

Improvising Rhythmic-Melodic Designs in South Indian Karnatak Music: U. Shrinivas Live in 1995

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INTRODUCTION

IN the 1970s, 1980s, and 1990s, ethnomusicologists strove to make known the technical details of modal improvisation as practiced in the Eastern Arab world, Iran, North India, South India, and Turkey.¹ A supplement to such monographs and dissertations was Harold Powers's (1980b) ambitious encyclopedia entry that sought to synthesize data about modes from these five regions. Powers's broad conception of mode perhaps to some extent legitimated his project to compare and contrast such diverse musical traditions. Powers defined the term "mode" as any group of pitches that fall on a scale-tune spectrum (1980b, 830, 837).

During the last ten years ethnomusicologists have attempted to build upon the above-cited studies of modal improvisation.² In the realm of North India, for example, Widdess (2011) and Zadeh (2012) argue that large-scale form and small-scale chunks of repeated melody can be understood as *schemas* and *formulaic language*, respectively. Widdess's article is important because it introduces two terms—"internal scalar expansion" and "consonant reinforcement" (Widdess 2011, 199–200, 205)—to describe key features of North Indian *ālap*.³ Zadeh's article is noteworthy because she contends that Albert Lord's ([1960] 2000) argument that Serbo-Croatian epic poets fashioned poetry out of "formulas" can also be made with regard to *rāga* improvisation.

One lacuna in the academic quest to understand the nuances of modal improvisation is scholarship about a type of modal improvisation that could be considered "hybrid" because of its dual emphasis on rhythm and melody. The purpose of this article is to begin to fill this lacuna through a detailed examination of a form of improvisation in South Indian Karnatak (often spelled "Carnatic") music known as *svara kalpana*.⁴ In *svara kalpana* Karnatak musicians improvise with Indian music's solfège (solmization syllables) known as *sargam*. Part of the improvisation involves setting *sargam* to the Karnatak rhythmic language (*solkaṭṭu*). *Svara kalpana* is a standard feature of any full concert of Karnatak music. Yet *svara kalpana* has remained somewhat arcane to ethnomusicologists who do not focus on Indian classical music.

1. Eastern Arab world: Marcus (1989); Iran: Nettl and Foltin (1972); Nettl (1987); Farhat (1990); North India: Jairazbhoy (1971), Wade (1985); South India: Viswanathan (1975); Reck (1983); Cormack (1992); and Turkey: Signell ([1977] 1986).

2. Eastern Arab world: Abu Shumays (2013), Marcus (2002); Iran: Nooshin (2015), Simms and Koushkani (2012a), Simms and Koushkani (2012b), Wright (2009); North India: Clements (2011), Widdess (2011), Zadeh (2012); South India: Field (2008), Morris (2006), Morris (2011), Tallotte (2017); Turkey: Aydemir (2010), Ederer (2016).

3. Widdess first introduced the notion of internal scalar expansion in 1981. He defines internal scalar expansion as the process by which "a phrase is expanded by inserting material into it that reaches one or more higher pitches before regaining the original conclusion of the phrase" (2011, 199). Widdess (2011, 205) defines "consonant reinforcement" as the process in which, in the course of an *ālap*, a musician draws the listener's attention to the focal pitch by echoing it in the lower octave. For a discussion of similar features in South Indian Karnatak *ālāpana* of Mandolin Shrinivas, see Field (2008, 45–75).

4. *Svara kalpana* is also called *kalpana svara*. In English three studies focus on *svara kalpana*: Reck (1983); Cormack (1992); and Viswanathan and Cormack (1998).

Perhaps this is due to the lack of detailed analyses of *svara kalpana* in both recent scholarship and popular textbooks that survey world music. In the disciplines of music theory and musicology the phenomenon of *svara kalpana* is almost never discussed.

The goal of music theorists has often been to “account for the singularity of the musical work” (Donin and Goldman 2008), while the goal of ethnomusicologists has traditionally been to analyze the cultural context of music. For example, in 1974 the ethnomusicologist Steven Feld asserted that it was erroneous to analyze music separate from its cultural context (Field 1974, 207). In 1980 Harold Powers, who made scholarly contributions to ethnomusicology, music theory, and musicology, responded: “Some music may sometimes be more efficiently interpreted by discussing it as though it did have a life of its own” (Powers 1980a, 8). I tend to agree with Powers because some forms of “music-itself” create a musical context of sorts.⁵ Someone who thus painstakingly transcribes and decodes such forms of musical communication could be said to have completed a musicological “thick description” (Geertz 1973).⁶

In this article, I aim to demonstrate that the “music-itself” of *svara kalpana* indeed has, in Powers’s words, a “life of its own.” In what follows I explain what *svara kalpana* is, investigate three rhythmic-melodic designs found in *svara kalpana*, and then focus on ways Karnatak musician U. Shrinivas (often spelled “Srinivas”) used such designs in a concert held in 1995. U. Shrinivas (1969–2014) was a famous Karnatak musician. In his youth the Karnatak musical world hailed him as a “child prodigy.” For example in 1983 the magazine *Sruti*—a Chennai-based English-language publication that focuses on South Indian music, theater, and dance—published an article about Shrinivas entitled “Arc of Triumph: A Prodigy at Play.” The same magazine featured an article dedicated to exploring the phenomenon of the child prodigy (see *Sruti* no. 1 [1983], 10). Also, Shrinivas’s first album was entitled *The Adorable Child Prodigy* (1985). One reason his music shocked aficionados of Karnatak music was because by the age of twelve Shrinivas had figured out how to perform Karnatak music with virtuosity on a new instrument, the electroacoustic “Karnatak mandolin,” which he modified from the Western solid-body mandolin.⁷

WHAT IS SVARA KALPANA?

According to Jody Cormack (1992, 30), Karnatak musicians in South India have likely performed *svara kalpana* for at least two hundred years, and the style of improvisation was originally a way for court musicians in South India to please their patrons and obtain reputations as virtuosos. In Sanskrit the term *svara* means “note” while the word *kalpana* connotes “imagination” or “invention.” One reason *svara kalpana* requires imagination is because the soloist and accompanist (the violinist) must improvise with *sargam*. The names of these solmization syllables are: Sa, Ri, Ga, Ma, Pa, Da, Ni.⁸

5. In my opinion the articles published in *Analytical Studies in World Music* (Tenzer 2006) and *Analytical and Cross-Cultural Studies in World Music* (Tenzer and Roeder 2011) lend credence to this idea.

6. Further, Feld’s argument was a blanket statement about “music.” It overlooked the ways in which different musical forms are associated with different sets of expectations for how listeners should listen and engage with the music.

7. On Shrinivas, his unique instrument, and his approach to improvisation, see Field (2008).

8. In this article’s transcriptions I abbreviate these note names to their initial consonants. Upper case letters refer

After a Karnatak musician performs a composition he or she will often segue into *svara kalpana*. To segue the musician must select one melodic theme from the composition just performed.⁹ This melodic theme is most often a phrase that commences a section of the composition. In *svara kalpana* the musician uses this theme to conclude each round of improvisation. The theme is therefore akin to what North Indian classical musicians refer to as the *mukhda*.¹⁰

To use the theme properly the musician must ask two questions about it. First, at which beat in the *tāla* does this melodic theme begin in the composition?¹¹ The precise location in the *tāla* where the theme begins is known in the Tamil language as the *iḍam* or *eḍuppu* (Cormack 1992, 164–68). I use the term *eḍuppu* in this article. The *eḍuppu* is crucial because it is where all the *svara kalpana* improvisations must end. In practice the *eḍuppu* tends to fall either on beat one (*sama eḍuppu*); the middle of beats one and two (*arai iḍam*, Tamil: “half-place”); or after one-and-a-half beats (*anāgata eḍuppu*) (Cormack 1992, 164–68; Reck 1983, 501–502).

The Karnatak musician must ask an additional question about the selected melodic theme: on which *note* does this melodic theme begin? The note on which the melodic theme begins is known as the *graha svara*¹² or *eḍuppu svara* (see Cormack 1992, 174–81).¹³ This second question is also important because the artist must end each round of *svara kalpana* not only at the *eḍuppu* but also at the correct note. To reach the correct note he or she must approach it from the closest note below or above.

One round of *svara kalpana* is complete once the soloist and accompanist each take a turn. A turn involves three steps. If it is the soloist’s turn he or she performs with the solfège of the particular *rāga*. Second, the soloist ends the improvisation at the *eḍuppu* and *graha svara* of the melodic theme. Third, the soloist concludes by performing the melodic theme. Then the accompanist does the same. The accompanist will perform for roughly the same number of cycles the soloist just took during his or her turn.

An entire *svara kalpana* improvisation can be said to have five distinct parts. In part one the soloist and accompanist perform in the “first speed” (usually two notes per beat). In part two they perform in “second speed” (usually four notes per beat). In part three they commence the *koraippu*. A *koraippu* often reminds jazz musicians of trading fours, a technique in jazz in which musicians alternate solos of four bars. However, the *koraippu* additionally progresses from large to small: from one full *tāla* cycle, to one half of the cycle, a fourth, and finally an eighth. Once the musicians reach the smallest trading unit they commence part four: semi-continuous streams of notes performed without regard to mathematical formulas.

to the unaltered notes: tonic (S), natural second (R), major third (G), fifth (P), natural sixth (D), and the natural or “raised” seventh (N). Lower case letters refer to the altered notes: flat second (r), minor third (g), flat sixth (d), and flat seventh (n). There is one exception: the natural fourth (Ma) is written as “m” because its altered version is the sharp fourth, which will be represented as “M.” A dot above a note (e.g., Ś) indicates the upper register. A dot below a note (e.g., Ṇ) indicates the lower register. Pitch names without a dot indicate the middle register. Until page 10 of this article I juxtapose Indian *sargam* notation with Western staff notation to aid readers not accustomed with Indian *sargam* notation.

9. See Reck (1983, 495). Cormack (1992, 168) refers to the theme as the “refrain.”

10. On analysis of *mukhda*, see Napier (2006).

11. On Karnatak *tāla*, see Nelson (1991, 6–27) and Nelson (1999).

12. B. Balasubrahmanian, personal communication, January 24, 2017.

13. Cormack (1992, 174) uses the term *eḍuppu svara*. Harold Powers seems to have confused the concept of *eḍuppu* with *graha svara* (see Powers 1980b, 843).

To conclude the music climaxes with a *kōrvai*, where the musician sets solfège to two rhythmic designs (see pp. 7–8 below for a more detailed explanation of the *kōrvai*).

When the soloist or accompanist improvises with *sargam* she or he has two general options: the first is to construct *melodic* patterns that draw attention to the flow of *melody*.¹⁴ The second is to set *sargam* to mathematical designs.¹⁵ The second option, which is the focus of this article, is what I am calling “hybrid” because of its dual emphasis on rhythm and melody. I say “dual emphasis on rhythm and melody” because the musicians set *sargam* to rhythmic designs used in *solkaṭṭu*, the rhythm language of Karnatak music.¹⁶ There are three common rhythmic-melodic designs: solfège added to rhythmic shapes called *yati*; solfège set to triple cadential formulas known as *mōrā*; and the fusion of solfège with large *solkaṭṭu*-based formulas known as *kōrvai*. The following section describes these three hybrid designs.

THREE HYBRID DESIGNS: YATI, MŌRĀ, AND KŌRVAI

Yati

Musicians performing *svara kalpana* sometimes set *sargam* to *solkaṭṭu* shapes called *yatis* (Cormack 1992, 113–15, 133–35, 243; Reck 1983, 153–55). There are six primary types. In Example 1.1 I present four of these types with *sargam* and analogues in Western staff notation. The major scale implied here is arbitrary. A *yati* can be performed in any *rāga*. I use C as the tonic as a matter of convenience. Shrinivas coincidentally performs with C as the drone because he tunes his Karnatak mandolin C5 G5 C4 G4 C3.

In the *srōtōvaha yati* the pattern begins with one note and *grows* in size by the measure of one ascending or descending note.¹⁷ The opposite of the *srōtōvaha yati* is the *gopucca yati*.¹⁸ In Sanskrit the term *gopucca* literally means “cow’s tail.” The *gopucca yati* begins with a set of ascending or descending notes and *shrinks* in size by the measure of one ascending or descending note. The second two patterns are combinations. The *mṛdaṅga yati* consists of a *srōtōvaha yati* followed by a *gopucca yati*. Here the pattern grows in size but then shrinks. It is called *mṛdaṅga* because the pattern resembles the barrel shape of the mridangam. The opposite of the *mṛdaṅga yati* is the *ḍamaru yati*, which shrinks and then grows. It is an hourglass shape that consists of a *gopucca* and *srōtōvaha yati*, respectively. There are two additional types of *yati*: *viṣama yati* describes a series of shapes without a particular order, and *sama yati* refers to a series of shapes of equal sizes (Cormack 1992, 113).

The examples in Example 1.1 do not employ rests. But it is also common in *yatis* to increase or decrease the number of rests. For example, in the *gopucca yati* in Example 1.2, the number of rests (indicated in the *sargam* notation with a comma) decreases from 2 to 1 to 0.

14. The rhythmic equivalent to this is called *sarvalaghu*, which Nelson defines as “patterns that draw attention to the flow of rhythmic time, rather than to its design possibilities” (Nelson 1991, 29).

15. David Reck analyzes ten more specific ways that Karnatak musicians “spin out” *svara kalpana*. See Reck (1983, 531–32).

16. For an introduction to *solkaṭṭu*, see Nelson (2008).

17. Cormack (1992, 243) contends that the *srōtōvaha yati* is the most common non-calculated pattern in *svara kalpana*.

18. For a recent discussion of the *gopucca* shape in the context of West Bengal, see Graves (2017).

Srōtōvaha yati

S
SR
SRG
SRGm
SRGmP
SRGmPD

Musical notation for *Srōtōvaha yati* showing a single melodic line with notes and rests. Below the notes are the corresponding swaras: S S R S R G S R G m S R G m P S R G m P D.

Gopucca yati

ŚNDPmG
NDPmG
DPmG
PmG
mG
G

Musical notation for *Gopucca yati* showing a single melodic line with notes and rests. Below the notes are the corresponding swaras: Ś N D P m G N D P M G D P m G P m G m G G.

Mṛdaṅga yati

S
SR
SRG
SRGm
SRGmP
SRGmPD
SRGmP
SRGm
SRG
SR
S

Musical notation for *Mṛdaṅga yati* showing two melodic lines. The first line has notes and rests with swaras S S R S R G S R G m S R G m P S R G m P D. The second line starts with a fermata (7) and has swaras S R G m P S R G m S R G S R S.

Ḍamaru yati

SRGmPD
SRGmP
SRGm
SRG
SR
S
SR
SRG
SRGm
SRGmP
SRGmPD

Musical notation for *Ḍamaru yati* showing two melodic lines. The first line has notes and rests with swaras S R G m P D S R G m P S R G m S R G S R S. The second line starts with a fermata (7) and has swaras S R S R G S R G m S R G m P S R G m P D.

Example 1.1. Four basic types of *yati* in Karnatak music.

S , , R , , G , ,
S , R , G ,
S R G

Musical notation for *Gopucca yati* with rests, showing a single melodic line with notes and rests. Below the notes are the corresponding swaras: S R G S R G S R G.

Example 1.2. *Gopucca yati* with rests.

Mōrā

Musicians who perform *svara kalpana* often combine solfège with *solkaṭṭu* to create *mōrās* (Cormack 1992, 127–32). A *mōrā* is akin to the triple cadential formula known in Hindustani music as *tīhai*.¹⁹ David Nelson defines *mōrā* as a design that consists of a statement, gap, statement, gap, and statement (Nelson 2008, 23).²⁰ Nelson places the statements in parentheses and he puts the gaps in brackets. It can thus be indicated in this way: (statement)[gap] (statement)[gap](statement); or abbreviated to: (x)[y](x)[y](x) (Nelson 1991, 46). Nelson’s observations of these structures enabled him to theorize fundamental rules regarding the *mōrā*. First, the three statements must have the duration of at least one pulse, and they must have an “orderly” relation to each other. For example, the number of pulses of each statement tends to be the same, or they increase or decrease by an ordered amount. Second, the gap’s size may be zero or greater (Nelson 1991, 46–52).

In *svara kalpana* a singer or an instrumentalist sets solfège to *mōrās*. To demonstrate, in Example 2.1 I have transcribed one *svara kalpana* improvisation in which Shrinivas improvised in *rupaka tāla*, a three-gesture (clap-clap-wave) cycle with four pulses per gesture. I indicate the *tāla* with underlined numbers and commas on the top line: 1, , 2, , 3, , 1, , 2, , 3, , . The numbers represent the beats (*akshara*) per cycle (*avartanam*) and the commas indicate the pulse rate (*naḍai*) per beat, which in this case is four (*chaturashra*). Underneath the numbers and commas I transcribe the *sargam* that Shrinivas performed to finish the *svara kalpana* idea at the fifth scale degree (P) at the *eḍuppu* of beat 1 (in bold).²¹

When one organizes the improvisation into its *mōrā* form of (x)[y](x)[y](x) one produces the pattern (RGM)[P,P,P,](RGM)[P,P,P,](RGM). If one then reduces these notes to only the duration of the building blocks in pulses one arrives at (3)[7](3)[7](3). One *tāla* cycle equals 12 pulses. This *mōrā* is a total of 23 pulses (3+7+3+7+3). Thus, to end the *mōrā* at the *eḍuppu* of beat one Shrinivas starts the *mōrā* on the second pulse of beat 1. Example 2.2 shows this *mōrā* in Western staff notation. The bar lines indicate the beat (*akshara*). Here the eighth note functions as the underlying pulse. I place parentheses around the statements, and I place brackets around the gaps.

There are two fundamental ways in which Karnatak musicians modify just-performed *mōrās* in their next turns. Imagine a musician performs a *mōrā* with three six-pulsed statements interspersed with gaps of zero: (ṢN,DPM)[o](ND,PMG)[o](DP,MGR). This can be indicated with numbers as: (6)[o](6)[o](6). The total number of pulses is 18. It is common in Karnatak music to play around with these 18 pulses in two ways. For now, let us forget about

Clap	Clap	Wave	Clap	Clap	Wave	Clap
<u>1</u> , , ,	<u>2</u> , , ,	<u>3</u> , , ,	<u>1</u> , , ,	<u>2</u> , , ,	<u>3</u> , , ,	<u>1</u>
r G M P	, P	, P	, ,	r G M P	, P	, P
	,	,	,	,	,	P

Example 2.1. *Mōrā* from Shrinivas (2000), “Ananda Nadamaduvar” (14:45–14:51). Click [here](#) to listen.

19. Martin Clayton (2000, 169) defines *tīhai* as “a rhythmic phrase played a total of three times, constructed so as to end on or just before a structurally important point in the *tāl* cycle (usually on *sam* or just before the *mukhra*).”

20. The term Karnatak musicians often use for “gap” is *kārvai* (Cormack 1992, 126).

21. This composition is set to the *rāga Purvikalyani*.

Example 2.2. *Mōrā* from Shrinivas (2000), “Ananda Nadamaduvār” (14:45–14:51) in Western staff notation.

the gap of zero. The first way is to change the statements to this: (ŚNDPM)(ND,PMG) (D,P,MGR). This can be written in numbers as (5)(6)(7). Here the number of pulses (18) remains the same ($5+6+7=18$) but now the statements increase by one pulse from $5 \rightarrow 6 \rightarrow 7$. Once this modification has been made it is common to reverse the idea to (7)(6)(5), which can be expressed in *sargam* notation as (Ś,N,DPM)(ND,PMG)(DPMGR).²²

Kōrvai

Another important feature of *svara kalpana* is the setting of solfège to the rhythmic phenomenon called *kōrvai*. David Nelson argues that *kōrvais* have two parts. The first part consists of a shape (often a *gopucca yati*) and the second part is a *mōrā* (Nelson 1999, 67). Further, the *kōrvai* will in most cases be played three times (83). I will refer to each instantiation as a “unit.” In *svara kalpana* the soloist and accompanist set the three units to a melodic idea expressed in solfège. The melodic contour in each unit usually descends. Let us consider one example that Shrinivas performed for the composition “Enduku Dayaradura” (*rāga Tōḍi*) in which the *eḍuppu* is located on pulse number 3 (Example 3). Allow me to first analyze the features of the *kōrvai* in a transcription that does not indicate the *tāla*. After I explain the features of the *kōrvai* I will analyze how it fits in the *tāla* to arrive perfectly at the *eḍuppu*.

If one puts the melody aside for a moment, the rhythmic structure of the *kōrvai* is the same structure Nelson describes as the “paradigm form” of *kōrvai*: each unit has a *gopucca yati* followed by a *mōrā* (see Nelson 1991, 67–68). More specifically, in the *kōrvai* in Example 3 each unit has characteristics of a *gopucca yati with rests* (the type presented in Example 1.2): in each unit’s first line every note is followed with *two* rests; in each unit’s second line every note is followed with *one* rest; and in each unit’s third line every note obtains *zero* rests. The *mōrā* is the third line of each unit.²³ For example the *mōrā* of unit 1 is: (ḍmḡrŚ)[,](mḡrŚn)[,](ḡrŚnd). The *mōrā* of units 1, 2, and 3 have the same mathematical structure: (5)[1](5)[1](5).

Shrinivas designed this *kōrvai* for the *tāla* named *misra chapu*. *Misra chapu* is a seven-beat cycle with claps, indicated with an “x” in Example 4, on the first, second, fourth, and sixth

22. On this practice in Karnatak *solkaṭṭu*, see Nelson (1991, 51–52) and Brown (1965).

23. Readers may find this confusing because the first “motive” in each unit’s third line is simultaneously the final part of the *gopucca yati* with rests as well as the first statement of the *mōrā*.

Unit 1 ḍ , , ṁ , , ḡ , , ṛ , , Ṣ , , ḍ , ṁ , ḡ , ṛ , Ṣ , ḍṁḡṛṢ , ṁḡṛṢṅ , ḡṛṢṅḍ	Unit 2 ṁ , , ḡ , , ṛ , , Ṣ , , ṅ , , ṁ , ḡ , ṛ , Ṣ , ṅ , ṁḡṛṢṅ , ḡṛṢṅḍ , ṛṢṅḍP	Unit 3 ḡ , , ṛ , , Ṣ , , ṅ , , ḍ , , ḡ , ṛ , Ṣ , ṅ , ḍ , ḡṛṢṅḍ , ṛṢṅḍp , ṢṅḍPd
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Example 3. Extract from Shrinivas (1986), “Enduku Dayaradura” (17:22–17:40). Click [here](#) to listen.

x x x x x x x x
 1 , 2 , 3 , 4 , 5 , 6 , 7 , 1 , 2 , 3 , 4 , 5 , 6 , 7 , etc.

Example 4. *Misra chapu tāla* with two pulses per beat.

beats. Each beat receives two pulses, so one cycle equals fourteen pulses. Each unit in the *kōrvai* equals a total of 42 pulses, which conveniently is a multiple of 7, the basic number of beats in *misra chapu*. Since the *eḍuppu* is on pulse 3, Shrinivas started the *kōrvai* on pulse 3.

SHRINIVAS’S SVARA KALPANA IN RĀGA KAMBHŪJI

In 1995 U. Shrinivas brought his Karnatak mandolin to Ohio to perform at the Cleveland Thyagaraja Festival, one of the largest Karnatak music festivals held outside of South India. His accompanist was the violinist A. Kanyakumari.²⁴ That day Shrinivas performed *svara kalpana* in the *rāga Kambhōji*, a *rāga* that evokes the sound of a Mixolydian scale. However, the flat seventh scale degree in *Kambhōji* can be played only in descending phrases. In Example 5 I have transcribed the ascent and descent of *rāga Kambhōji* as well as the *gamaka*.

Ascent

Sargam: S R G ṁ P D Ṣ
 Gamaka: SGRGR GPGPG GṢDṢD

Descent

Sargam: Ṣ ṅ D P ṁ G R S
 Gamaka: PṢ PṢṅ(Ṣ) Pṁ GMG GR(shake R slightly)

Example 5. *Sargam* and *gamaka* in ascent (*arohana*) and descent (*avarohana*) of *rāga Kambhōji*.²⁵

24. The concert featured Shrimushnam Raja Rao on mridangam and T.H. Subhash Chandran on ghatam.

25. Different Karnatak musicians will perform the ascent and descent with slightly different *gamaka*. This is the version I learned from Karnatak vocalist B. Balasubrahmanyan.

Although scholars commonly define *gamaka* as characteristic ornamentation, the definition can be misleading because it tends to erroneously equate melodic ornamentation with the idiomatic ways in which notes are connected to each other in the performance of Karnatak *rāgas*. Ornamentation can be said to exist on a spectrum. At one end is idiomatic “external” ornaments that musicians perform to decorate a melodic line. At the other end of the spectrum is ornamentation that is “internal” to the mode. *Gamaka* in Karnatak music falls on the internal side of the spectrum because *gamaka* are fundamental, idiomatic ways in which Karnatak musicians are taught to connect (rather than decorate) notes of *rāgas*.²⁶

Shrinivas performed *svara kalpana* in *rāga Kambhōji* after he performed the composition entitled “Evarimāṭa” composed by Thyagaraja.²⁷ “Composed” means Thyagaraja created both the Telugu-language text and its musical setting. The *tāla* of “Evarimāṭa” is *ādi tāla reṇḍu kalai*, a common *tāla* for slower-tempo Karnatak compositions. *Reṇḍu kalai* means each beat receives two of the same hand gestures, as shown in Example 6.

As explained above, when a vocalist or instrumentalist prepares to sing *svara kalpana* the vocalist or instrumentalist must first select a melodic theme from the through-composed composition. Shrinivas selected the melodic theme that opens the composition’s third major section (ex. 7).²⁸ The *eḍuppu* of the melodic theme is “second I clap” and the *graha svara* is P (scale degree 5). The transcription in Example 7 shows the way in which Shrinivas tended to handle the theme on the Karnatak mandolin. The precise performance of the theme, however, will vary from musician to musician in subtle ways.

A key challenge of *svara kalpana* is to learn to approach the *eḍuppu* at two notes per beat in part 1 and four notes per beat in part 2 (see my discussion of the five parts of *svara kalpana* on pages 3–4). Thus the musician must feel precisely where the *eḍuppu* exists in the *tāla* for these

1	1	2	2	3	3	4	4
clap	clap	pinky	pinky	ring	ring	middle	middle
5	5	6	6	7	7	8	8
clap	clap	wave	wave	clap	clap	wave	wave

Example 6. Representation of *Ādi tāla, reṇḍu kalai*.²⁹

26. I owe this point to David Nelson.

27. On Thyagaraja, see Jackson (1992). For additional case studies of *svara kalpana* performed for the *kṛiti Evarimāṭa*, see Cormack (1992, 257–371). She compares three *svara kalpana* performances of Karnatak flutist T. Viswanathan with three performances of vocalist K. V. Narayanaswamy.

28. In Cormack’s study of *svara kalpana* the Karnatak musicians T. Viswanathan and K. V. Narayanaswamy used the same theme in their *svara kalpana* (see Cormack 1992, 168–70, 257–371). The Telugu text of the theme is “bhakta parā” which is part of the larger phrase “bhakta parādhīnuḍanucu parama bhāgavatula.” Cormack translates this phrase as “I have been thinking that you [Lord Narada] are the protector of devotees. This you have revealed to the great teachers of religious discourse” (Cormack 1992, 169). On the relationship between text and *svara kalpana* improvisation, see Cormack (1992, 168–74).

29. Readers may find this portrayal of *ādi tāla reṇḍu kalai* confusing. They may think it better to depict the *tāla* as having 16 beats. I believe it is best to illustrate *ādi tāla reṇḍu kalai* as shown above because it captures the way in which musicians feel the *tāla*. That is, *ādi tāla* is ultimately an eight-beat *tāla*. But in *reṇḍu kalai* each gesture is repeated. In this article I mark the location in the *tāla* through the terms used in Example 6. For example, I



Example 7. The *Evarimāṭa* theme that Shrinivas selected for *svara kalpana* (Shrinivas 1995, 6:20–6:27). Click [here](#) to listen.

two options. In *Evarimāṭa* when the musician performs two pulses per beat the *eḍuppu* of “second 1 clap” falls on the third pulse. However when the musician performs at four pulses per beat the *eḍuppu* of “second 1 clap” falls on the fifth pulse.

In the following sections the reader might feel that the audio examples are not cut to exactly the transcribed duration. More specifically, it might seem that there are subsequent *svaras* after the transcribed material. These subsequent and untranscribed *svaras* are the musicians’ improvisatory articulations of the theme (ex. 7).

Hybrid Designs in Part I

In this section I analyze four *mōrā* or *mōrā*-like ideas as well as one *yati* that Shrinivas fashioned in part I of his *svara kalpana*. In the fourth round of *svara kalpana* Shrinivas introduced the improvisation’s first *mōrā*, notated in Example 8.1. When organized according to the *mōrā* form of (x)[y](x)[y](x), the idea can be articulated in this way: (pdsrg)[s,](ndmpd)[p,](sndpm). If the *mōrā* is reduced to numbers, the result is (5)[2](5)[2](5).

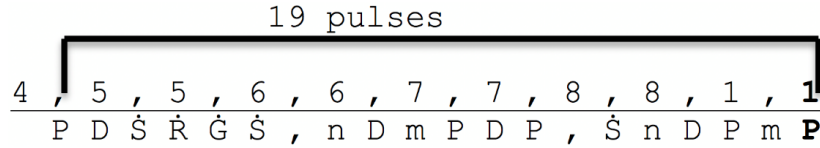
Although in this article I do not delve into *solkaṭṭu*, it is imperative to explain to the reader that the ideas that give rise to such numbers are specific vocables of *solkaṭṭu*. The reader should not assume that when Karnatak musicians conceive of *mōrā* they think about abstract numbers. The numbers are expressed through the language of *solkaṭṭu*. For example the *solkaṭṭu* in this *mōrā* would be something like: (ta dīn gi na tom)[,] (ta dīn gi na tom)[,] (ta dīn gi na tom).

It is crucial to understand the location in the *tāḷa* where Shrinivas started the *mōrā* to finish it at the *eḍuppu*. As stated above, in part I of *svara kalpana* musicians tend to perform two notes per beat. Thus one entire *tāḷa* cycle of *ādi tāḷa reṇḍu kalai* equals 32 pulses. The number of pulses of the *mōrā* is 19 (5+2+5+2+5=19). Shrinivas must end the *mōrā* at the *eḍuppu* of “second 1 clap.” Thus Shrinivas commenced the idea 19 pulses away from the *eḍuppu*, which is the upbeat of “second 4 middle” as shown in Example 8.2.

4 , 5 , 5 , 6 , 6 , 7 , 7 , 8 , 8 , 1 , 1
P D Ś R Ğ Ś , n D m P D P , Ś n D P m P

Example 8.1. *Mōrā* (Shrinivas 1995, 7:34–7:45). Click [here](#) to listen.

identify the first two hand gestures as “first 1 clap” and “second 1 clap.” Likewise I term the second two hand gestures as “first 2 pinky” and “second 2 pinky.”



Example 8.2. The *mōrā* starts 19 pulses away from the *eḍuppu*.

I wish to direct the reader’s attention to the melodic aspect of this “hybrid” (rhythmic-melodic) form of modal improvisation. If one analyzes this idea according to the ascent/descent and standard *gamaka* found in *Kambhōji* (see Example 5 above), it becomes apparent that Shrinivas performed the *mōrā* with the characteristic melodic features of *Kambhōji*. The flat seventh scale degree in *Kambhōji* can be played only in descending phrases. Thus, in the first phrase Shrinivas correctly omits n (the flat seventh scale degree) because the phrase *ascends* to the octave: PD[omit n]ŚRĠ. Shrinivas, however, introduces n when he constructs a phrase that descends from Ś to nDmPDP. When listening to the recording consider the standard way in which Shrinivas “takes D from Ś” in the ascent to the octave, and “takes R from Ś” in the phrase PDŚRĠ.³⁰

The accompanist Kanyakumari responded to Shrinivas’s *mōrā* by repeating the same melodic idea, but she began *two pulses earlier* in the *tāla*. She thus had to compensate for these extra two pulses. One could consider Kanyakumari’s response an example of what Karnatak musicians term *oṭṭu svāra*. Cormack defines *oṭṭu svāra* in this way: “When a musician realizes a calculated pattern is not working out, and so ‘sticks in’ or inserts one or more *svāras* to complete the round (or turn) at the appropriate *eḍuppu*” (Cormack 1992, 187). Kanyakumari added two extra pulses to the last statement: she changed it from (ŚnDm) to (Ś,n,Dm). In Example 8.3 I juxtapose Shrinivas’s *mōrā* against Kanyakumari’s *mōrā*.

An astute reader will note that Kanyakumari’s idea is not in *mōrā* form. In this article I have thus far examined “ideal-type” *mōrās*: three statements interspersed with two gaps of an equal duration (remember that the gaps may be zero). In reality, however, seasoned artists do not limit themselves to these prototypical formations. They modify the structure of

Shrinivas (5) [2] (5) [2] (5)

,	4	,	5	,	5	,	6	,	6	,	7	,	7	,	8	,	8	,	1	,	1
P	D	Ś	R	Ġ	Ś	,	n	D	m	P	D	P	,	Ś	n	D	P	m	P		

Kanyakumari (5) [2] (5) [2] (7)

,	4	,	5	,	5	,	6	,	6	,	7	,	7	,	8	,	8	,	1	,	1
P	D	Ś	R	Ġ	Ś	,	n	D	m	P	D	P	,	Ś	,	n	,	D	P	m	P

Example 8.3. Juxtaposition of Shrinivas’s and Kanyakumari’s *mōrās* (Shrinivas 1995, 7:34–7:56). Click [here](#) to listen.

30. My Karnatak music teachers often used the English verb “take” (as in, “take this note from that note”) to explain how to connect notes to produce *gamaka*.

(x)[y](x)[y](x) in many ways. They create statements with slightly different lengths. They expand the structure so that there are *four* statements and *three* gaps. There are many possibilities.

Consider Examples 9 and 10, transcriptions of Shrinivas’s third and fifth *svara kalpana* improvisations of part I. In the third *svara kalpana* he keeps the gaps at two pulses but constructs statements that are 8, 6, and 7 pulses long, respectively (Example 9). If one organizes the idea into its *mōrā* form of (x)[y](x)[y](x), it can be displayed in this way: (PDSRGSRR)[,](PDSRGS)[,](S,nDPDm). A numerical reduction can illustrate it as (8)[2](6)[2](7). Although the gaps remain constant, the statements are not equal in number nor do they increase/decrease by an “orderly” (8 → 7 → 6) amount.

Shrinivas fashioned a similar non-ideal-type *mōrā* in his fifth *svara kalpana* of part I (Example 10). Here he extended the structure of a *mōrā*: he placed one gap *after* the third statement and added a four-note phrase to reach the *eḍuppu*. Reducing this to numbers produces the pattern (6)[1](6)[1](6)[1](4).

As explained above, in part I the artist and accompanist perform *svara kalpana* in the “first speed” (two notes per beat) and in part 2 they perform in “second speed” (four notes per beat). Yet in the sixth *svara kalpana* of part I, shown in Example 11, Shrinivas surprisingly decided to shift to “second speed.”

In parsing the pattern in Example 11.I, some aspects of the idea are beyond question: the overall structure has three well-defined units, and the overall contour is descending. We know that the idea must eventually reach the *eḍuppu* of P, which Shrinivas approaches from the closest note below, M. What is subject to interpretation is the content within each phrase.

$$\begin{array}{cccccccccccccccc} 3 & , & 3 & , & 4 & , & 4 & , & 1 & , & 1 & , & 2 & , & 2 & , & 1 & , & 1 & , & 2 & , & 2 & , & 1 & , & 1 \\ \text{P} & \text{ḍ} & \text{S} & \text{R} & \text{G} & \text{S} & \text{R} & \text{R} & , & , & \text{P} & \text{ḍ} & \text{S} & \text{R} & \text{G} & \text{S} & , & , & \acute{\text{S}} & , & \text{n} & \text{D} & \text{P} & \text{D} & \text{m} & \text{P} \end{array}$$

Example 9. Shrinivas’s third *svara kalpana* in part I (Shrinivas 1995, 7:10–7:21). Click [here](#) to listen.

$$\begin{array}{cccccccccccccccc} 3 & , & 3 & , & 4 & , & 4 & , & 1 & , & 1 & , & 2 & , & 2 & , & 1 & , & 1 & , & 2 & , & 2 & , & 1 & , & \mathbf{1} \\ \text{P} & \text{D} & \acute{\text{S}} & \acute{\text{R}} & \acute{\text{G}} & \acute{\text{S}} & , & \text{m} & \text{G} & \text{P} & \text{D} & \text{S} & \text{P} & , & \text{P} & \text{ḍ} & \text{S} & \text{R} & \text{G} & \acute{\text{S}} & , & \text{n} & \text{ḍ} & \text{P} & \text{ṁ} & \text{P} \end{array}$$

Example 10. Shrinivas’s fifth *svara kalpana* in part I (Shrinivas 1995, 7:55–8:06). Click [here](#) to listen.

$$\acute{\text{m}} , , \acute{\text{G}} , , \acute{\text{m}} , , \acute{\text{G}} , , \acute{\text{R}} , , \acute{\text{S}} , , \acute{\text{R}} ,$$

$$\acute{\text{G}} , , \acute{\text{R}} , , \acute{\text{G}} , , \acute{\text{R}} , , \acute{\text{S}} , , \text{n} , , \text{D} ,$$

$$\acute{\text{R}} , , \acute{\text{S}} , , \acute{\text{R}} , , \acute{\text{S}} , , \text{n} , , \text{D} , , \text{m} ,$$

Example 11.I. Shrinivas’s sixth *svara kalpana* in part I (Shrinivas 1995: 8:27–8:43). Click [here](#) to listen.

Perhaps the best way to analyze this idea is as a *mōrā* with an additional gap (bolded): (x)[y](x)[y](x)[y]. Further, I find it helpful to divide each statement into three “micro-statements,” which I place in smaller parentheses in Example II.2.

The third micro-statement of each larger statement maintains the rhythm of the first and second micro-statements, but it descends by step from the previous two micro-statements. The overall idea can be reduced to numbers like this:

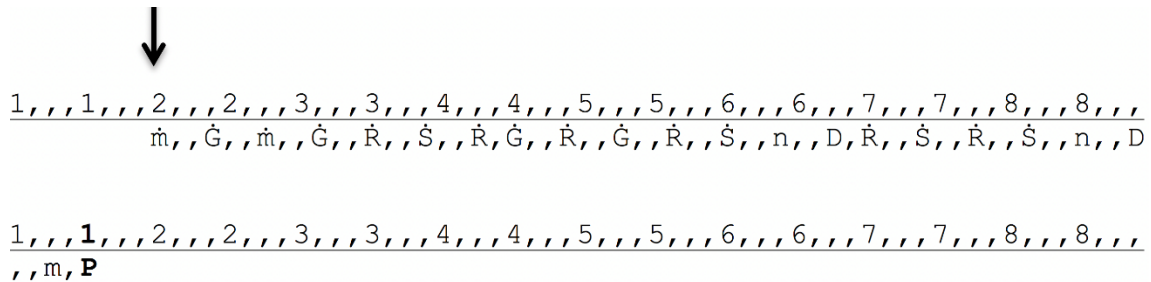
$$\begin{aligned} (6)(6)(6)[2] &= 20 \\ (6)(6)(6)[2] &= 20 \\ (6)(6)(6)[2] &= 20 \end{aligned}$$

Shrinivas knew precisely when to start this idea to arrive at the *eḍuppu* of “second I clap.” The total number of pulses is 60. If each beat of the *tāḷa* obtains four pulses the entire cycle consists of 64 pulses. However, recall that when musicians perform four pulses per beat the *eḍuppu* of “second I clap” falls on the fifth pulse (“after four”). Thus Shrinivas must begin the idea on pulse 9 (“after eight”) to arrive at the *eḍuppu*. In other words, he starts the idea at “first 2 pinky” to end at the *eḍuppu* (Example II.3).

One of the feats of *svara kalpana* is the way in which the accompanist comprehends in real-time the main artist’s often pre-planned ideas and plays variations in the moment. For example, Kanyakumari created a variation on Shrinivas’s expanded *mōrā*, shown in Example II.4.

statement	gap
((ṁ, , Ġ, ,) (ṁ, , Ġ, ,) (Ṛ, , Ś, ,))	[Ṛ,]
statement	gap
((Ġ, , Ṛ, ,) (Ġ, , Ṛ, ,) (Ś, , n, ,))	[D,]
statement	gap
((Ṛ, , Ś, ,) (Ṛ, , Ś, ,) (n, , D, ,))	[m,]

Example II.2. Micro-statements in Shrinivas’s expanded *mōrā* (Shrinivas 1995, 8:27–8:43).



Example II.3. Begins at “first 2 pinky” to end at the *eḍuppu* (Shrinivas 1995, 8:27–8:43).

$$\begin{array}{cc} \text{statement} & \text{gap} \\ (\dot{m}, , \dot{G}, ,) (\dot{m}, , \dot{G}, ,) & [\dot{R}, \dot{S}, n, D,] \end{array}$$

$$\begin{array}{cc} \text{statement} & \text{gap} \\ (\dot{G}, , \dot{R}, ,) (\dot{G}, , \dot{R}, ,) & [\dot{S}, n, D, P,] \end{array}$$

$$\begin{array}{cc} \text{statement} & \text{gap} \\ (n, , D, ,) (n, , D, ,) & [n, D, P, m,] \end{array}$$

Example 11.4. Kanyakumari’s variation (Shrinivas 1995, 8:49–9:03). Click [here](#) to listen.

When one transcribes Kanyakumari’s idea in numbers it becomes clear that she also designed the statements to consist of 20 pulses, but combined the third and fourth micro-statements together into a descending eight-pulse gap:

$$\begin{aligned} (6)(6)[8] &= 20 \\ (6)(6)[8] &= 20 \\ (6)(6)[8] &= 20 \end{aligned}$$

The last musical idea I wish to analyze in this section is the *yati* found in part I. In Shrinivas’s fourth *svara kalpana* he performed a *gopucca yati*. Different forms of transcription capture various aspects of this figure. Example 12.1 gives a transcription of the *gopucca yati* in the context of the *tāla*. Consider the way in which Shrinivas decreased each “statement” by one pulse (8 → 7 → 6 → 5 → 4 → 3 → 2 → 1) and interspersed the statements with a gap of four pulses (D,,,). In Example 12.2 I have reduced the *gopucca yati* to only the duration of its building blocks in pulses. The shrinking statements are shown in bold.

$$\begin{array}{l} \frac{1 \ , \ , \ , \ 1 \ , \ , \ , \ 2 \ , \ , \ , \ 2 \ , \ , \ , \ 3 \ , \ , \ , \ 3 \ , \ , \ , \ 4 \ , \ , \ , \ 4 \ , \ , \ ,}{\dot{R} \ \dot{S} \ n \ D \ P \ D \ \dot{S} \ n \ D \ , \ , \ , \ \dot{S} \ n \ D \ P \ D \ \dot{S} \ n \ D \ , \ , \ , \ n \ D \ P \ D \ \dot{S}} \\ \frac{5 \ , \ , \ , \ 5 \ , \ , \ , \ 6 \ , \ , \ , \ 6 \ , \ , \ , \ 7 \ , \ , \ , \ 7 \ , \ , \ , \ 8 \ , \ , \ , \ 8 \ , \ , \ ,}{n \ D \ , \ , \ , \ D \ P \ D \ \dot{S} \ n \ D \ , \ , \ , \ P \ D \ \dot{S} \ n \ D \ , \ , \ , \ D \ \dot{S} \ n \ D \ , \ , \ , \ \dot{S} \ n \ D} \\ \frac{1 \ , \ , \ , \ 1}{, \ , \ , \ D \ \mathbf{P}} \end{array}$$

Example 12.1. Shrinivas’s *gopucca yati* (Shrinivas 1995, 13:08–13:21). Click [here](#) to listen.

$$\mathbf{(8)} [4] \ \mathbf{(7)} [4] \ \mathbf{(6)} [4] \ \mathbf{(5)} [4] \ \mathbf{(4)} [4] \ \mathbf{(3)} [4] \ \mathbf{(2)} [4] \ \mathbf{(1)}$$

Example 12.2. The decreasing durations of Shrinivas’s *gopucca yati* (Shrinivas 1995, 13:08–13:21).

The *Koraippu* and Final *Kōrvai*

In this final section I turn to the concluding portion of the improvisation. More specifically, I focus here on the rhythmic designs and solfège Shrinivas performed in the trading section, or *koraippu*, as well as in the concluding *kōrvai*. The term *koraippu* likely derives from the Tamil verb *kuraital*. *Kuraital* means “to decrease, to be reduced in value, and to shorten in measure or number” (Cormack 1992, 143). The *koraippu*, as mentioned earlier, can be considered “part 3” of the overall structure of *svara kalpana*. In the *koraippu* musicians exchange improvisations that progressively become smaller, from an entire *tāla* cycle,³¹ to half a cycle, to a fourth, and finally to an eighth of the cycle. Once the *koraippu* is complete the lead artist performs solfège patterns (“part 4” of the *svara kalpana*’s overall structure) that draw attention to the flow of rhythmic time. Finally, they conclude with a large *kōrvai* (“part 5” of the *svara kalpana*’s overall structure). In addition to the *kōrvai*’s aesthetic qualities, the *kōrvai* has a crucial function: it links the *svara kalpana* back to the melodic theme of the composition (in this case, “Evarimāṭa”). The arrival back to the melodic theme marks the conclusion of the improvisation *and* composition. (Recall that the Karnatak musician segues into *svara kalpana* from the through-composed composition.)

Until now Shrinivas and his accompanist Kanyakumari had regaled their audience with *svara kalpana* improvisations for about eight minutes. The *graha svara* was P. But for the *koraippu* Shrinivas changed the *graha svara* from P to G. Doing so did not break any rules: only the final *kōrvai* must use P as the *graha svara* to conclude at the first note of the melodic theme.

That day Shrinivas used his first *koraippu* idea as the basis for two subsequent variations. The “seed” idea possessed characteristics of a *gopucca yati* because it reduced in number in an orderly way. What I find unique about this idea is the fact that Shrinivas chose to reduce the number of the *gaps* rather than those of the statements. Shrinivas fixed the content of the statement (G,,m,,G,,) but constructed gaps that decreased by a unit of one, as illustrated in Example 13.1.

Let us take a closer look at this idea in Example 13.2. It consists of two text boxes. The text box on the left organizes the melodic content into statements and gaps. The text box on

1 , , , 1 , , , 2 , , , 2 , , , 3 , , , 3 , , , 4 , , , 4 , , ,
G , , m , , G , , Ḍ S R G m G , , m , ,
5 , , , 5 , , , 6 , , , 6 , , , 7 , , , 7 , , , 8 , , , 8 , , ,
G , , S R G m G , , m , , G , , R G m G , , m , , G , , G m G , ,
1 , , , 1 , , , 2 , , , 2 , , , 3 , , , 3 , , , 4 , , , 4 , , ,
, m , , G

Example 13.1. *Koraippu* idea 1 within *ādi tāla reṅḍu kalai* (Shrinivas 1995, 14:23–14:34). Click [here](#) to listen.

31. In practice the artists do not improvise for a complete cycle. For example, the accompanist will wait about two beats to demarcate the end of the soloist’s just-performed improvisation and the beginning of the accompanist’s turn. To add beauty to the *koraippu* only the mridangam player will often accompany the soloist. Likewise the other percussionist(s) (without the mridangam player) will accompany the accompanist (violin). For the *koraippu* analyzed in this article, Shrimushnam Raja Rao accompanied Shrinivas on mridangam and T. H. Subhash Chandran accompanied Kanyakumari on the ghatam.

(G, , m, , G, ,) [ḌSRGm]	(9) [5]
(G, , m, , G, ,) [SRGm]	(9) [4]
(G, , m, , G, ,) [RGm]	(9) [3]
(G, , m, , G, ,) [Gm]	(9) [2]
(G, , m, , G, ,)	(9)

Example 13.2. *Koraippu* idea 1 (Shrinivas 1995, 14:23–14:34).³²

the right reduces the notes to numbers. Consider the manner in which Shrinivas created unchanging statements (G,,m,,G,,) but designed the gaps to reduce by one note in each instantiation: [ḌSRGm] [SRGm] [RGm] [Gm].

Subsequently, in ideas 2 and 3 of the *koraippu* Shrinivas experimented with statements of (G,,m,,G,,) and gaps of [ḌSRGm]. Example 14.1 is a transcription of idea 2. In idea 2, Shrinivas modified idea 1 in four ways. First, Shrinivas changed the statement (G,,m,,G,,) so that it decreased by three (12 → 9 → 6). More specifically, what he decreased were the rests: G,,m,,G,, → G,,m,,G,, → G,m,G.³³ Second, he interspersed the decreasing statements with gaps that remained fixed at [ḌSRGm]. Third, notice how at the second pulse of “first 7 clap” he performed the phrase ḌSRGmG. Shrinivas could have used this as a building block for a simple (6)[1](6)[1](6) *mōrā* of (ḌSRGmG)[,](ḌSRGmG)[,](ḌSRGmG). Indeed this *mōrā* is precisely what Shrinivas played to complete idea 3 (see Example 15). But here in idea 2, Shrinivas ingeniously altered the pulse rate (*naḍai*) of [ḌSRGmG] from four pulses per beat to three pulses per beat (shown in bold in Example 14.1) and then doubled it to six-pulses per beat (also in bold in Example 14.1). I have attempted in Example 14.2 to juxtapose the first and second ideas. Clearly one of the percussionists was impressed: Shrinivas’s creativity caused either Shrimushnam Raja (mridangam) or T. H. Subhash Chandran (ghatam) to exclaim “*sābash!*” (well done!).

1 , , , 1 , , , 2 , , , 2 , , , 3 , , , 3 , , , 4 , , , 4 , , ,	G , , , m , , , G , , , Ḍ S R G m G , , ,
5 , , , 5 , , , 6 , , , 6 , , , 7 , , , 7 , , , 8 , , , 8 , , ,	m , , G , , Ḍ S R G m G , m , g , Ḍ S R G m G , Ḍ S R G m G
three pulses per beat	
1 , , , , 1 , , , 2 , , , 2 , , , 3 , , , 3 , , , 4 , , , 4 , , ,	, ḌSRGmG
six pulses per beat	

Example 14.1. *Koraippu* idea 2 within *ādi tāḷa reṇḍu kalai* (Shrinivas 1995, 15:06–15:17). Click [here](#) to listen.

32. The final nine-pulse statement of (G,,m,,G,,) is in reality seven pulses (G,,m,,G) because Shrinivas designed the pattern so that G in bold here (G,,m,,G) fell on the *eḍuppu*.

33. One can also represent the idea numerically as (444 → 333 → 222).

First idea

(G,,m,,G,,) [ḌSRGm]
(G,,m,,G,,) [SRGm]
(G,,m,,G,,) [RGm]
(G,,m,,G,,) [Gm]
(G,,m,,G,,)

Second Idea

(G,,,m,,,G,,,)	[ḌSRGm]
(G,,m,,G,,)	[ḌSRGm]
(G,m,G,)	[ḌSRGm]
(G,)	
Three notes per beat:	[ḌSRGmG]
Six notes per beat:	[,ḌSRGm]

Example 14.2. Juxtaposition of first and second ideas (Shrinivas 1995, 15:06–15:17).

In idea 2, Shrinivas decreased the statements by three (12 → 9 → 6) through a reduction of the number of rests: (G,,m,,G,,) to (G,,m,,G,) and (G,m,G,). Subsequently, in idea 3 (Example 15) he performed the opposite: (G,m,G,) → (G,,m,,G,) → (G,,,m,,,G,,,).

As pointed out, there are two fundamental ways in which Karnatak musicians modify just-performed *mōrās* in their next turn. The first way is to change the statements from, for example, (6)(6)(6) to (5)(6)(7). The change to (5)(6)(7) works because the total number of pulses remains the same (6+6+6=18 and 5+6+7=18). Once this modification has been made, it is common to reverse the idea to (7)(6)(5). In ideas 7, 8, and 9 of the *koraippu* (see Example 16), Shrinivas applied this mathematical procedure to three *mōrās*, each of which consisted of 48 pulses. Each *mōrā* consisted of statements that added up to 36 pulses, interspersed with two gaps of 6 pulses each. Shrinivas changed the statements from (15)(12)(9) → (12)(12)(12) → (9)(12)(15).

1 , , , 1 , , , 2 , , , 2 , , , 3 , , , 3 , , , 4 , , , 4 , , ,	G , m , G , Ḍ S R G m G , , m , , G , ,
1 , , , 1 , , , 2 , , , 2 , , , 1 , , , 1 , , , 2 , , , 2 , , ,	Ḍ S R G m G , , , m , , , G , , , Ḍ Ṣ Ṛ Ġ ṁ Ġ , Ḍ Ṣ Ṛ Ġ ṁ Ġ , Ḍ
1 , , , 1 , , , 2 , , , 2 , , , 3 , , , 3 , , , 4 , , , 4 , , ,	Ṣ R Ġ ṁ Ġ

Example 15. *Koraippu* idea 3 within *ādi tāḷa reṇḍu kalai* (Shrinivas 1995, 15:27–15:38). Click [here](#) to listen.

- Idea 6: (15) [6] (12) [6] (9) = 48 total pulses
- Idea 7: (12) [6] (12) [6] (12) = 48 total pulses
- Idea 8: (9) [6] (12) [6] (15) = 48 total pulses

Example 16. Numerical logic of ideas 7, 8, and 9 (Shrinivas 1995, 16:52–17:42). Click [here](#) to listen.

To conclude the analysis, let us turn now to the final *kōrvai*, transcribed in Example 17. In a performance of *svara kalpana*, the final *kōrvai* tends to be a large and pre-planned rhythmic design. Although I have selected the term “improvisation” to characterize the music I analyze, in this article the *kōrvai* could be considered a “composition.” As demonstrated in Example 3 above, *kōrvais* consist of three large units repeated identically (or nearly identically) three times.

Unit 1

1 / / / 1 / / / 2 / / / 2 / / / 3 / / / 3 / / / 4 / / / 4 / / /
 ṁ ṁ Ṛ Ś n D P D Ś , , ṁ ṁ Ṛ Ś n D P D Ś , , ṁ ṁ Ṛ Ś n D
 5 / / / 5 / / / 6 / / / 6 / / / 7 / / / 7 / / / 8 / / / 8 / / /
 P D Ś , , Ṛ Ś n D P D Ś , , Ṛ Ś n D P D Ś , , Ṛ Ś n D P D Ś , ,
 1 / / / 1 / / / 2 / / / 2 / / / 3 / / / 3 / / / 4 / / / 4 / / /
 n D P D Ś , , n D P D Ś , , n D P D Ś , , ṁ Ṛ Ś n D Ṛ Ś n D P Ś
 5 / / / 5 / / / 6 / / / 6 / / / 7 / / / 7 / / / 8 / / / 8 / / /
 n D P D , Ṛ Ś n D P Ś n D P D Ś n P D P , ṁ Ṛ Ś n D Ṛ Ś n D P Ś
 1 / / / 1 / / / 2 / / / 2 / / / 3 / / / 3 / / / 4 / / / 4 / / /
 n D P D

Unit 2

1 / / / 1 / / / 2 / / / 2 / / / 3 / / / 3 / / / 4 / / / 4 / / /
 ṁ ṁ Ṛ Ś n D P D Ś , , ṁ ṁ Ṛ Ś n D P D Ṛ , , ṁ ṁ Ṛ Ś n D
 5 / / / 5 / / / 6 / / / 6 / / / 7 / / / 7 / / / 8 / / / 8 / / /
 P D Ḡ , , Ṛ Ś n D P D Ś , , Ṛ Ś n D P D Ś , , Ṛ Ś n D P D Ś , ,
 1 / / / 1 / / / 2 / / / 2 / / / 3 / / / 3 / / / 4 / / / 4 / / /
 n D P D Ś , , n D P D Ṛ , , n D P D Ḡ , , ṁ Ṛ Ś n D Ṛ Ś n D P Ś
 5 / / / 5 / / / 6 / / / 6 / / / 7 / / / 7 / / / 8 / / / 8 / / /
 n D P D , Ṛ Ś n D P Ś n D P D Ś n P D P , ṁ Ṛ Ś n D Ṛ Ś n D P Ś
 1 / / / 1 / / / 2 / / / 2 / / / 3 / / / 3 / / / 4 / / / 4 / / /
 n D P D

Unit 3

1 / / / 1 / / / 2 / / / 2 / / / 3 / / / 3 / / / 4 / / / 4 / / /
 ṁ ṁ Ṛ Ś n D P D Ś , , ṁ ṁ Ṛ Ś n D P D Ṛ , , ṁ ṁ Ṛ Ś n D
 5 / / / 5 / / / 6 / / / 6 / / / 7 / / / 7 / / / 8 / / / 8 / / /
 P D Ḡ , , Ṛ Ś n D P D Ś , , Ṛ Ś n D P D Ṛ , , Ṛ Ś n D P D Ḡ , ,
 1 / / / 1 / / / 2 / / / 2 / / / 3 / / / 3 / / / 4 / / / 4 / / /
 n D P D Ḡ , , n D P D Ṛ , , n D P D Ś , , ṁ Ṛ Ś n D Ṛ Ś n D P Ś
 5 / / / 5 / / / 6 / / / 6 / / / 7 / / / 7 / / / 8 / / / 8 / / /
 n D P D , Ṛ Ś n D P Ś n D P D Ś n P D P , ṁ Ṛ Ś n D Ṛ Ś n D P Ś
 1 / / / 1 / / / 2 / / / 2 / / / 3 / / / 3 / / / 4 / / / 4 / / /
 n P D m P

Example 17. The final *kōrvai* (Shrinivas 1995, 19:54–20:14). Click [here](#) to listen.

The raw data presented in Example 17 can be analyzed best if one breaks down each unit into three *mōrā*-like phrases³⁴ and one *mōrā*. For example, in Example 18 I have organized unit 3 accordingly. All three larger units have this structure. Notice how the first three *mōrā*-like ideas diminish from (8)[3](8)[3](8)(3) to (6)[3](6)[3](6)[3] to (4)[3](4)[3](4)[3]. If one were to reduce the entire *kōrvai* to durations of pulses the *kōrvai* could be represented as in Example 19.1. Finally note that this *kōrvai* is precisely in line with Nelson's (1999, 67) definition of *kōrvai*. It has two parts. The first part (phrases 1–3) of each unit consists of a *gopucca yati*, and the second part (phrase 4) consists of a *mōrā*, as highlighted in Example 19.2.

In the case study just presented, I first introduced the reader to the composition's *rāga* (*Kambhōji*), *tāla* (*Ādi tāla, reṇḍu kalai*) and the melodic theme that Shrinivas decided to use to end each round of *svara kalpana* improvisation. Next, I focused the analysis on four *mōrā* or *mōrā*-like ideas as well as one *yati* that Shrinivas created in part 1 of the improvisation. I revealed that Shrinivas did not limit himself to prototypical *mōrās* but rather altered the structure of (x)[y](x)[y](x) in a variety of ways. The case study concluded with an analysis of sophisticated rhythmic-melodic designs Shrinivas created in the concluding portions of his improvisation: the *koraippu* and *kōrvai*.

Phrase 1

(m̄m̄R̄ŚnDPD) [Ś, ,]	(8) [3]
(m̄m̄R̄ŚnDPD) [R̄, ,]	(8) [3]
(m̄m̄R̄ŚnDPD) [Ġ, ,]	(8) [3]

Phrase 2

(R̄ŚnDPD) [Ś, ,]	(6) [3]
(R̄ŚnDPD) [R̄, ,]	(6) [3]
(R̄ŚnDPD) [Ġ, ,]	(6) [3]

Phrase 3

(nDPD) [Ġ, ,]	(4) [3]
(nDPD) [R̄, ,]	(4) [3]
(nDPD) [Ś, ,]	(4) [3]

Phrase 4

(m̄R̄ŚnDR̄ŚnDPŚnDPD) [,]	(15) [1]
(R̄ŚnDPŚnDPDŚnPDP) [,]	(15) [1]
(m̄R̄ŚnDR̄ŚnDPŚnPDm) P	(15)

Example 18. Unit 3 in the final *kōrvai*.

34. I say *mōrā*-like because they have an extra gap: (statement)[gap](statement)[gap](statement)[gap].

(8) [3] (8) [3] (8) (3)
 (6) [3] (6) [3] (6) [3]
 (4) [3] (4) [3] (4) [3]
 (15) [1] (15) [1] (15)

(8) [3] (8) [3] (8) (3)
 (6) [3] (6) [3] (6) [3]
 (4) [3] (4) [3] (4) [3]
 (15) [1] (15) [1] (15)

(8) [3] (8) [3] (8) (3)
 (6) [3] (6) [3] (6) [3]
 (4) [3] (4) [3] (4) [3]
 (15) [1] (15) [1] (15)

Example 19.1. Durations in all three units of the final *kōrvai*.

Gopucca Shape :

(8) [3] (8) [3] (8) (3)
 (6) [3] (6) [3] (6) [3]
 (4) [3] (4) [3] (4) [3]

Mora :

(15) [1] (15) [1] (15)

Example 19.2. Structure of one unit from the final *kōrvai* as a *gopucca* followed by a *mōrā*.

CONCLUSION

In this article, I first sought to explain the fundamental features of *svara kalpana* and to describe three “hybrid” rhythmic-melodic designs found in many *svara kalpana* improvisations: solfège added to *yatis*, solfège set to *mōrās*, and solfège combined with *kōrvai*. The purpose of these explanations and descriptions was to prepare the reader for the analysis of one musician’s approach to these designs in concert. My overall objective for the analysis was to use one performance to account for the moments in *svara kalpana* when musicians set *sargam* to *solkaṭṭu*-based rhythmic designs. The hybrid rhythmic-melodic nature of *svara kalpana* makes *svara kalpana* challenging: musicians like Shrinivas must effortlessly wed *solkaṭṭu* and its mathematical calculations to solfège patterns that subscribe to idiomatic rules of a particular Karnatak *rāga*.

ACKNOWLEDGMENTS

I wish to thank my parents Stephen and Ellyce Field for supporting my interest in South Indian classical music. Thank you B. Balasubrahmanian and David Nelson for teaching me Karnatak music and helping me to analyze the music discussed in this article. Thanks also

goes to my first Karnatak music teacher, Kalpana Venkat. Thank you to Jody Cormack for offering crucial clarifications. Finally, I thank the reviewers for helping me to improve the cohesion and coherence of this article.

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