todi, Lalit**) or devotion (e.g., **Bhairavi, Yaman**) has a **transformative effect** on the practitioner's mind.

This aligns with the traditional Indian approach to art, where the purpose is **ananda (bliss)**, not mere pleasure. The evocation of rasa through Rāga allows both performer and listener to **step outside personal ego** and enter a space of universal emotion. It becomes a **meditative and transcendental act**, where time, identity, and individuality dissolve into a shared aesthetic moment.

6. Modern Psychological Perspectives on Musical Emotion:

Modern psychological research has often become a good aid to the studies of Indian aesthetics with regard to **how music is the reason for emotional response** reactions:

- Contour theory: Proposes that changes in pitch (upward or downward) closely resemble emotions carried out by human voice modulations, e.g., weeping, excitement, (Patel, 2008).

- Embodied cognition: The music repeats the bodily sensations and movements, hence some Rāgas feel “uplifting” while others “heavy.”
- Associative memory: A song creates associations with a certain rural region or from exposure to the different emotional contexts (e.g., a song that was both a gesture of love and a prayer) which generated strong emotional reactions (Levitin, 2006).

Nevertheless, the aforementioned paradigms far from exhaust the complexity of Rāga-rasa interaction. According to the tradition of India, the aesthetic experience is a line that is **not linear, non-rational, and very intuitive**, which is best utilized by people who are very refined and experienced in the field of the rasika.

6.1 Contextual Influence: Gharanas, Time, and Culture:

Rāga identity, though it is indeed emerging from a particular scale and syntax, cannot be imagined without the **contextual** forces of musical tradition, temporal dimensioning, and cultural participation. Traditionally, no Rāga is to be found in isolation. The way it is interpreted, perceived, and developed is linked with the lineage of performance (gharana), time of presentation, and broader socio-cultural environment. Explained in this section are the associative forces that together with the listener's aesthetic and cognitive experience create a **Rāga**.

Gharanas: Stylistic Lineages and Interpretive Authority Not only this but also the **gharana** concept—a particular school or family in music substantially influences the Rāga representation. Every gharana has its own specific Rāga performance style influenced by its aesthetics, choice of voice/instrument and pedagogy. The result is **an array of expressions of the same Rāga** which vary from one tradition to another. As an illustration:

- The point related to melodic purity, long meends, and slow development of music in the Kirana gharana with the passing of the Rāga Yaman makes it feel higher, profound, and full of ornaments.
- The Agra gharana, in turn, expresses the Rāga which is more ragged and rhythmically sharp, by the bol-bant technique derived from Dhrupad music and rhythmic play.
- The personality of the Maihar gharana, influenced by the prodigiousness of the instrumental, has frequently been the source of such features as innovation of the structure of Rāgas from a global point of view and the sensitivity to wider issues.

Therefore, **gharana is what brings the raga to life**, not by changing its basic grammar, but by favouring some particular characteristics to shape the listener's schema and thereby creating the expectations.

6.2 Cultural Conditioning: Geography, Language, and Audience:

Culture is like a **medium where Rāgas are kept** and it not only refers to the traditional choice of bandish texts, but also greatly affects audience reception.

- The way a particular region speaks the language can have a significant impact on one's Rāga choice and the way they interpret it. For instance, individuals from Bengal might impart Rāgas with a more lyrical softness while vocalists from Maharashtra would give preference to power and clarity.
- The language in which a bandish is sung is the factor that makes the biggest contribution to the content of the song, and to the accents and diction. A Rāga which is sung with a Braj bhāṣā bandish has a different impact in comparison to one that is sung in a different language such as Urdu or Marathi.
- Both social and cultural memory have an influence on Rāga association. Rāgas such as Bhairavi and Kafi have been observed to be frequently heard during devotional or rural occasions, hence affecting the audience's expectations and emotional response.

Concert format is also a part of **cultural conditioning** because urban festivals, intimate baithaks, radio recordings, and digital streaming not only serve as each of them owns' **aesthetic filters** but also evoke different sets of those at the same time. Therefore, the same Rāga could be played in a temple, a concert hall, or on an online platform and yet it would result in quite varied performances.

6.3 Historical Evolution: The Rāga as a Living Entity:

Ragas are not fixed in time; they are subject to change. Historical context, cross-cultural contacts, and creative developments enable not only the formation but also the identity of Rāgas to experience a **dynamic course**.

- Jog, Madhuwanti, or Hemant are fresh Rāgas that have been created in the 20th century by a progressive style of performance, creative seeking or reinterpretation.
- It is noticeable the journey of Rāgas like Bhairav from traditional to the newly transformed style from centuries, the advent of dhrupad even has now a filler touch and the following has occurred to the khayal the original lyrics of the dhrupad.
- One of the aspects of globalization and fusion genres is that they have made it possible for Rāgas to be used in different types of music film music, jazz, world music thereby enabling them to be seen in various new and different ways thus their boundaries change.

The continuity Rāga is not like rigidity that is still and unmoved, it is rather characterized by its **adaptive resilience** its high adaptive potential, its capacity for change while keeping its emotional aspect and structure constant.

7. Rāga Identity in Instrumental and Vocal Traditions:

Even though the Rāga is a factor that ties the framework of Hindustani classical music, there is an observable situation in its significant diversion in the vocal and instrumental traditions. These differences are not only matters of **spiritual** but **are also** highly and (mood and aesthetic

regard) **concerning mood, expression**, and the aesthetic appeal of the Rāga. In this passage, we will look into how the identity of the raga is constructed and reshaped through the two traditions of interpretation, pointing to the scope of the interpretation, performance of grammar, and different artistic intentions (Raja, 2005).

8. Foundational Differences in Medium and Expression

The **voice**, by its power to phonate words, feelings, and microtonal gradations; it is a **semantic and emotional** dimension that gives the Rāga a unique flavour in the performance. The **instrument**, on the other hand, not being confined to the structure of the language, brings **wider** dynamic and timbral possibilities into play and, consequently, frees performance via other communicative channels.

- Vocal tradition has been closely linked with Bandish (compositional) literature, which has been able to convey through text, the linguistic, poetic, and emotional meaning and interpretation.
- Instrumental music is represented mainly by instruments such as sitar, sarod, and bansuri, which help in the realization of melodic abstraction, technical virtuosity, and tone exploration; in this way, by the use of mainly the form and the emotional aspect, a more formalist and mood-based rendering of Rāga is carried out.

The Rāga is shared by **the two** but the the ideation, and the way of the Rāga are the factors on which is based, by which Raga's can are thus **contextually reframed** both at the time of the performance and in the place where the different performance types are to be held.

8.1 Gamaka and Ornamentation: Divergent Aesthetic Grammars:

Ornamentation (Gamak, Meend, Andolan, etc.) perform an important role to distinguish the Rāga, yet in the delivery method, it is done in different ways in the vocal and instrumental forms due to physiological and technical constraints.

- Furthermore, in vocal music, different things help to create different types of Gamakas, such as the pronunciation of sounds, or the breath requirements used to produce different kinds of vocal registers. The stability of vowel-based sounds is conducive to the existence of smaller melodic differences, but at the same time, the changes are intense and, thus, they lead to the development of the melodic element.
- In contrast, in instrumental music, Gamakas are accomplished by several different strategies such as string pulling (Meend), plucking variations, and finger pressure, or breath control (in wind instruments).

An example, the meend from Re to Ma(tivra) in the Rāga Yaman: the **khayāl singing lyrically softness** and **the sitar** still with a **more elastic and resonant texture**, changes the rasa of the Rāga very slightly.

8.2 Structural Interpretation and Rāga Vistār:

The concept of vistara paraphrased improvisation expansion of a raga is handled in a different way:

- Vocalists using a slow-tempo khayal, a vilambit, usually alāp, carefully open up the Rāga introducing the notes and phrases, may be the lyrics and their semantic undertones. The movement is through the story and feelings.
- Instrumentalists, mainly those in the alap-jor-jhala form, maintain raga through non-metric and rhythmic improvisation, using instruments like string techniques to evolve the theory more architecturally than narratively (Raja, 2005).

Now that the vocalists have the ability to elicit the emotional interiority of a raga, note that instrumentalists are able to pay greater attention to the melodic and structural aspect of the raga, and in a manner, both contribute to the different identities of the raga.

Conclusion:

One individual rāga in Hindustani classical music is a kind of a structure that can't be fully learned only through the term "structural frameworks". The scale, āroha-avarohana, vādī-samvādī, and pakad aspects are very important indeed for the rāga, but at the same time, they provide information on the outline of a structure, only.

In contrast, the being of the rāga is to be found in a field that is more mysterious and which apart from its oozing lyrical melodies is also a result of the total of interlocking cognitive, emotional, performance and cultural factors. The article has unmistakably indicated that the listeners recognize the familiarity of the rāga, remember the pattern and apply emotional memory while conveying the idea that the listeners adapt the rāgas received by their experience through the senses as new incomplete templates.

Few India's concepts of rasa, bhāva, and dhvani express the emotional and the aesthetic part, which are found in the rāga and show that music in this tradition is felt, found, and shaped not just aural but also visual and is the result of the interaction between the performer and the audience. The rāgas are connected with gharanas, time cycles, linguistic and regional cultures, and historical evolution and are always in a state of transformation. Their identity changes at the moment of being performed, when the performer's interpretation meets the listener's comprehension, which leads to the birth of a particularly distinct articulation every time.

Generally speaking, the rāga should be seen as a thing, not a static object, but a cognitive-aesthetic phenomenon that changes, grows and develops within the artist and the audience, thus making it impossible to ever be completely described. A comprehensive approach that appreciates the objective as well as the subjective, the formal and the imaginative. This is why it's important to understand the essence of the Raga identity.

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