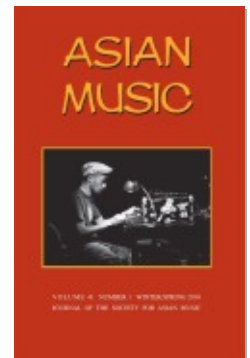Beyond *Tālaprastāra* in Indian Music: Prosody as a
Generating Function of Rhythmic Complexity in
Aruṇakirinātar's *Tiruppukaḻ*

V. N. Muthukumar

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Beyond *Tālaprastāra* in Indian Music: Prosody as a Generating Function of Rhythmic Complexity in Aruṇakirinātar's *Tiruppukaḻ*[1]

V. N. Muthukumar

> "A generating function is a clothesline on which we hang up a sequence of numbers for display."
>
> —Herbert Wilf[2]

The use of permutation as a tool to generate melodic patterns is discussed in early Indian texts on musicology such as the *Dattilam* and *Bṛhaddeśī* (Widdess 1995). But the earliest reference to an analogous scheme for rhythmic cycles (*tāla*)—called *Tālaprastāra*—is found only in later texts, the *Samgīta Samayasāra* of Pārśvadeva and the *Samgīta Ratnākara* of Śārṅgadeva (c. 13th century CE). The chapter on *tāla* in the *Samgīta Ratnākara* contains more than 70 verses on this topic, and subsequent treatments of the subject follow Śārṅgadeva. A discussion of *Tālaprastāra* is found in many Sanskrit and Tamil texts on music written between the 15th and 17th centuries and a few later texts as well. The theme figures prominently in the Telugu musicological tradition, where one finds *Tālaprastāra* discussed in texts written as late as the 20th century. A table showing a particular scheme of *Tālaprastāra* is found in a manuscript attributed to Śyāma Śāśtri, one of the composers who constitute the so-called musical trinity of Carnatic (South Indian) music.[3] The perceived importance of *Tālaprastāra* stems from the notion that it provides the musician a scheme to generate different *tālas*.

Despite the extensive treatment of *Tālaprastāra* in medieval literature, there are no examples of musical forms (compositions) that allow us to study either the necessity or the practical utility of this scheme. Nor is its use to be found in contemporary music. Indeed, it is fair to say that *Tālaprastāra* as described in these texts has remained largely, if not entirely, within the theorist's realm. Are we then to conclude that the generation of rhythmic variety and complexity, and their practical realization in the sense of inventing new *tāla*s, lie solely within the domain of percussion music? The purpose of this paper is to argue that the scheme was not restricted to the domain of percussion as there is at least one example in Indian music, viz., the works of the 15th century Tamil poet Aruṇakirinātar,[4] where rhythmic variety is realized in an entire corpus of

compositions, albeit without seeking recourse to the cumbersome and often clumsy machinery of *Tālaprastāra* described in the texts. Given the elegance of Aruṇakirinātar's methods and his innovations in the *Tiruppukaḻ,* some of which will be discussed later in this paper, it is not surprising that this particular corpus of compositions has survived in the performance traditions of Indian music and dance. A study of Aruṇakirinātar's compositions provides us with valuable insights into some of the methods used by poets who excelled in composing rhythmic verse, and the connection between these methods and the grammar of rhythm. Aruṇakirinātar's works thus present an opportunity to study the relationship between prosody and *tāla,* a subject that has not been discussed in any detail within the context of Indian music.

The paper is organized as follows. The remainder of this section is devoted to a brief summary of the manifestation of variety in *tāla,* the origins of the method called *Tālaprastāra,* and the historical and musical context in which I study Aruṇakirinātar's contributions. In the following section, I discuss the rules of prosody used by Aruṇakirinātar. The link between prosody and rhythm is explored next through a series of examples that illustrate how Aruṇakirinātar generates rhythmic complexity through prosody, and the final section is devoted to a discussion of the interplay between melody and rhythm in *Tiruppukaḻ.*

Two defining attributes of a *tāla* are the number of *mātrās,* which characterizes the duration of a *tāla* cycle, and the manner in which these *mātrās* are partitioned into substructures of a *tāla* that may be termed as building blocks. The absolute unit of the *mātrā* varies between texts and traditions,[5] and this need not concern us. For the purposes of this discussion, it suffices (1) to specify the ratio between the *mātrā* counts of these building blocks and (2) to note that this ratio is fixed. Hence, in the remainder of this paper I choose to work with "dimensionless units," in terms of which the three building blocks—*laghu, guru,* and *pluta*—correspond, respectively, to 1, 2, and 3 units.[6] A *tāla* is then immediately specified by a particular arrangement of these building blocks. For example, a *tāla* whose arrangement is *guru, guru, laghu, pluta* corresponds to 8 units. I emphasize, however, that the total number of units is subservient to the particular arrangement of the building blocks in the characterization of the *tāla.* This is only to be expected since the practical realization of keeping time to a *tāla* either through the action of the hand(s) or through a percussive instrument usually reflects not merely the total number of units in a *tāla,* but also the arrangement in which they are partitioned therein.

Keeping the total number of units in a *tāla* fixed, variety and complexity may be envisaged in the following ways: (1) partitioning the total number differently; for example, keeping the total number of units fixed at 8, a new *tāla* is obtained by partitioning these 8 units into a *guru, laghu, guru, laghu, guru* arrangement. This arrangement is different and distinct from the previous

example, viz., *guru, guru, laghu, pluta.* (2) Permuting a given arrangement, thus yielding a new *tāla* with the same units as the original; for example, permuting the arrangement *guru, guru, laghu, pluta* to *guru, laghu, guru, pluta* yields a different arrangement of 8 units and hence considered a distinct *tāla.* Thus, any rearrangement of building blocks automatically constitutes a new *tāla.* (3) Further variety ensues upon expanding the set of building blocks, *guru, laghu, pluta,* to include new elements with different units.[7] Note that I omit the possibility of dilating the internal units (building blocks) either equally or unequally. It will be seen later that the effects of such operations are accommodated easily within Aruṇakirinātar's scheme.

The method of *Tālaprastāra* provides a systematic way to enumerate all possible operations (partitions and permutations) that leave the total number of *mātrās* invariant.[8] While this clever combinatorial scheme may be useful to understand *tāla* variety *a posteriori,* its appearance in the *Samgīta Ratnākara* likely led to the unfortunate (and perhaps, predictable) effect of classification gaining precedence over content. In this context, it is interesting to note Śārṅgadeva's definition of a *tāla.*[9] He says, " . . . *tāla* is measured time which determines the duration of *gīta etc.* by means of the individual measurement of *laghu etc.* . . ." (5.3).

Clearly, Śārṅgadeva understands *tāla* as a durational measure of song that did not have an independent existence. Despite this definition of the *tāla,* the method of *prastāra,* subsequent to its appearance in the *Samgīta Ratnākara,* seems to have degenerated into an exercise in enumerative combinatorics. Since the number of *tālas* that could be generated through permutation increases as a function of the total number of *mātrās* constituting the *tāla,* there are no obvious reasons either for generating specific *tālas* without compositional forms set to these *tālas,* or to terminate the process after the generation of a certain number of them. Typically, *tāla* compilations choose an arbitrary number (e.g., 108), that have little or nothing to do with the grammar of *tāla,* and we have no examples of musical forms that employed these; viz., these *tālas* have no "meaningful existence" (Ramanathan 1997) without a compositional form to measure.[10] The situation is summarized aptly by Sathyanarayana, " . . . the evolution of *deśī tāla* lost its equilibrium, reached a point of extreme proliferation in which system, science, convenience and practicability were chased away by fancy, caprice and invention for invention's sake. This led to anarchy, license and exuberant redundance in the fourteenth-fifteenth centuries AD" (Sathyanarayana 2004).

However, a survey of the literature shows that many *tālas* enumerated in the *Samgīta Ratnākara* did have a "meaningful existence," at least prior to their being classified; viz., these *tālas* were specific to certain performance traditions. An example is from the Tamil tradition, which is of immediate relevance to

us. In his commentary on the Tamil text *Cilappatikāram* (Iyer [1892] 2001), Atiyārkunallār (c. 13th century CE) writes,

> . . . those forty one *tālas,* ranging from the *eka tālam* comprising four *mātrās* to the *pārvatilōcaṉam* with sixteen *mātrās,* belong to the *puṟakkūttu. Āṟaṉmaṭṭam, eṭṭaṉmaṭṭam, tālavōriyal, taṉṉilaiyōriyal,* as well as the eleven varieties of *pāṇi* seen in *oṉṟaṉpāṇi, eṇkūttuppāṇi,* etc., *mutalaṭivāram,* etc., all belong to the *akakkūttu . . .* [11]

Note the unambiguous connection made by the commentator between specific dance forms (*kūttu*) and certain *tālas* (of which both *eka* and *pārvatilōcaṉam* appear in Śārṅgadeva's list of *deśī tālas*). A similar connection between *tālas* and specific compositional forms can also be seen in the works prior to the *Samgīta Ratnākara* (such as the *Mānasollāsa*) that list a variety of *tālas* in vogue. In some cases, the names of the *tālas* are used interchangeably with compositional forms (*prabandha*),[12] which suggests yet again that at least some of these *tālas* were tied to specific compositional or dance forms. It is then reasonable to surmise that Śārṅgadeva's efforts toward systematization of the so-called *deśī tāla* were motivated by its popularity. It is also likely that such systematization ultimately led to the *deśī tāla* system inflating itself to death, all examples of rhythmic variety in composition lost irrevocably. More importantly, we do not know anything regarding the devices used by composers to impart rhythmic variety in song and dance. What remains in the literature is the *prastāra* scheme, which I argued above, is devoid of content in the absence of specific examples in composition.

It is in this context that I seek to study Aruṇakirinātar's *Tiruppukaḻ* and describe how he used prosody to generate meaningful variety in the expression of *tāla.* I shall show that the methods used by Aruṇakirinātar realize the goal of *Tālaprastāra* in a very natural way, and that the rhythmic structure in his songs exhibits some important characteristics of the *deśī tāla* described by Śārṅgadeva and others.

The *Tālaprastāra* scheme is presented in the *Samgīta Ratnākara,* within the text's discussion of the *deśī tāla.* The phrase "*deśī tāla*" occurs for the first time in this text (though some of the *tālas* listed in the *Samgīta Ratnākara* as "*deśī*" are mentioned in earlier texts) and is contrasted with the "*mārga tāla*" mentioned in Bharata's *Nāṭya Śāśtra.* These terms have been the subject of investigation for a long while now.[13] Rowell's comments (Rowell 1992) on the *deśī tāla* are particularly relevant in this context. He sees the emergence of *deśī tāla* as part of a broader "phenomenon of *deśī*—the dynamic expansion of musical resources during the second half of the first millennium" during which time "a large number of popular regional traditions were collected, codified, partly homogenized, and set alongside the venerable *mārga* tradition (which in the end they supplanted). . . ." Rowell speculates further that the *deśī tālas* were closely associated

with songs and poetic traditions and that the new *tālas* were characterized by short, repeatable sequences of fixed durations. Chaudhary (1997) notes that the *mārga* and *deśī tāla*s differ in the basic units they use and in the value of the *laghu* (fixed in *mārga,* and variable in *deśī*). In emphasizing the structural differences between these two kinds of *tālas,* neither author seems to have paid much attention to another aspect of the *deśī tāla*—its manifestation as variety in sound. This feature of the *deśī tāla* is evident in Śārṅgadeva's characterization and Kallinatha's commentary on this section of the *Samgīta Ratnākara* (5.237–238). I discuss these below and argue that the features identified by Śārṅgadeva and Kallinatha, as unique to *deśī tāla,* are realized in the *Tiruppukaḻ.*

Śārṅgadeva identifies two important characteristics of the *deśī tāla:* (1) the flexibility of its structure, which arises from the variable value of the *laghu* and (2) the importance given to its expression. According to him, " . . . the *deśī tāla* comprises the action of *laghu* and other durations and finds aesthetic expression in the sound of cymbals . . . " (5.237). Śārṅgadeva's phrase " . . . *yathāśobhaṃ kāmsyatāladhvananādikaya* . . . " in the above verse has been elaborated by Kallinatha in his commentary. Kallinatha chooses to interpret *yathāśobhaṃ*—as required by (considerations of) beauty—as the fundamental requirement behind both the rhythmic organization of the *deśī tāla* and its expression. He writes, for instance:

> . . . bound by that beauty which arises from the sound of cymbals, sometimes re-strained, and at other times not, some times in the strokes of specific hand gestures and some times in the pattern of strokes, the variety and complexity of sound engenders the wondrous *deśī tāla* . . . (5.237)

Kallinatha also states clearly that the variety in *deśī tāla* is a direct consequence of variety in arrangement and the number of units, " . . . it should be understood that the variety in *tāla* arises both from the variety in the arrangement (of *laghu,* etc.) and in its measure . . . " (5.238).

Kallinatha's commentary reveals two features of the *deśī tāla* that are particularly significant for a discussion of Aruṇakirinātar's works. The first is that the structure of the *deśī tāla* was flexible enough to sustain and illustrate rhythmic variety. However, Śārṅgadeva's choice of the phrase "*yathāśobhaṃ*" underscores the fact that the structure (of the *deśī tāla*) was less important than considerations of rhythmic aesthetics. Next, his allusion to the cymbals (*kāmsyatāla*) and Kallinatha's exposition thereof lead us to conclude that in the *deśī tālas,* rhythmic variety was more apparent in its manifestation as sound than as complexity in the underlying structure of the *tāla.*[14] Indeed, the latter condition is neither necessary nor sufficient to satisfy the former,[15] and Śārṅgadeva's criterion for the beauty of *deśī tāla* may be considered as "rhythmic color," in complete analogy with Mātaṅga's description of a rāga as possessing "tonal color."[16]

In the *Tiruppukaḻ,* one finds the manifestation of rhythmic variety as sound at two levels. The first is found in the connection between textual flow (meter) and the rhythmic arrangement. This aspect will be discussed in detail in the following section. The second is seen in the profusion of onomatopoeic terms in the *Tiruppukaḻ* verses, and I will discuss this point briefly. The specific theme of expressing *tāla* variety through sound (especially sound from cymbals) recurs throughout the works of Aruṇakirinātar. As a devotee of the Tamil god Murukaṉ (Zvelebil 1991), Aruṇakirinātar hears *tāla* in the sound produced by Murukaṉ's anklets. To the poet, these anklets express the "infinite variety of sound" (7.1219).[17] Similarly Murukaṉ's feet are described as being adorned by "gold anklets that produce music of infinite variety" (1.15, 4.204, 7.703). The analogy with Śārṅgadeva's "*kāmsyatāladhvananam*" is obvious. The importance Aruṇakirinātar attaches to the expression of *tāla* as sound is further reflected in his use of onomatopoeic terms such as "*kiṇkiṇI,*" (1.16, describing the sound of the cymbals) or phrases that serve the dual purpose of expressing sound (usually of some musical instrument) and specifying the rhythmic structure of the composition. Some examples are "*ṭuṭuṭuṇṭuṭu ṭuṇṭuṭu ṭuṇṭeṉa*" (1.2, describing the sound of drums) and "*tokukukuku tokukukuku toṅkat toṅkat tokutītō*" (2.17, describing the sound of the drum accompanying Siva's dance). Aside from these explicit allusions to *tāla* as infinite variety in sound, the perception of *tāla* variety in the *Tiruppukaḻ* is seen most clearly in its prosody, which I discuss in the following section.

Prosody of *Tiruppukaḻ*

The prosody of *Tiruppukaḻ* is best understood by breaking down its structure into three components: (1) *pā* (meter), (2) *cantam* (*tāla*), and (3) *vaṇṇam* (sound class). The poem is vested with these qualities upon the imposition of appropriate constraints. The primary constraint is on the lyrical structure (the meter of a poem) to which *cantam* and *vaṇṇam* are imposed as secondary and tertiary constraints, specifying *tāla* and class of sound (hard, soft, medium). Next, I argue that the imposition of these constraints along with the introduction of cyclicality turns the poem into a composition set to a specific *tāla*.

Meter

The *Tiruppukaḻ* songs are composed in a meter called ā*ciriya viruttam*. It has four lines and each line is made up of six or more feet. The foot can be di-, tri- or polysyllabic.[18] The basic constraints of the *viruttam* meter are the following: (1) all lines should have the same number of feet; (2) the arrangement of the syllables inside a foot in the first line should be identical to the syllabic arrangement of the corresponding foot in the second line (e.g., the second foot of the

Table 1. The second and third columns show speech and
rhythmic durations of sound in Tamil prosody that determine the
characteristics of meter and *tāla,* respectively. The final column
shows the classes of sounds: hard (H), soft (S), and medium (M)
used in determining the *vaṇṇam.* See text for a discussion.

Sound	Metrical Duration (Meter)	Rhythmic Duration (*tāla*)	Class
Short vowel, e.g., *a*	1	1	
Long vowel, e.g., *ā*	2	2	
Consonant, e.g., *t*	0	1	H,S,M
Short vowel consonant, e.g., *ta*	1	1	H,S,M
Long vowel consonant, e.g., *tā*	2	2	H,S

first line should have the same syllabic arrangement as the second foot in the
second line); and (3) similarly corresponding feet in the third and fourth lines
must have the same syllabic structure. The poem is considered superior if all four
lines have the same syllabic arrangement, and the *Tiruppukaḻ* songs fall under
this latter category. The syllabic arrangement inside a foot is most conveniently
characterized by the unit of metrical duration. The second column of Table 1
shows the metrical duration of sounds in Tamil grammar.

The constraint on the arrangement of syllables in a line is the first step toward
what I call rhythmization of a poem.[19] However, this step does not suffice to
transform the poem into a song set to a specific *tāla.* This is because syllabic
arrangement in a poem is determined by the metrical duration (of a speech
sound) that, in turn, determines the meter. The key point here is that the met-
rical duration of a sound is not necessarily equal to the duration of the same
sound in music (say, as measured by the beats of a *tāla*), which fact is noted in
the earliest extant Tamil grammar, the *Tolkāppiyam* (verse 33, *Eḻuttatikāram;*
Pavanar 1966, 36). Thus, for example, the two syllables "*tat*" and "*ta*" have the
same metrical duration (of speech sound—second column in Table 1) and will
be considered equivalent insofar as the determination of meter is concerned. But
these two syllables do not have the same rhythmic duration; the addition of the
consonant "*-t*" to "*ta*" acts as a stop in the rhythm. It is important to understand
this difference when analyzing rhythmic verse.

Throughout this paper, I will use the following notation to indicate rhythmic
duration:

ta ta ta ta

tatta

tat tat

tā na

In this method of indicating durations, the first line represents 4 "*ta*" syllables, and we will take its rhythmic count to be 4 (in units of "*ta,*" which will be the fundamental rhythmic unit 1). The second line, "*tatta,*" can be thought of as "*ta+t+ta.*" Here, the consonant "*-t*" has zero metrical value; that is, its occurrence is irrelevant in considerations of meter. However, the same consonant "*-t*" has a rhythmic duration of 1 unit and, consequently, the rhythmic duration of "*tatta*" will be taken to be 3. Similarly, "*tattat*" in line 3 represents a rhythmic count of 4 and "*tāna,*" 3. These assignments represent the fundamental counting rule for all rhythmic verse in Tamil. The failure to recognize the distinction between metric and rhythmic counts has led to some confusion in the literature (Selvamony 1991).

The distinction between the metric and rhythmic durations of a sound does not violate the rules of basic prosody that determine the meter. In composing rhythmic verse, the poet imposes an extra set of constraints based on the rhythmic duration of the same syllables that determine its metrical structure. Hence, the poem is rhythmized *without losing its metrical structure;* metrical structure or meter is governed by the metrical duration of the sound, while rhythmic structure or *tāla* depends on the rhythmic duration of the same sounds. To state this more concisely, all rhythmized verses belong to some metrical class, but a verse composed in a specific meter is not necessarily rhythmic.

Tāla

The second step in rhythmization is to invoke a set of independent constraints on the rhythmic duration of the syllables in the poem. Examples of this practice are seen in older literature, for example, *Cilappatikāram* (e.g., verse29.22, Iyer [1892] 2001) as well as in the devotional literature of other Tamil poets who preceded Aruṇakirinātar. However, to my knowledge, a formal distinction between rhythmic and metrical durations first appears in Tamil grammar only between the 10th and 11th centuries. Both the *Yāpparuṅkala Virutti* (c. 10th century) and the *Vīracōḻiyam* (c. 11th century) make this distinction clear. For instance, the *Vīracōḻiyam* defines the rhythmic duration of sound using the terminology of Sanskrit grammar thus: "The long vowel, the long vowel followed by a consonant, the short vowel followed by a consonant are called *guru;* a solitary short vowel is called the *laghu,* but at the end of a line, it may assume the function of the *guru*" (verse 130; Gopalaiyar 2005, 476).

The same opinion is voiced by the author of the *Yāpparuṅkala Virutti* (see Ilankumaran 1973, 477).[20] By stating the rhythmic duration of speech syllables in units of the *laghu* and *guru,* these texts provide an unambiguous prescription to relate the duration of speech and rhythmic durations. Thus, for example, we see that "*ta*" has metrical and rhythmic duration of 1. The metrical duration

of "*tat*" is again 1 (the consonant has no metrical value) whereas its rhythmic duration is 2. Consequently, the two syllables are only metrically equivalent.[21] Further note that though the short vowel has a rhythmic duration of 1 (*laghu*) it "may assume the function of a *guru,*" that is, assume a duration of 2, at the end of a line. A similar rule applies at the end of a half-line if the two halves have identical rhythmic structures (Mutaliar 1984). The origins of this rule lie in the flexibility required in the melodic expression and/or recitation of a song, a point I will discuss later in the context of the *Tiruppukaḻ.*

Having fixed the rhythmic duration of sounds in terms of the *laghu* and *guru,* the constraint leading to rhythmization is obvious. We demand that every line of the verse has the same rhythmic arrangement in addition to having the same syllabic arrangement; that is, any foot in a given line must have the same arrangement of *guru* and *laghu* as the corresponding foot in the other lines. Consequently, all lines have the same rhythmic duration and more importantly, the *mātrās* are partitioned identically in all the lines and hence the rhythmic structure can be denoted by a *tāla.*

Sound Class

Imposing a constraint on the rhythmic duration of sound completes the process of rhythmization. However, another independent constraint when imposed on sound class leads to further variety in the vocal expression of sound. This constraint can be understood in the following way. As discussed earlier, the constraint on rhythmic duration only demands that corresponding feet (across different lines) must have the same arrangement of *guru* and *laghu.* Now note that a given arrangement (of *guru* and *laghu*) can correspond to any class of sounds—hard, soft, or medium. The constraint on sound class demands that the arrangement of syllabic sounds in terms of their sound class must also be identical in every line. Consequently, an entire verse is constructed with a specific rhythmic arrangement *and* may have a preponderance of one sound class. This feature has been called *vaṇṇam* by modern grammarians in the context of rhythmic verse (Tantapani 1987) and is related to a more general feature discussed in the *Tolkāppiyam.* The word *vaṇṇam* means color and here it may be understood to be the "color of sound."[22] Recall here, my earlier remarks on variety in *tāla* and rhythmic color in the *deśī tāla.* The Tamil grammarians invoke this connection by bridging meter, *tāla,* and sound class.

A verse that satisfies all three (primary, secondary and tertiary) constraints above is called a *vaṇṇac canta viruttam.* The *Tiruppukaḻ* corpus arguably represents the best *vaṇṇac canta viruttam* found in Tamil literature.

Rhythmic Variety, Sound Classes, and Cyclicality in *Tiruppukaḻ*

From our previous discussion, it follows that variety in the composition of verse (subject to the constraints discussed above) automatically satisfies the goal of *Tālaprastāra*—namely, creation of variety and complexity in *tāla.* Indeed, the *prastāra* of creating verse (rather than *tāla*) is discussed in the *Yāpparuṅkala Virutti,* and the discussion there is very similar to that of *Tālaprastāra* in the *Samgīta Ratnākara.* In the following, I discuss how the *Tiruppukaḻ* exhibits rhythmic variety in its construction.

Most of the *Tiruppukaḻ* songs have the following structure.

- A verse has four lines that are broken up into eight semi-lines. These semi-lines have identical speech sound arrangement, rhythmic arrangement, and sound class.[23]
- Each semi-line has several feet (di-, tri-, or polysyllabic) and the final foot of every semi-line acquires a special status. Grammarians call the final foot *toṅkal* (lit. hangs) and I will refer to it as the "final foot" with the understanding that it refers to the final foot of every semi-line.

Variety in Rhythm and Sound Class: The Role of the Foot

The variety in rhythm and sound class of the *Tiruppukaḻ* is conveniently defined and described by the building blocks of a rhythmic verse as shown in Table 2 (Tantapani 1987). The respective *mātrā* counts (the rhythmic duration) are also specified in the table. Note that the half consonants acquire the status of a *laghu*—their rhythmic duration is 1 *mātrā,* though they do not matter in determining the metrical structure.

Table 2. Duration, sound class, and the notation of
the eight building blocks of rhythmic verse.

Cantam Notation	Duration	Sound Class
taṉa	2	
tāṉa	3	
tatta	3	Hard
tātta	3	Hard
tanta	3	Soft
tānta	3	Soft
taṉṉa	3	Soft
tayya	3	Medium

The following points may be noted:

- To the set of eight building blocks above, one can add another set of eight by elongating the final vowel (e.g., *taṉā* [3 *mātrās*], *tāṉā* [4 *mātrās*], etc.).
- The rhythmic structure and duration of each foot (and consequently, of the entire verse) will be represented by a combination of the above eight. Examples are *taṉatāṉa* (a foot with 5 syllables and 5 *mātrās*), *tantat* (2 syllables, 4 *mātrās*), *tayyatanta* (4 syllables, 6 *mātrās*), and so on. The reduction of the basic rhythmic syllables to building blocks of 2 or 3 in Aruṇakirinātar's works is important in view of what I described earlier. As the examples below will show, the rhythmic structure underlying the *tālas* generated by Aruṇakirinātar is simple, and the richness of variety is exhibited truly as *variety in sound patterns.*
- Since the rhythmic structure of the entire verse is represented by that of a semi-line, it suffices to represent the semi-line with the rhythmic syllables *taṉa tāṉa,* and so on, shown above. The grammarians call this notation *cantak kuḻippu.* It has been used consistently by various authors and scholars who compiled Aruṇakirinātar's work and also found in manuscript versions of some songs.[24]
- Thus, for example, the semi-line (1.1),

  > *muttait tiru pattit tirunakai*
  > *attikiṟai satticcaravaa*
  > *muttikkoru vittuk kurupara—eṉavōtum*

  will be represented in cantam notation as

  > tattat tana tattat tanatana
  > tattat tana tattat tanatana
  > tattat tana tattat tanatana—tanatānā

- The threefold occurrence of a rhythmic structure before the final foot, as in the above example, is most common in the *Tiruppukaḻ.* In such cases, it is enough to notate the fundamental nonrepetitive phrase. For the above example, cantam notation would then read,

  > tattat tana tattat tanatana

  The final foot (see below) will always be shown separately (following the "–"). Since it has a fixed rhythmic duration independent of the rhythmic phrase(s) that precede it, I will ignore it in some examples below.
- The cantam notation is admittedly cumbersome in Roman script, but has the advantage that it reflects the variety in sound class. Thus, for example, while the syllables tatta, tanta, and tayya are rhythmically and metrically equivalent, they lead to three different representations of 3 *mātrās* as sound.

The choice of tayya (as opposed to the other two) in the rhythmic representation of a given verse automatically means that the foot (or part of it) occurring at that portion of the semi-line (and all subsequent semi-lines) is made up of two consonants or short vowels separated by a consonant of medial sound class (the set *ya ra la va ḻa ḷa*); for example, only words such as *alli, payya,* and so on, will figure in this position of the song. Analogous rules hold for the hard and soft equivalents.

I now turn to a few examples that demonstrate the generation of rhythmic variety in *Tiruppukaḻ* and demonstrate how the goals of *Tālaprastāra* are realized in these songs. I am not aware of a complete enumeration of all the distinct rhythmic patterns found in the thousand songs available; nor do I attempt this task.[25] Instead, I describe some examples that illustrate the central themes of this paper.

Tālaprastāra in Practice

I begin with some examples where the rhythmic units are multiples of four or eight. The first example is verse 3.118, which exhibits a simple pattern of fours. Below, I show an entire semi-line (with the final foot). Note the threefold repetition of a fundamental rhythmic phrase and the presence of the two long vowels at the end of the final foot.

<div align="center">

tānā tana tana tānā tana tana tānā tana tana—tanatānā
ātā ḷikaḷ puri kōlā kala viḻi yālē yamu teṇu—moḷiyālē

</div>

In this example, an 8 *mātrā* pattern of (two) fours occurs as two long rhythmic syllables followed by four short ones. A slightly modified pattern is seen in 3.121, where the 8 *mātrās* are partitioned into (3+5). I show this semi-line below (without its final foot, which has the same rhythmic structure above).

<div align="center">

tāna tanatanana tāna tanatanana tāna tanatanana
cīṟa lacaṭaṉviṉai kāraṉ muṟaimaiyili tīmai purikapaṭi

</div>

A different partition of 16 is to be found in 7.753, where feet of 3, 4, 5, and 4 *mātrās* are stacked together in the fundamental rhythmic phrase shown below. This phrase occurs thrice in a semi-line before the final foot.

<div align="center">

tanana tānana tānanāt tananta
aṟivi lātava rīṉarpēc ciraṇṭu

</div>

Note that the first and the fourth feet are metrically equivalent in the above example. The "ṇ" in the fourth foot has no metrical value. However, its presence leads to a rhythmic duration of 4 for the fourth foot (as compared to 3 for the first foot). In terms of sound class, the presence of "ṇ" (rather than, say, "*t*") means only a consonant of soft sound class shall occur at this position of the

verse (i.e., the middle consonant in the fourth, eighth, and twelfth feet of every semi-line); for example, *kuṇaṅka, kalaṅkaḷ,* and so on.

An example where the basic rhythmic pattern is simple yet exhibiting variety in sound expression is seen in 3.115. Here, the semi-line is broken into two smaller pieces, of which the first is expressed by

<div align="center">

tantam tantam tantam tantam
kuṉṟuṅ kuṉṟuṅ ceṇṭuṅ kaṉṟum

</div>

Note the alternating soft consonants, yielding variety in sound class. This construction implies that the first half of every semi-line in the verse should have a similar arrangement of alternating soft consonants. The second piece of the semi-line is also made up of feet with 4 *mātrās,* but the construction of these 4 *mātrās* is slightly different:

<div align="center">

tanatana tanatana   tanatana   tanatana
paṭivaḷar mulaiyiṉil mrukamata meḻukiyar

</div>

Thus, we find rhythmic variety even while the partition of units is homogeneous in the *tāla* cycle.

The relationship to *Tālaprastāra* can now be seen clearly. Consider, for instance, verse 5.394. The fundamental rhythmic phrase that occurs thrice in a semi-line is 16 *mātrās* and partitioned into (3+5+4+4). Its structure is given by

<div align="center">

tāna tanattat   tanatta   tantana
kōti   muṭittuk kaṉatta koṇṭaiyar

</div>

As discussed earlier, the goal of *Tālaprastāra* is to generate new structures by permuting the partition of units. In the *Tiruppukaḻ,* this is realized by the permutation of syllabic arrangement. So, in addition to the example above, we also find songs where the basic pattern is (5+3+4+4; verse 5.231), (5+4+3+4; 7.991), (4+3+5+4; 2.53), (3+5+4+4; 5.394), and so on. Further, Aruṇakirinātar goes beyond such permutation by creating variety within each of these patterns. For instance, consider the following three examples (verses 7.1197, 5.414, and 5.394) where the same pattern (3+5+4+4) occurs.

<div align="center">

tatta   tanattat   tanatta   tattana
vaṭṭa mulaikkac caviḻttu vaittuḷa

tanana tanatanā   tanatta   tānana
kutalai moḻiyiṉār nitikkoḷ vāraṇi

tāna tanattat   tanatta   tantana
kōti   muṭittuk kaṉatta koṇṭaiyar

</div>

In each of the phrases above, the blocks themselves (of 3, 4, and 5 *mātrās*) are constructed differently, thus yielding variety within the same partition scheme.

As is evident from these examples, the possibilities arising from the twin devices of permutation and repartitioning are infinite and bound only by rules of prosody and the composer's poetic skills. Verse 6.441, for example, is constructed out of rhythmic phrases of 17 *mātrās* partitioned as (6+3+3+3+2) and shown below.

<div align="center">

tānatatta tāna tanā tanā tana

cīrcirakku mēṉi pacēl pacē leṉa

</div>

Different realizations of 17 *mātrās* (different partitions) are found in other verses—for example, verse 7.1154 where the 17 *mātrā* phrase is partitioned into (4+4+5+4), (4+5+4+4; 7.1140), (5+4+4+4; 7.631), and so on.

In all the examples given above, the fundamental rhythmic phrase occurs thrice in a semi-line. In some verses though, the entire semi-line is captured within a single rhythmic phrase. An example is verse 5.336, whose structure is shown below (along with the final foot). In this verse, the semi-line is divided into two components, (3+4+3+4) and (4+4+4+4). Note that in the final foot, the syllable "*a*" is given a rhythmic duration of 2, in accordance with the rule we discussed earlier concerning the *laghu* in the final position.

<div align="center">

tanana tāttana   tanana tāttana

kumuta vāykkaṇi yamuta vākkiṉar

tānā tānā tānā tānā—tanatānā

kolē vēlē cēlē polē—aḻakāṉa

</div>

Some verses from the *Tiruppukaḷ* have the same rhythmic structure as *tālas* currently in vogue. An example is the *Tiruppukaḷ* (4.225), "*pāti matinati . . .*" This verse alternates between feet with 3 and 4 *mātrās* and is structurally isomorphic to the popular *tāla, Miśra Cāpu.* The entire semi-line (without the final foot) is given below.

<div align="center">

tāna tanatana tāna tanatana   tāna tanatana

pāti matinati pōtu maṇicaṭai nāta raruḷiya

</div>

Stresses

An example that constitutes a variant of this class (of 7 *mātrās*) is verse 7.1177. Here, the fundamental rhythmic phrase is of 14 units and partitioned into (5+4+5). The rhythmic structure of the verse is given by

<div align="center">

tanan′atta   tan′atta tan′attana

puruva′ttai neṟi′ttu viḻi′kkayal

</div>

In terms of the total number of *mātrās,* the above phrase can, in modern parlance, be thought of as a mixture of 5 (called *khaṇḍa*) and 9 (*caṅkīrṇa*) and sung accordingly. However, this is not a faithful representation of the verse because

typical rhythmic patterns used to represent 5 and 9 *mātrās* do not reflect the way these units are partitioned. Further, a natural place for stress (marked by "/") in this verse is the third beat as shown above, where the vowels a, i, and i marked in the words *puruva'ttai, neṟi'ttu,* and *viḻi'kkayal* are stressed while singing. This feature is lost entirely when the verse is shoehorned into a 5+9 structure.

Another example where the verse offers positions for rhythmic stresses is found in verse 5.263. Here again, the rhythmic structure of the semi-line is simple—all feet are of 5 *mātrās*—however, the stresses make it sound very different from the typical patterns of 5. The structure of the semi-line (with the final foot) is shown below.

> tana'ttana tanattam
> tana'ttana tanattam
> tana'ttana tanattam—tanatānā
> *cina'ttavar muṭikkum*
> *pakai'ttavar kuṭikkuṅ*
> *ceku'ttava ruyirkkuṅ—cinamākac*

It is evident from our discussion that the *Tiruppukaḻ* verse and its fundamental rhythmic structure are strongly intertwined. Perhaps to underscore this feature, Aruṇakirinātar incorporates syllables mimicking the rhythmic notation explicitly in some songs. An example is verse 2.69, which describes the rhythm to which Murukaṉ's peacock dances. One of the semi-lines reads as follows (I include the final foot for completeness):

> *taṉaṉataṉa tānta ṉantat*
> *teṉaṉaṭaṉa mārnta tuṅkat*
> *taṉimayilai yūrnta cantat—tirumārpā*

The first part of the semi-line above describes the dance of Murukaṉ's peacock using the syllables *taṉa,* and so on. But a comparison with the other two parts shows clearly that this phrase is also the underlying rhythmic structure of the semi-line. Similar examples are found in verses 5.354, 5.404, and so on. Indeed, the connection between the metric and rhythmic structures is so strong and explicit in the *Tiruppukaḻ* that attempts to bring this corpus of songs into "standardized" *tāla* frameworks (such as the 108 *tāla* or the 35 *tāla* schemes) are neither fructuous nor appropriate. The rhythmic structures of the *Tiruppukaḻ* and these *tāla* schemes are "additive," a term employed by Powers to underscore the fact that the *tāla* cycle is made up of components of unequal length[26] (as opposed to "divisive" rhythms of melody wherein the rhythmic cycle is usually subdivided into subsections of equal length[27]). However, a *Tiruppukaḻ* verse presents both the total rhythmic count *and* the manner in which it is partitioned in a *tāla* cycle, and this may not necessarily coincide with the partitioning of the components in any of the *tāla* schemes.

Whence Variety?

Thus far, I discussed a few examples from the *Tiruppukaḻ* to illustrate how the construction of rhythmic verse realizes the goals of *Tālaprastāra* in practice. While it is clear that infinitely many distinct rhythmic patterns could possibly be generated along these lines, it is instructive to ask the question from the point of view of a composer; viz., among the infinitely many patterns available, how is a particular rhythmic pattern chosen? Interestingly enough, the answer is also related to the theme we discussed so far, the strong connection between verse and *tāla* in the *Tiruppukaḻ*. In most of the songs, Aruṇakirinātar indicates the name of the place where the song was composed. This name usually occurs as one word in the verse (or at times, split across two words), and places a constraint on the appearance of at least one rhythmic unit which corresponds to the name;[28] for example, requiring the word Āviṉaṉkuṭi (the older name for Paḻani, a town situated 70 miles from the city of Maturai in Tamil Nadu) to appear in the verse forces one foot of the semi-line to have the corresponding rhythmic structure, *tānatantana*. Seen this way, it is not surprising that the verse 3.103 has the following rhythmic structure (below, I show the last semi-line of the verse to illustrate the point made here).

<div align="center">

tāna   tantana   tāna   tantana —tanatānā
āvi   **naṉkuṭi**   *vāḻvu   koṇtaruḷ—perumālē*

</div>

At first sight, imposing this constraint might seem severely restrictive; but Aruṇakirinātar uses devices such as adding an honorific to the name, declining the noun (the name of the temple/town), and so on. This yields a distinct rhythmic unit that is then woven into a different rhythmic phrase. Consequently, there is still a wide variety of rhythmic structures among the songs sung at the same place. As an example, consider verse 3.109, which also addresses Murukaṉ in Āviṉaṉkuṭi. In this verse, Aruṇakirinātar uses words to mean "(Murukaṉ) in Āviṉaṉkuṭi." As seen below, this constraint determines the rhythmic structure of the entire verse! I reproduce the last semi-line to show the difference between this structure and the previous example.

<div align="center">

tanatāna   tantanana
tiruvāvi   **naṉkuṭiyil**
tanatāna   tantanana
varuvēḷca   vuntarika
tanatāna   tantanana—tanatānā
cekamēlmey   kaṇtaviral—perumālē

</div>

Sometimes this additional constraint is also reflected in the sound class of the verse along with the rhythmic units. For example, consider verse 5.315, which addresses Murukaṉ in Vaḷḷimalai (located near the town of Vellore in Tamil

Nadu). The rhythmic structure $(5+3+3)$ is given below, where again I show the last semi-line of the verse (note the presence of the medium sound class). Here, Aruṇakirinātar chooses to describe a "Murukaṉ who climbed Vaḷḷimalai," which construction determines the rhythmic structure of the verse and the variety in sound class.

> tayyatta tāna tanta
> *vaḷḷikku lāma ṭarnta*
> *tayyatta tāna tanta*
> **vaḷḷikkal mītu ceṉru**
> tayyatta tāna tanta—tanatānā
> *vaḷḷikku vēṭai koṇṭa—perumālē*

A fascinating set of examples is found in the songs composed by Aruṇakirinātar in Citamparam. Pillai (1965) lists 64 songs and notes that these verses correspond to 60 distinct rhythmic structures. It is likely that Aruṇakirinātar was motivated by the connection between rhythm, dance, and Citamparam, the abode of the dancing god Naṭarāja.[29] In generating this variety, Aruṇakirinātar employs several different words to name (or signify) Citamparam such as Puliyūr, Kaṉakacapai, Kaṉakampalam, Cempoṉṉampalam, Ciṟṟampalam, Tiruvampalam, and so on. The entire exercise is conceived and executed brilliantly.

So far, I discussed the rhythmization of verse as a general principle and the generation of rhythmic variety in the *Tiruppukaḻ.* I now turn my attention to Aruṇakirinātar's innovation in the *Tiruppukaḻ*—the final foot.

Cyclicality and the Final Foot

The uniqueness of the *Tiruppukaḻ* as envisaged by Aruṇakirinātar is apparent when the structures of his other works (also rhythmic verses) are analyzed. Consider, for example, the *Pūta Vētāḷa Vakuppu* (9.6) consists of 10 distinct rhythmic lines that are repeated in the same order throughout the verse (which has 80 lines). However, there is an important difference between these verses and the *Tiruppukaḻ* in that the former do not have the final foot. In introducing the final foot in the *Tiruppukaḻ,* I propose Aruṇakirinātar was motivated by another ingredient necessary to transform verse to song—cyclicality.

Cyclicality in Tamil verse is much older than the *Tiruppukaḻ.* For instance, one finds verses in the *Cilappatikāram,* called *pāṭṭu* (lit. song), where a specific line is used at the end of every verse. Based on this, it is reasonable to speculate that the last line served the purpose of a refrain. Similar examples are also found in Tamil *bhakti* literature prior to the *Tiruppukaḻ.* The utility of cyclicality lies in its ability to direct the expression of song toward a motif—rhythmic or melodic. I will focus my attention on the latter, since rhythmic cyclicality is evident in the construction of the *Tiruppukaḻ,* and also because melodic cyclicality leads

me to the final topic of discussion in this paper, the interplay between rhythmic structure and melodic expression.

Today, the performance of *Tiruppukaḻ* is mostly heard in temples where groups of singers gather to sing the poems.[30] Usually, the group features a lead singer who sings the semi-line (or the line). The same semi-line is then repeated by the group. In this performance, the final foot, which acts effectively as the termination of the semi-line, is used as a transition between the lead singer and the group (and vice versa). Beyond this obvious function of connecting the (text of the) semi-lines in a verse, and its performance, the final foot directs the singer back to the beginning of the (same) semi-line. Thus, it also provides a natural way to introduce melodic variations. This feature is used mostly in concerts (where a single vocalist performs). The last syllable of the final foot is often a long vowel (even if it is not, the rule for the *canta viruttam* allows for an extension in its duration and the short vowel "may assume the function of the *guru*"). In practice, this means the singer gets more room for melodic embellishment and allows for a dilation of the rhythmic cycle. Similarly, when a *Tiruppukaḻ* is set to music and choreographed, the semi-line with the final foot affords a convenient unit for elaboration.

When a *Tiruppukaḻ* verse is sung as part of a concert repertory, the musician often uses the flexibility offered by the final foot either to make the rhythmic structure of the entire semi-line (and thus, the song) homogeneous or to fit the rhythmic structure into one of the *tālas* belonging to the concert repertory. Some examples of this will be found in the following section.

Interplay between Melody and Rhythm

In this final section, I discuss the interplay between rhythm and melody, a connection that can be restated, in the light of my discussion thus far, as one between prosody and melody. Though not the central theme of this paper, I mention a few salient points on this interesting subject, with the hope that they lead to further research. With the exception of a few general remarks, I shall restrict my discussion in this section to Aruṇakirinātar's *Tiruppukaḻ*. I emphasize that unlike the rhythmic expression of *Tiruppukaḻ* (which I argued can be deduced from the metrical structure), there are no references in the literature as to melodic expression (i.e., we do not know the rāgas in which specific verses were sung).[31] Consequently, I will focus my attention only on general themes that concern the interplay between rhythm and melody.

As mentioned earlier, the metrical structure of the *Tiruppukaḻ* can be represented by the sequence, $A_1 B_1 A_2 B_2 A_3 B_3 A_4 B_4$. Here, A (B) represents the first (second) half of a semi-line. Recall that all semi-lines have the same rhythmic count and share the same structure. Further, alliteration in the first and second

syllables is found between $A_1 \ldots A_4$. For these reasons, the obvious and the most typical melodic structure of the *Tiruppukaḻ* is also the simplest bipartite structure, $M_1\ M_2\ M_1\ M_2\ M_1\ M_2\ M_1\ M_2$, where an entire verse comprises two melodic units that are repeated. This melodic structure may be contrasted with that of the contemporary *kṛti* in Carnatic music, represented by $M_1\ M_2\ (M_1)\ M_3\ (M_1)$.

It may be asked why the *Tiruppukaḻ* does not allow for a structure with, say, 3 or more melodic units as in the *kṛti* format. The answer lies in the factor that we have not considered so far in this paper—the meaning of the text. Typically, the final foot of a semi-line leads to the beginning of the following semi-line. As I remarked in the previous section, *Tiruppukaḻ* performance today is mostly in temples where groups of singers/devotees gather to sing these poems. In these renderings, the meaning of the text gains precedence over melodic expression. Often, the lead singer construes parts of a semi-line with parts from a different semi-line to build a semantically complete unit.[32] Such exercises place a severe restriction on the melodic structure. Furthermore, there are many examples in the *Tiruppukaḻ* where one semi-line with the final foot can be repeated without compromising the meaning of the text. However, there is no regularity in the distribution of such semi-lines in a verse. For these reasons, a simpler melodic structure with 2 units is the most natural choice and widely seen in practice. I mentioned earlier that the final foot offers the performer some scope for melodic improvisation, but this is only in terms of returning to the same semi-line. Sometimes this compromises the meaning of the text by impeding the textual flow (which would require the singer to proceed to the second half of the semi-line). Again, this is in contrast with the format of the *kṛti,* where the text usually allows the performer to go back to M_1 after singing M_2.

These points are well illustrated in the melodic expression of the popular verse, "*kaittala niṟaikaṇi . . .* " (1.1). My analysis below[33] and as notated in Figure 1 is based on M. S. Subbulakshmi's vocal rendering of this song, which can be heard online.[34] Subbulakshmi sings this verse in rāga *Nāṭṭai.* The rhythmic structure of the semi-line (with the final foot) is tattana tanatana tattana tanatana tattana tanatana—tanatānā. Following the rules outlined earlier, this structure corresponds to 30 *mātrās* partitioned into (4+4+4+4+4+4+6). Now, the modern unit of measure, the *akṣara* is 1/4 of the units I use in this paper, and hence this song should (by this count) correspond to a *tāla* of 7 1/2 *akṣaras.* However, this song is almost always sung (as in Subbulakshmi's version) in the popular ā*ti tāla,* which has 8 *akṣaras.* From the point of view of a performing musician, this transformation is almost asking to be done. The *āti tāla* comprises 32 *mātrās* (using the system of units followed in this paper) partitioned into (4+4+4+4+4+4+4+4); so if the final foot of the verse can be extended by 2 *mātras,* the verse would fit into a *tāla* which is part of standard concert repertoire. Here, the long vowel(s) in the final foot play an important role, allowing the musician to dilate it, consequently transforming the rhythmic structure of the verse. Further note the melodic variations

in the final foot and also how the final foot is used to return to the beginning of the semi-line for melodic variations of the semi-line (cyclicality). The bipartite melodic structure of *Tiruppukaḻ* is also evident in this example. Subbulakshmi employs a device used often in such cases to relieve monotony—the semi-lines 3 and 4 are sung at twice the tempo of the preceding semi-lines.

Figure 1. M. S. Subbulakshmi's vocal rendering of
"*kaittala niṟaikaṇi . . .*" in rāga *Nāṭṭai* (1.1).

The example depicted in Figure 1 typifies the changes made to the rhythmic structure by performers. These changes are motivated by the desire to homogenize the partitioning of *mātrās* in nearly homogeneous structures, and (or) to facilitate melodic variation within a bipartite melodic structure. This set of changes effected by musicians (in the performance of *Tiruppukaḻ* and more generally, any rhythmic verse) follows the dictum that rhythmic structure begins to play a less important role when melodic expression gains precedence. Consequently, the "additive" structure of the *Tiruppukaḻ* is turned into a "divisive" one with the components of the *tāla* having equal duration. A corollary is that the meaning of the text also becomes less important under these conditions. For instance, in the above example, textual flow would require the singing of the second half of the semi-line immediately following the final foot (of the first half). But this requirement is abandoned for the sake of introducing melodic variety. Indeed, while making such changes, the musician follows the same set of steps that led to the evolution of genres such as the *kṛti* where melodic expression often gains precedence over rhythmic structure and textual flow.

The putative connection between expressions of *tāla* and rāga has been debated extensively in the context of the *Tēvāram* (a corpus of *bhakti* literature in Tamil) without any consensus. Surprisingly, the question has not been raised with reference to *Tiruppukaḻ,* which given its rhythmic variety, would seem the obvious place for investigation. Although we do not know if *Tiruppukaḻ* verses were sung to specific rāgas in the times of Aruṇakirinātar, this lack of information need not deter me. For the question at hand does not concern authenticity of melodic expression; rather I seek the relationship between rhythmic and melodic structures.

During the last 50 years, collections of *Tiruppukaḻ* have been set to music (and notated) by a few musicians. Consequently, there is enough material available to make such a study feasible. It would be interesting to study the influence (if any) of the rhythmic structure on the melodic contours fashioned by the musician, say by comparing verses set in the same rāga, but sung in different *tāla*s, or by comparing the melodic structures given by different musicians to the same verse (and by definition, the same *tāla*). To my knowledge, this study has not been undertaken yet. Below, I present two examples that illustrate the questions that can be raised by such a study.

The first example is a verse set to music by A. S. Raghavan (see Figure 2 for notation). The rhythmic structure of this verse is tanatana tanatana tanatana tanatana tanatana tanatana—tanatānā. The sixfold repetition of *taṉataṉa* (4 units) is to be noted. Raghavan makes the same minor transformation to the rhythmic structure of the verse as in the previous example; viz., two *mātrās* are added to the final foot, making the total rhythmic count 32, and the verse is sung in āti *tāla.* In what follows, it is only the structure of the semi-line that matters and

so, this modification of the rhythmic structure is irrelevant. Raghavan chooses to sing this verse in the rāga *Harikāmpōti*. Unlike the previous example, the melodic structure is of the form $M_1 M_2 M_3 M_4 M_1 M_2 M_3 M_4$ (i.e., the first four semi-lines have distinct melodic lines). However, the melody is strongly tied to the rhythmic structure as seen in the notated sample (see Figure 2). Raghavan's treatment is quite interesting in that he chooses to emphasize the partitioning of the verse (and equivalently, the *tāla*) in units of 4. This partition is forced on the melodic line. As a result, the distribution of *svaras* follows the same distribution of 4 *mātrās* in the rhythmic structure, leading to phrases such as SS nD nn DP DD PM PP MG (scale degrees 88 b76 b7b7 65 66 54 55 43) in measure 1 (see Figure 2), leading to an aural perception of an atypical *Harikāmpōti.* Indeed, were it not for the underlying rhythmic structure, such phrases would almost invariably sound incongruous in the presentation of this rāga. Note the requirement of melodic structure mimicking the rhythmic structure (*svara* following the *tāla*) leads to an awkward RGMGS (23431), a phrase that is avoided in typical renderings of *Harikāmpōti* in favor of GMGRS (34321).

Both examples above indicate the melodic limitations posed by a strict adherence to rhythmic structure. In some instances, however, the rhythmic structure

Figure 2. A. S. Raghavan's vocal rendering of "tirumoli yuraipera . . . " in rāga *Harikāmpōti.*

can be used to enhance specific melodic features. This is illustrated in the following verse (7.1297), *paravaikkettaṉai,* sung commonly in the rāga *ūrṇacantirikā.*[35] The rhythmic structure of the verse (including the final foot) is shown below (see Figure 3 for melodic notation).

tanatat tattana—tanatānā
paravaik kettaṉai—vicaitūtu

There are 14 *mātrās* in this verse, according to the rules described earlier. However, in performance this duration is expanded to 24 *mātrās.* The expansion (for reasons that will be discussed shortly) is uneven and the rhythmic structure changed; the *tāla* is expanded at specific points. Unlike the previous examples, these changes are made for considerations of melody. The verse is sung in the rāga *Pūrṇacantirikā.* The characteristic phrases of this rāga are RG M- R- (234-2-) with stops M-(4-) and R- (2-) following RG (23), which is sung at a faster tempo, PDPS' (5658). In general, the rāga follows the following contours: SRGMPDPS' (12345658); S'NPMGMR-S (87543421). The phrase PDPS' (5658) in the ascent and PMGMR- (54342-) with a rest at R in the descent are crucial in establishing the identity of the rāga. This particular form of *Pūrṇacantirikā* was first introduced by the composer, Tyagaraja, who also composed in an allied rāga, *Janarañcaṉi.*[36] Figure 3 shows how this form is realized in the verse. The expansion at the end of the first semi-line is to emphasize the position of R (2) as a note of rest. Similarly, note the expansion on Ŕ (9) at the end of the third semi-line, following the triplet ŔĠṀ (91011). Note the important role played by the rhythmic duration of the consonant syllables in this verse; for example, the rhythmic duration of the syllables *vaik* and *ket* (in the first semi-line

Example 3: paravaik kettaṉai

Rāgā: Pūrṇacantirikā

Note: In sargam notation, p denotes panchamam in the lower register

Music engraving by LilyPond 2.10.33—www.lilypond.org

Figure 3. Metric expansion of the verse, "*paravaikkettaṉai,*" to accommodate melodic features of Tyagaraja's rāga *Pūrṇacantirikā.*

paravaikkettaṉai) is 2, which provides the necessary stops for the *svaras* M and R in the key phrase, RGM-R-. A detailed study of the interplay between melody and rhythm in the *Tiruppukaḻ* verses along these lines is yet to be done.

Summary

In this paper, I discussed the construction of rhythmic verse in Tamil, choosing the works of the Tamil poet Aruṇakirinātar as examples. I argued that (1) the imposition of an additional set of constraints to the fundamental rules of prosody and (2) the introduction of cyclicality transform a verse into song, a process I called rhythmization. The set of rules used in the construction of such rhythmic verses also allows the composer to introduce rhythmic variety. This is achieved by a one-to-one mapping between syllabic and rhythmic structures made precise by the rules of Tamil prosody. Thus, variety in verse is also rhythmic variety. However, rhythmic variety in the *Tiruppukaḻ* goes beyond structural complexity and is more apparent in its manifestation as variety in sound; this latter property is identified as the defining characteristic of the *deśī tāla*s by the 13th century musicologist Śārṅgadeva. Thus, the *Tiruppukaḻ* verses represent some of the best examples of variety in rhythmic and aural color in Indian music. Elsewhere, I have argued that the construction of the *Tiruppukaḻ* may be considered as instantiating the notion of "three-fold Tamil" or *muttamil,* the functionality of language which allows for multiple modes of expression as in speech, song, and mimetic rendering (Muthukumar 2008).

In the case of rhythmic verses that are performed or sung such as the *Tiruppukaḻ,* the basic connection between prosody and *prastāra* (the exercise of introducing *tāla* variety) discussed in this paper exemplifies the method of *Tālaprastāra* described in the 13th century musicological texts such as Pārśvadeva's *Samgīta Samayasāra* and Śārṅgadeva's *Samgīta Ratnākara.* Two points merit my attention here. (1) What are the origins of *Tālaprastāra*? There are no references to this technique in the literature on musicology prior to the two texts mentioned above. Some scholars (Sathyanarayana 2001) have speculated that Śārṅgadeva follows the Jain tradition (of Pārśvadeva) in his discussion of *Tālaprastāra*. One may then ask what Pārśvadeva's sources were. I have attempted to show in this paper that the method of introducing *tāla* variety can be identified with the method of introducing variety in rhythmic verse.[37] Thus, the roots of *prastāra* may well lie in the grammar of poetry. Indeed, detailed accounts on the *prastāra* of verse are found in the *Yāpparuṅkala Virutti* and the *Vīracōḻiyam,* both being works on Tamil grammar. The former work and its primary text (*Yāpparuṅkalam*) are attributed to grammarians in the Jain tradition. I am thus tempted to speculate that the discussion of *prastāra* in Tamil grammar preceded the discussion of *Tālaprastāra* in musicology. (2) Śārṅgadeva introduces *Tālaprastāra* as a scheme

to classify the so-called *deśī tāla,* and as I argued in this paper, the rhythmic structures seen in Aruṇakirinātar's *Tiruppukaḻ* and the manner in which their varieties abound are in complete agreement with Śārṅgadeva's description of the *deśī tāla*. It may then be asked if the *tāla*s found in the *Tiruppukaḻ* are indeed the *deśī tāla*s of Śārṅgadeva. This question is rendered moot by the fact that we do not have examples of compositions (in vogue during Śārṅgadeva's times) in *deśī tāla*s. Furthermore, as the examples discussed in this paper show, the rhythmic structure of the *Tiruppukaḻ* verse can be identified readily using the rules of grammar. Hence, embarking on an exercise of fitting each *Tiruppukaḻ* verse to any of the *deśī tāla*s available in *tāla* compilations seems entirely superfluous.

I conclude with a remark concerning the influence of *Tiruppukaḻ* on subsequent poets and composers. Aruṇakirinātar's influence is evident in some later works modeled on the same lines as the *Tiruppukaḻ.* Examples include poetry composed by Kācim Pulavar (c. 18th century) and the *Cantat Tiruppukaḻ* of Aptul Kātir.[38] However, a more subtle influence of Aruṇakirinātar's work may well lie in the emergence of the so-called *coṟkaṭṭu* in (South Indian) compositional forms prevalent in the 17th and 18th centuries. These compositions feature lines of rhythmic syllables inlaid within a song. These rhythmic patterns are either identical to the underlying rhythmic structure of the song or complement it. The possible connection between these compositions and the *Tiruppukaḻ* is an interesting topic that needs further research, and will be discussed elsewhere.

University of California–Berkeley

Notes

[2] Herbert S. Wilf, *Generatingfunctionology* (1990), http://www.math.upenn.edu/~wilf/gfologyLinked2.pdf.

[3] For a photograph of this manuscript, see Parati (2002, 380).

[4] For a discussion of Aruṇakirinātar and his works, see Pillai (1975) and Clothey (1996).

[5] For a definition and the historical evolution of *tāla* units, see Ramanathan (1997).

⁶ The origins of this choice lie in the *mātra* count of the letters constituting the Sanskrit alphabet. The analogous triad in Tamil grammar would be *kuṟil, neṭil,* and *aḷepeṭai.*

⁷ Other such building blocks include the *anudruta* (1/4 *mātrā*), *druta* (1/2 *mātrā*), and the *puḷḷaṭi* or *kākāpāta* (4 *mātrās*). The last seems specific to the Tamil tradition.

⁸ For details of *Tālaprastāra,* see Sarma (2001).

⁹ All references to the text in the *Saṃgīta Ratnākara* and its commentaries are from the Adyar Library edition (Sastri 1959); the two numerals indicate chapter and verse, respectively.

¹⁰ For an analogous criticism of the *melakartha* scheme and the generation of melodic scales, see for instance, Ramachandran ([1938] 2001) and Powers (1958).

¹¹ The terms *akam* and *puṟam* represent the basic division in classical Tamil poetry. The *akam* genre concerns all aspects of love, while the *puṟam* genre is about heroism, war, and polity. For a discussion, see Zvelebil (1973). Note that the *tāla*s cited as performed in the *puṟakkūttu* (*akakkūttu*) have Sanskrit (Tamil) names. In the absence of further evidence, I am unable to speculate on this difference, except to note the intriguing correspondence.

¹² A contemporary example in North Indian classical music is the *dhamār,* where the name is used synonymously with the compositional form and the *tāla* in which it is sung.

¹³ For a discussion of *mārga* and *deśī tāla*s, see for instance, Rowell (1992); Chaudhary (1997); and Mohkamsingh (2003).

¹⁴ For a discussion on the practiced articulation of the *tāla* in South Indian music, see Wade (2004).

¹⁵ I emphasize this seemingly obvious point to compare it with current practice. Rhythmic complexity in compositional form in contemporary South Indian music is to be found largely in *pallavi* singing. But the complexity in this case has more to do with the structure of the *tāla* itself, and often, not manifest at the level of sound.

¹⁶ " . . . that distinct (melodic) sound (by virtue of being) adorned by *svara* and *varṇa* which pleases the minds of the listeners, is called the *rāga* . . . " Brhaddeœi verse 281. See Widdess (1995).

¹⁷ All references to the *Tiruppukaḻ* are from Pillai (1965); the two numerals indicate chapter and verse, respectively.

¹⁸ Here and henceforth, I use the term "syllable" as determined by the metrical duration of the sound, that is, the rules of prosody.

¹⁹ This is related to the so-called *ōcai* (lit. sound) in Tamil grammar. See Muthukumar (2008) for a further discussion.

²⁰ These texts use the terminology of Tamil grammar to label short or long (*kuṟil* or *neṭil*) sounds. I have translated these to English for clarity.

²¹ This is very different from the counting scheme in Sanskrit. The origin of this difference lies in the organization of the Tamil alphabet into vowel, consonant, and vowel-consonant; Sanskrit recognizes only vowels and consonants.

²² For a discussion of *vaṇṇam* as "aural color," see Muthukumar (2008).

²³ One may then ask why the semi-lines do not acquire the status of lines. The answer is that the metrical rules allow only four lines distinguished by alliteration (found between the syllables across successive lines, rather than semi-lines).

[24] I thank V. R. Krishnan (who discovered a hitherto unpublished *Tiruppukaḻ* verse in manuscript form in 2005) for this information.

[25] A partial list has been compiled by Ankayarkanni (1989). However, she does not seem to follow the rules discussed in this paper and hence her assignations of rhythmic structure to some verses do not agree with mine.

[26] Powers (1980).

[27] Widdess (1980/1981).

[28] This was first noticed by Pillai. See Pillai (1975).

[29] The verses composed in Citamparam also praise Murukaṉ and sometimes Aruṇakirinātar refers to the dance of Murukaṉ (rather than Naṭarāja) in Citamparam. See, for example, the last semi-line in verse 7.650.

[30] The performance of *Tiruppukaḻ* has not been studied in any detail yet.

[31] However, some verses have been sung traditionally only in certain rāgas. Though *Tiruppukaḻ* verses have been tuned and retuned by many composers during the last hundred years, these songs have been "left untouched" and it seems likely that they have been sung in the same rāgas for at least a hundred years. Verse 1.1 discussed in the final section of this paper is an example. Other examples include "*iyalicaiyil . . .* " (1.51) in the rāga *Ucēṉi,* "*nāta vintu . . .* " (1.100) in the rāga *Ceñcuruṭṭi.*

[32] This is called *koṇṭu kūṭṭal* by Tamil grammarians.

[33] In this section, I will use Indian sargam notation and scale degrees in denoting tonal positions. The texture of the note is, as always, dependent on the particular rāga.

[34] See http://www.musicindiaonline.com/music/carnatic_vocal/s/artist.14/.

[35] I have not been able to ascertain the identity of the musician who set the music for this verse.

[36] S. R. Janakiraman's exposition of the differences between these two rāgas can be heard at http://www.sawf.org/audio/tyaga/janaranjani_srjspk1.ram.

[37] The possible connection between metrical and *tāla* varieties in Indian music was suggested by Rowell (1992). However, his analysis (based on Sanskrit prosody) does not contain any examples from literature.

[38] See Uvais and Khan (1994).

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