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The Sanskrit word *tāḷa* covers the whole subject of musical meter in Indian music. A tala is a metrical framework, or structure of beats, within which pieces of music are composed and performed. In South India, as in the northern area, modern talas are cyclic; that is, a piece of music has the same repeating metrical structure from beginning to end. In this way, South Indian talas are analogous to meters in Western music. There are important differences between talas and meters, however. Talas may be much longer. One Karnatak tala is twenty-nine beats long, and in performance each cycle takes up to forty-five seconds, much longer than any Western meter. Another difference concerns accentual structure. In Western 3/4 time, every measure of this meter has the same downbeat accent: *oonee*-two-three—a strong beat followed by two weak beats. South Indian talas have no inherently strong or weak beats; instead, accents are the result of the shape of phrases.

Possibly the most striking feature of a tala is that it is not written down. It is counted gesturally, by clapping, waving, and touching the fingers sequentially to the other hand or thigh. In Western music, a measure of 3/4 time is written on paper with staves, clefs, notes, and rests, but in performance it is not usually counted aloud; a three-beat tala, however, is counted using visible gestures: a clap, a clap, and a wave (palm upward), or a clap, a touch of the pinkie (little finger) to the other hand or the thigh, and a touch of the thumb to the other hand of the thigh. The gestures that count talas are not chosen randomly but have been passed from teacher to student in an evolving transmission going back more than two thousand years.

For South Indian musicians, the human voice is the main vehicle for music. The archetypal musician is a singer who expresses with voice and hands all three of the essential features of music: melody (raga), text (*sāhityam*), and rhythmic structure (tala). All Karnatak musicians, including drummers, begin their studies by singing; many drummers who have not formally studied singing learn to sing quite well over the course of their careers. Even students of drumming can speak their rhythmic phrases so that their hands are free to show the tala.

Musicians learn the sung or spoken phrases and the gestures together, concentrating sometimes more on the sequence of the gestures, sometimes on the shapes of the phrases. The ability to feel the phrase and the beat moving together gives musi-cians

Page Image cians confidence because they can sense immediately whether a phrase is properly synchronized with the beat, and if not, how to make the necessary correction. This confidence is the basis of the rhythmic improvisation for which South Indian musicians are famous.

During a performance of Karnatak music, one or more of the on-stage musicians keeps the tala, as performing the gestures is called. This is normal practice; the tala is as much a part of the music as the raga or the text. Informed listeners enthusiastically clap out the tala beats along with the performers, making Karnatak music participatory to an extent not common in Western concerts. Listeners who keep the tala find that their movements enhance their understanding, and therefore enjoyment, of the music. By uniting their visual, auditory, and tactile senses in attending to the

music, they access a level of detail not far removed from that which the musicians are experiencing. This sort of "dancing in place" is comparable with finger snapping or foot tapping in jazz, another music in which energetic rhythms inspire listeners to move with the musicians.

TALA HAND GESTURES

Karnatak musicians count time by clapping (one hand moving up and down against the other), touching the fingers on the hand or thigh, and turning the palm up in a hand wave. These types of gestures, called *kriyā*, are the only ones used to reckon talas in modern times; older musical texts list several others, but none continues to be used. Gestures fall into two general categories: sounded like the clap (*taṭṭu*); and unsounded like the finger count and hand wave (*vīccu*). In performance, both categories are likely to be audible, though the clap is clearly the dominant sound. *Kriyā* belongs to a group of rhythm-related concepts that have come to be known as *tāḷa-daśaprāṇa* 'ten life-breaths of tala'. These are *kriyā, anga, jāti, kāla, kaḷai, graha* (*eḍuppu*), *laya, yati, prastara*, and *mārga*. Most theoretical treatises from Bharata's *Nāṭyaśāstra* onward discuss at least some of them, and this article covers the first nine.

The gestures function somewhat differently in the three types of tala in current use. These types—*sūlādi sapta tāḷa*, the *cāpu tāḷa*, and the *tiruppugaḻ tāḷa*—represent the influences of music theory, folk music, and ancient hymnody respectively.

THE PRIMORDIAL SEVEN TALAS

The composer and musicologist Purandara Dasa (1484-1564) codified the theory of his day into exercises still used by musicians. His scheme, called *sūlādi sapta tāḷa* 'primordial seven talas', employs three groupings of gestures, called *anga*: the *laghu*, made up of a clap followed by counts on the fingers, the *drutam*, a clap followed by a wave of the hand, and the *anudrutam*, a solitary clap. These gestures are normally made with one hand striking the other hand or the thigh. Only the *laghu* may have different numbers of beats; the *drutam* is always two beats long, and the *anudrutam* is always one beat. Each grouping is assigned a symbol: for the *laghu*, a vertical line (pipe]); for the *drutam*, a circle ( ); and for the *anudrutam*, a half-circle (⌣).

The primordial seven talas are made up of groupings arranged in the following ways (each arrangement represents one cycle of the given tala):

dhruva tāḷa: laghu + drutam + laghu + laghu (| |)

maṭya tāḷa: laghu + drutam + laghu (|)

āṭa tāḷa: laghu + laghu + drutam + drutam (|)

jhampā tāḷa: laghu + anudrutam + drutam (| ⌣)

tripuṭa tāḷa: laghu + drutam + drutam (|)

rūpaka tāḷa: drutam + laghu ( )

ēka tāḷa: laghu (|)

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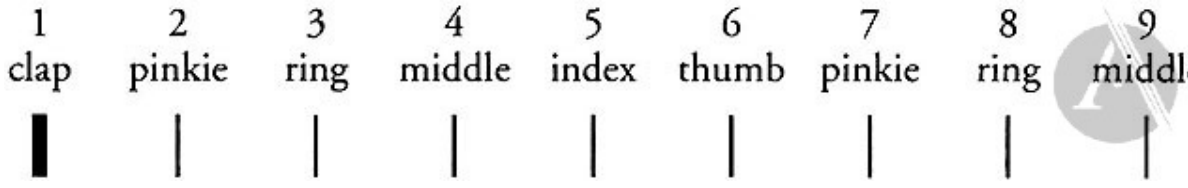

FIGU
A nin
beat
sanki
jāti)

laghu, showing the appropriate gesture for each beat.

The number of beats in a *laghu* depends on which of the five possible families (*jāti*) of rhythm it belongs to:

caturaśra jāti, four beats

tiśra jāti, three beats

miśra jāti, seven beats

khaṇḍa jāti, five beats

sankīrṇa jāti, nine beats

A four-beat *laghu* is counted as follows: clap, pinkie, ring finger, middle finger. Finger counts always start with the pinkie touching the thigh or palm of the other hand, then the ring finger, and so on. For the seven- or nine-beat *laghu*, which have more beats than a musician has fingers on one hand, the finger counts (starting on beat 2 following the clap) return to the pinkie for beat seven, and so on. Figure 1 shows a nine-beat *laghu*.

In any given tala structure, the *laghu* is always the same length. For example, a cycle of five-beat *laghu dhruva tāḷa* has three *laghu* (*laghu* + *drutam* + *laghu* + *laghu*), each of which is five beats long, so the cycle's total number of beats is seventeen (5 + 2 + 5 + 5). We can calculate how long any cycle is by knowing the name of its family (the number of beats in its *laghu*) and its structure (the name of the tala). The shortest possible tala in Purandara Dasa's scheme is three-beat *laghu ēka tāḷa*, with a single laghu of three beats. The longest possible tala is nine-beat *laghu dhruva tāḷa*, with twenty-nine beats (9 + 2 + 9 + 9).

The result of combining the seven tala structures with the five classes of rhythm is that each tala structure has five possible numbers of beats per cycle, producing thirty-five different talas. Using *tripuṭa tāla* (*laghu* + *drutam* + *drutam*) as an example, the following five cycles are possible:

four-beat *laghu tripuṭa tāḷa:* 4 + 2 + 2, or eight beats per cycle

three-beat *laghu tripuṭa tāḷa:* 3 + 2 + 2, or seven beats per cycle

seven-beat *laghu tripuṭa tāḷa:* 7 + 2 + 2, or eleven beats per cycle

five-bear *laghu tripuṭa tāḷa:* 5 + 2 + 2, or nine beats per cycle

nine-beat *laghu tripuṭa tāḷa:* 9 + 2 + 2, or thirteen beats per cycle

The order in which the classes of rhythm are listed, with their numerical values, raises important questions. Why are they not arranged in ascending order of three, four, five, seven, and nine? or in descending order? Why are there no classes of six and eight? Perhaps most interesting of all: why is three the smallest number among them? What happened to two?

For answers, we must turn to ancient sources. In the oldest known treatise that refers to Indian music, the *Nāṭyaśāstra* (c. 200 B.C.- A.D. 200), only certain talas were accepted as legitimate for sacred music. Though that music bore little, if any, relation to modern South Indian music, present-day Karnatak musicians place great value on connections with ancient times, and consequently some traces of ancient theoretical ideas survive. Talas acceptable at the time of the *Nātyaśāstra* were based on the numbers four (*caturaśra* 'four-sided') and three (*tryaśra* 'three-sided'). These names suggest

Page Image that early Indian notions of tala incorporated a kind of spatial character. Such notions would explain the absence of a tala based on two, since three is the smallest number of sides that can enclose a space.

As centuries passed and the scope of acceptable influences broadened, other talas became legitimate.

Eventually, seven (*miśra* 'mixed'), five (*khaṇḍa* 'broken'), and nine (*sankīrna* 'all mixed up') entered the realm of legitimacy. Purandara Dasa's scheme preserves this historical order of acceptance.

Purandara Dasa did not invent these talas or the symbols used for the groupings of gestures; they can be found in ancient music-theory texts. By looking at these old books, it is impossible to know just how a tala would have been used in the music, since the songs were not written down. Purandara Dasa's contribution was to compose musical exercises for all seven and to teach these to his students, who in turn taught them to their students, and so on. Because musicians have continued to use these exercises since his time, they may represent an accurate picture of how talas were used as far back as the 1500s.

The thirty-five-tala scheme is a mainstay of Karnatak musical pedagogy, and musicians sometimes use its less common talas to create short, strenuous compositions called *pallavi*. But musicians regularly use few of the talas listed within it. In fact, only the following five are in common use:

five-beat *laghu āṭa tāḷa*, a fourteen-beat cycle (figure 2 *a*)

seven-beat *laghu jhampā tāḷa*, a ten-beat cycle (figure 2 *b*)

four-beat *laghu tripuṭa tāḷa*, the formal name for the eight-beat *ādi tāḷa* (figure 2 *c*)

four-beat *laghu rūpaka tāḷa*, a six-beat cycle (figure 2 *d*) almost always counted as three beats (figure 2 *d*′)

three-beat *laghu ēka tāḷa*, a three-beat cycle (figure 2 *e*)

One of these talas, four-beat *laghu rūpaka tāḷa*, presents an interesting case of a tala with two identities. Within Purandara Dasa's scheme, it should be counted as two plus four, with a clap and wave (*drutam*), followed by a clap and three counts (four-beat *laghu*) (figure 2 *d*). In practice, though, it is only rarely counted this way. It is virtually always counted as a three-beat cycle: a clap (*anudrutam*) followed by a clap and a wave (*drutam*) (figure 2d′). Even in slow-tempo *rūpaka tāḷa*, in which the normal practice is two counts per beat, musicians use the three-beat mode of counting.

In Purandara Dasa's time, *rūpaka tāḷa* was possibly counted as a six-beat cycle. It may have existed as a widely used three-beat cycle, and Purandara Dasa wanted to include it in his scheme. To fit into the seven-tala system, it had to include a *laghu* so it could be varied according ro the classes of rhythms. However, Purandara Dasa may have reasoned that calling it a six-beat cycle with claps on beats 1 and 3 (for the *drutam* and *laghu*) would be similar enough to a three-beat cycle with claps on beats 1 and 2 that musicians would accept it as equivalent. They would not have to change their *rūpaka tāḷa* performance, and he would have his generative tala cycle. A third possibility is that by custom over time, a three-beat count has replaced the more theoretically proper six-beat count.

The beat in the primordial seven talas

Purandara Dasa's legacy is largely oral. Every student of Karnatak music learns to play or sing his set of exercises (*alankara*) in all seven talas, and all learn his thirty-five-tala scheme. Any student can count out the longest and the shortest cycle (*āvarta*). Even though he did not write a text, musicians are in general agreement about the essential features of his system.

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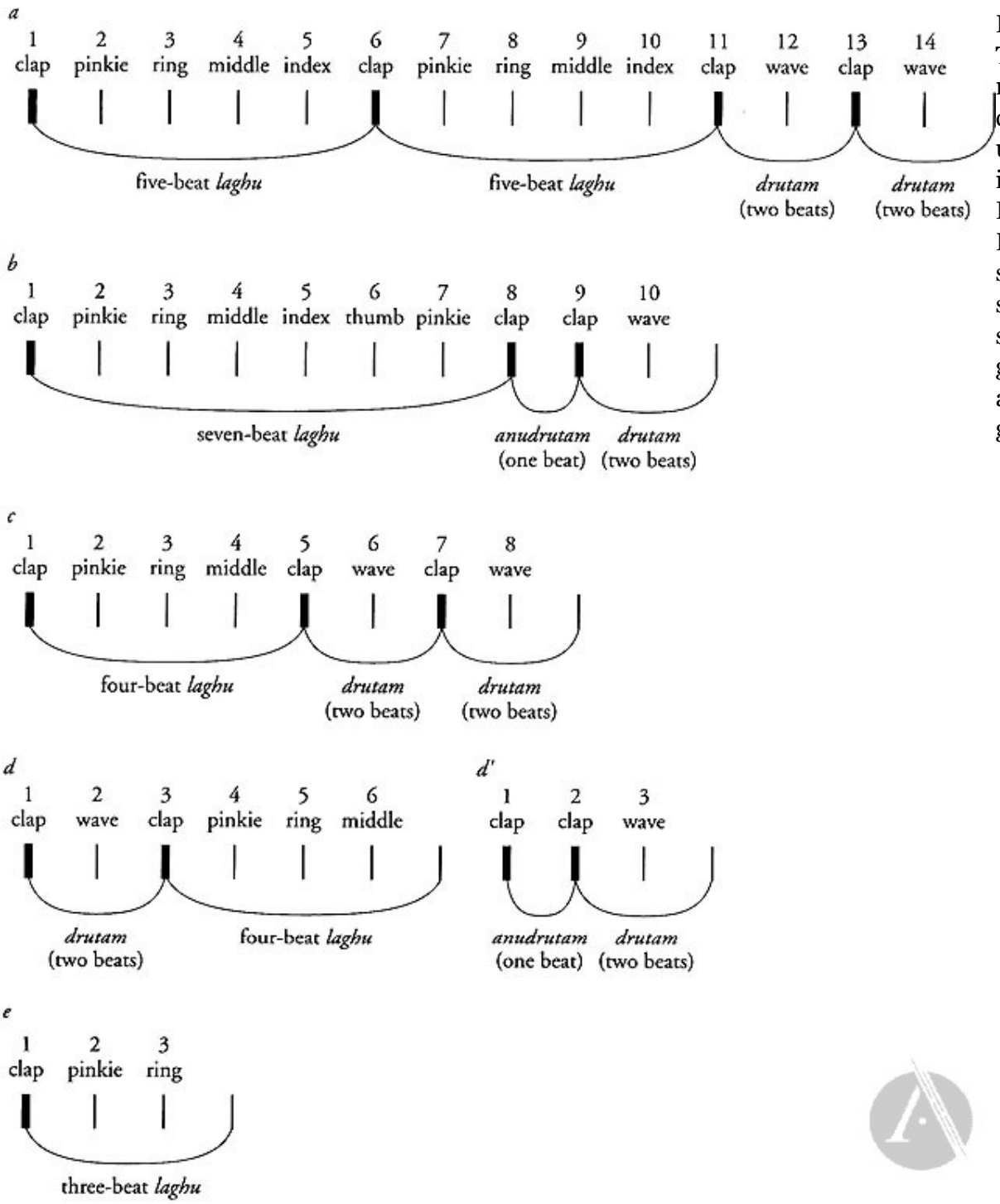

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groupings: *a*, five-beat *laghu āṭa tāla; b*, seven-beat *laghu jhampā tāla; c*, four-beat *laghu tripı tāḷa* (*ādi tāl.a*); *d*, four-beat *laghu rūpaka tāla and d'* as usually counted;e, three-beat *laghu ēk tāla*.

Since his day, musicians and musicologists have given much attention to the internal structure of the beat (*akṣara*), a subject at which Purandara Dasa's exercises only hint. Karnatak musicians think of beats as syllabic groups (*mātrā*). This idea is not new; an old Indian music text defines a beat as "the length of time it takes to speak five short syllables." As an example of this kind of thinking, try speaking the four-syllable phrase *take it Toni* four times, clapping on the first syllable each time. The syllabic groups help make the beats move evenly. These groups usually have four

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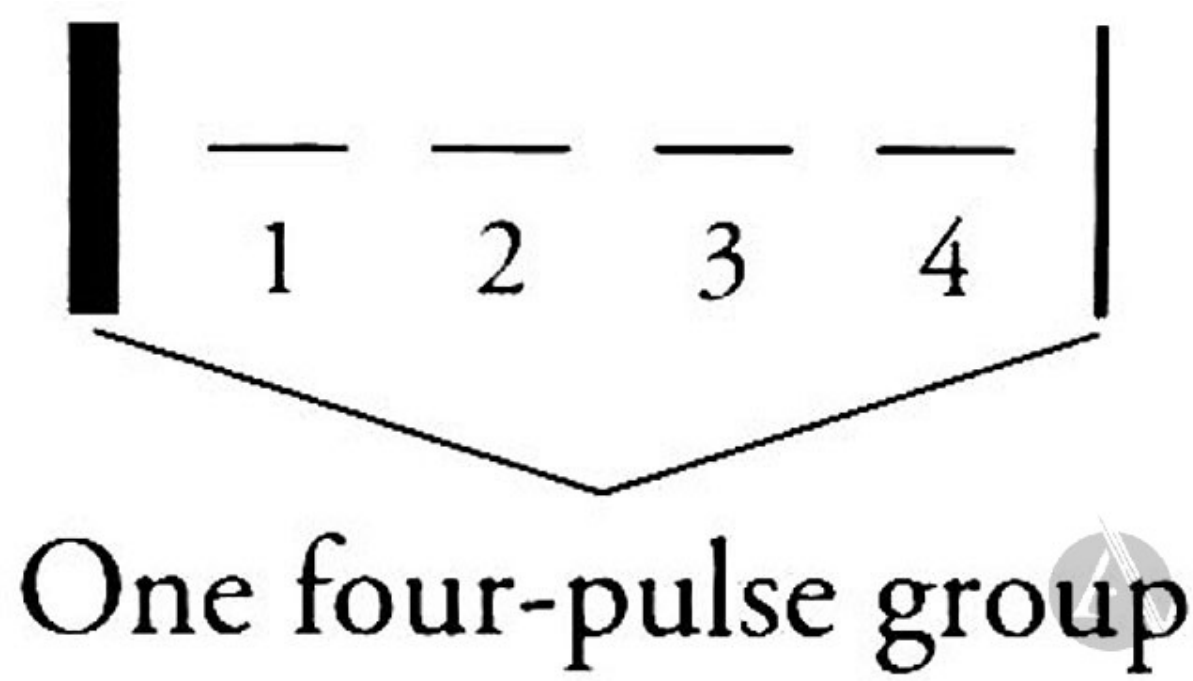


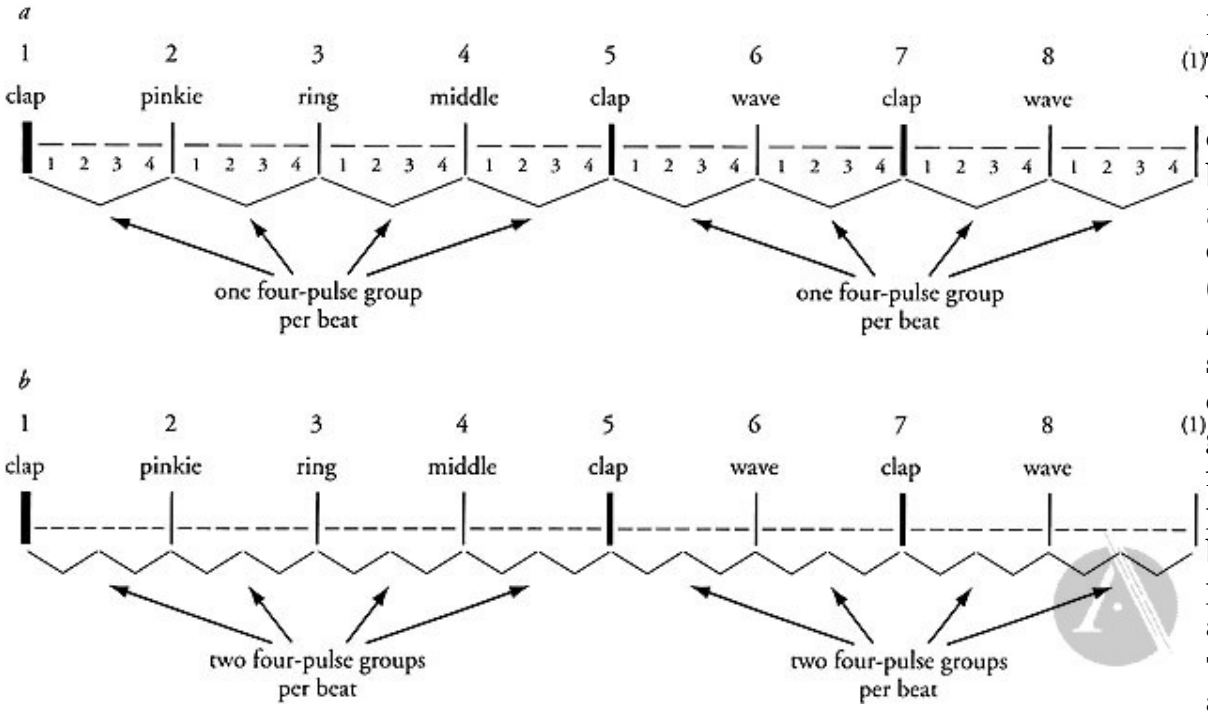
FIGU
3 On
beat

subdivided into a four-pulse group; the dashes show potential notes or rests.

syllables, or pulses. There are no strong or weak pulses, but each syllable may be stressed, sounded, or silent, depending on the musical phrase, as in *TAKE it TOni, TAKE it TOni, TAKE it TOni, TAKE it TOni*, or in *take it TOni, take it TOni, take it TOni, take it TOni*. Rests or silent pulses can substitute for any of the syllables. A short dash (—) representing the omitted syllable signifies a rest the same length as the syllable. So the phrase still has four pulses, but the second one is silent: *take — Toni, take — Toni, take — TOni, take — Toni*. Since any of the syllables may fall out in favor of a rest, it will perhaps be more helpful to call these groups pulse groups. Figure 3 shows a beat with a four-pulse group. The dashes indicate potential notes or syllables.

Although four is the most common pulse group of a beat, there are other possibilities: three, five, seven, and nine. These are the same numbers that make up the *laghu* in the thirty-five-tala scheme; when used to describe the pulse group that subdivides a beat, they are called *gati* 'way of walking'. To get a sense of the effect of different subdivisions of the beat, try the following phrases the same way as before. Speak each phrase several times, clapping on the first syllable every time:

three-pulse group:	||take| To|ni ||take| To|ni
four-pulse group:	||take| it| To|ni ||take| it| To|ni
five-pulse group:	||take| it| to| To|ni ||take| it| to| To|ni
seven-pulse group:	||take| it| o|ver| to| To|ni ||take| it| o|ver| to| To|ni
nine-pulse group:	||take| all| of| it| o|ver| to| To|ni ||take| all| of| it| o|ver| to| To|ni



FIGU
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beat,
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b, two-count (*reṇḍu kaḷai*), showing two pulse groups of four pulses each per beat, played at a r
36 to 60 a minute.

A tala that makes use of only one pulse group per bear is called a one-count (*oru kaḷai*) tala. Figure 4 *a* shows the most common tala, the eight-beat cycle known as *ṣadi* 'ancient, primordial' *tāḷa*, as a one-count tala with one four-pulse group per beat. The beats are numbered, and the gestures are shown in the top lines. The dashes between the lines represent the four pulses in each beat, totaling thirty-two pulses per cycle.

Page Image

More than one pulse group may occur in each bear, producing a long cycle. In *ādi tāḷa*, for instance, there can be two pulse groups per beat, as in figure 4 *b*. This is called two-count (*reṇḍu kaḷai*) *ṣadi tāḷa*. As one might expect, a cycle of two-count *ādi tāḷa* takes twice as long as a cycle of one-count *ādi tāḷ*. Though both versions have eight beats, the two-count version has sixty-four pulses (twice as many), and these move at more or less the same rate as those in the one-count version. A musician composing a slow, stately, serious song will often use a two-count tala.

An understanding of pulse groups can be helpful in following the tala at a concert of Karnatak music. A listener who knows that *ādi tāḷ* is an eight-beat cycle may notice that the musicians count twice on each beat in some songs and only once in others. Double counting is a nearly universal habit of performance in two-count talas. A cycle of *ādi tāḷ* is always eight beats, but musicians find it convenient to mark both the first and second pulse groups of each beat, giving the appearance that they are counting a sixteen-beat cycle.

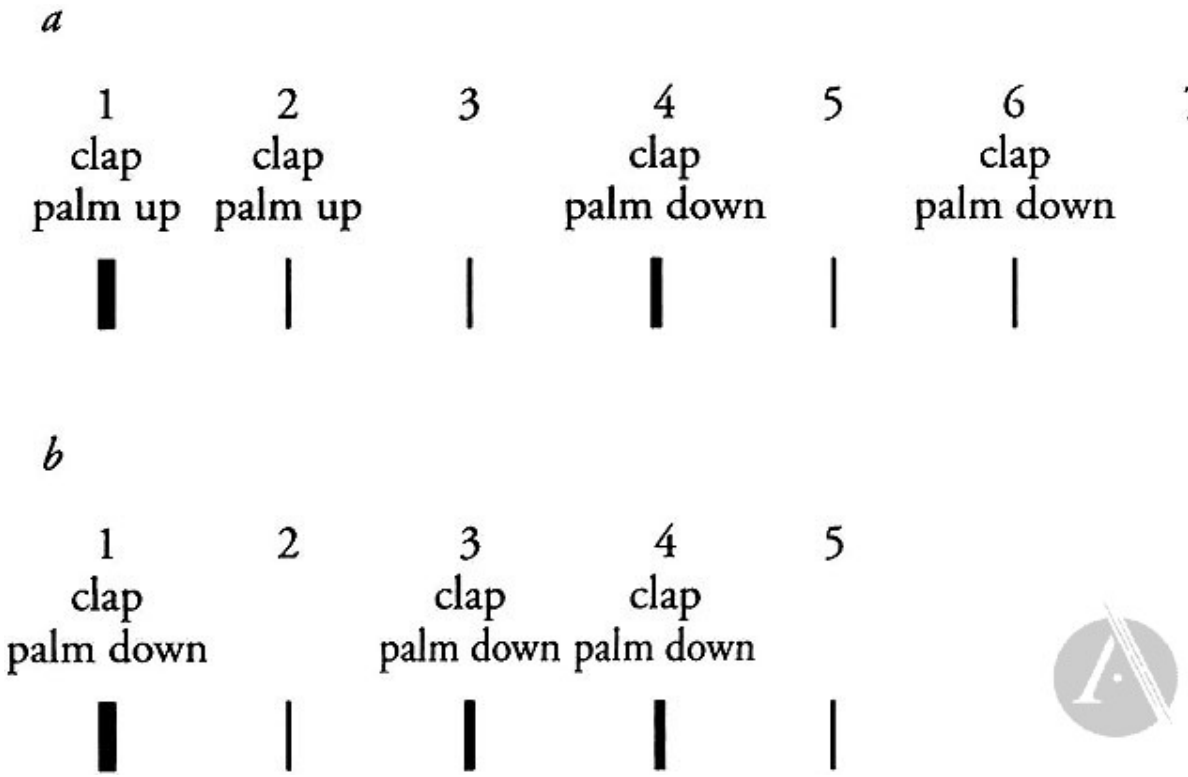
THE CAPU TALAS

Karnatak music probably absorbed the *cāpu* talas from folk music or other nonclassical traditions. These talas are characterized by simpler gestures and much shorter cycles than those of the primordial seven talas. *Miśra cāpu tāḷa*, a seven-beat cycle and by far the most frequently used *cāpu* tala, is counted by claps with the palm up on beats 1 and 2, followed by claps with the palm down on beats 4 and 6 (figure 5 *a*). *Khaṇḍa cāpu*, five beats long, is counted by three claps with the palm

down on beats 1, 3, and 4 (figure 5 *b*).

Since the gestures used in the *cāpu* talas are not grouped into the three divisions (*drutam, anudrutam*, and *laghu*), there is some flexibility in how people use the hand while counting them. In *miśra cāpu*, the clap on the second beat may be left out, making the gestures for this tala identical to those of the *rūpak tāl* of North Indian music. In *khaṇḍa cāpu*, the first clap may be with the pa up or down, though it is normally consistent once established. In genetal, musicians use the same gestures their teachers use.

Cāpu talas often move more quickly than those in the seven-tala scheme, so notions of pulse group and double counting do not usually apply. Normally, two comfortably pronounced syllables or pulses fit into each beat. Though these talas are much shorter than others, they are not less important. Musicians and composers favor them, and some of the most stately and beautiful Karnatak songs are set in *miśra cāpu tāḷa*.



FIGU
Two
talas:
miśr
cāpu
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beats
khaṇ
cāpu
tāl.a,
beats
the fi
two c
in *mi*
cāpu
the p
is up;
the la
two,
down

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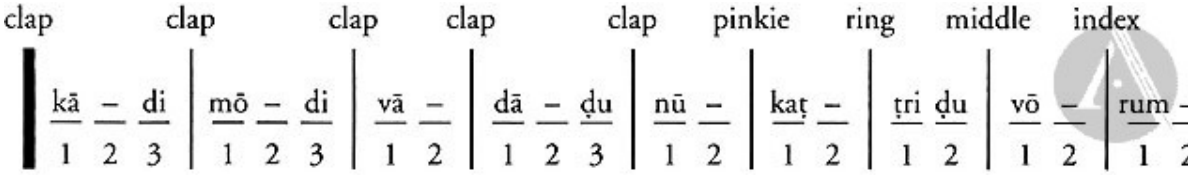

FIGU
6 Firs
line c

tiruppugaḻ by Arunagirinadar (sixteenth century), showing tala beats as they are normally recko

THE TIRUPPUGAḺ TALAS

The sixteenth-century composer Arunagirinadar left a body of devotional songs that have become popular among South Indian musicians. These songs, known as *tiruppugaḻ*, are performed without any improvisatory elaboration and almost always near the end of a concert. The tala in which a

tiruppugaḻ is performed usually matches the syllabic content of the text exactly. The number of syllables in these texts does not necessarily conform to the number of syllables in modern talas, and syllables are often counted with nonstandard gestures. Figure 6 shows a *tiruppugaḻ* text line of twenty-one syllables or pulses, arranged according to a 3 + 3 + 2 + 3 + 2 + 2 + 2 + 2 + 2 accentual pattern and repeated in every line of the song. Modern musicians apply claps and counts that fit this scheme, including a convenient 3 + 3 + 5 + 10 hand pattern, though it does not match any of the primordial seven talas or the *cāpu* talas.

Many musicians feel that this connection between tala and syllabic structure reveals something about the original meaning of tala. Modern musicians, however, have only the sketchiest information about how these songs would have sounded in Arunagirinadar's time. The performance of *tiruppugaḻ* seems to represent modern Karnatak musicians' desite to establish a link with antiquity, rather than a continuous flow of material from the past.

TALA AND MUSICAL STRUCTURE

The setting of a musical text (*sāhityam*) within a tala adds a vibrant aspect that is missing in the discussion of tala as pure structure. Animated by poetry, a tala becomes a charged field of demands and possibilities.

The most commonly encountered Karnatak vocal and instrumental form is the *kriti*. It usually has three distinct sections: *pallavi, anupallavi*, and *caraṇam* [see K ARNATAK V OCAL AND I NSTRUMENTIAL MUSIC]. The *pallavi* is usually the shortest, lasting from two to four or five tala cycles. In figure 7, it is four cycles long; to sing it once takes less than ten seconds. The *anupallavi* is usually about the same length, but may end with a passage of text or solfege in double tempo. The *caraṇam*, the last and longest section, often echoes the melody of the *anupallavi* toward its end and usually repeats its double-time passage, if there was one. A vocalist repeatedly sings all these text lines, offering progressively elaborate variations (*san.gati*).

The earlier discussion of tala structure established four or eight pulses as the "size" of a beat, measured in spoken groups of short syllables. The sung syllables of a *kriti* move at half that speed for two reasons. First, the composer, who is almost always a singer, wants to be sure the words of the song are understood. Second, Karnatak songs are highly melismatic: a single syllable of text may be sung to several musical notes.

In Karnatak music, this kind of ornamentation is part of a song, but within strict rhythmic boundaries marked by the structure of the talas and pulse groups. Figure 8 *a* shows the counts and pulses of the first section (*pallavi*) of a stately and popular *kriti* by Muttusvami Diksitar, *Mīnākṣī mēmudam*; the song is set in two-count *ādi tāḷa*, with eight beats and sixty-four pulses. There are only eight text syllables in the first cycle. A vocalist will sing these syllables to an elaborate, melismatic melody regulated by the pulse groups, shown as dashed lines below the text.

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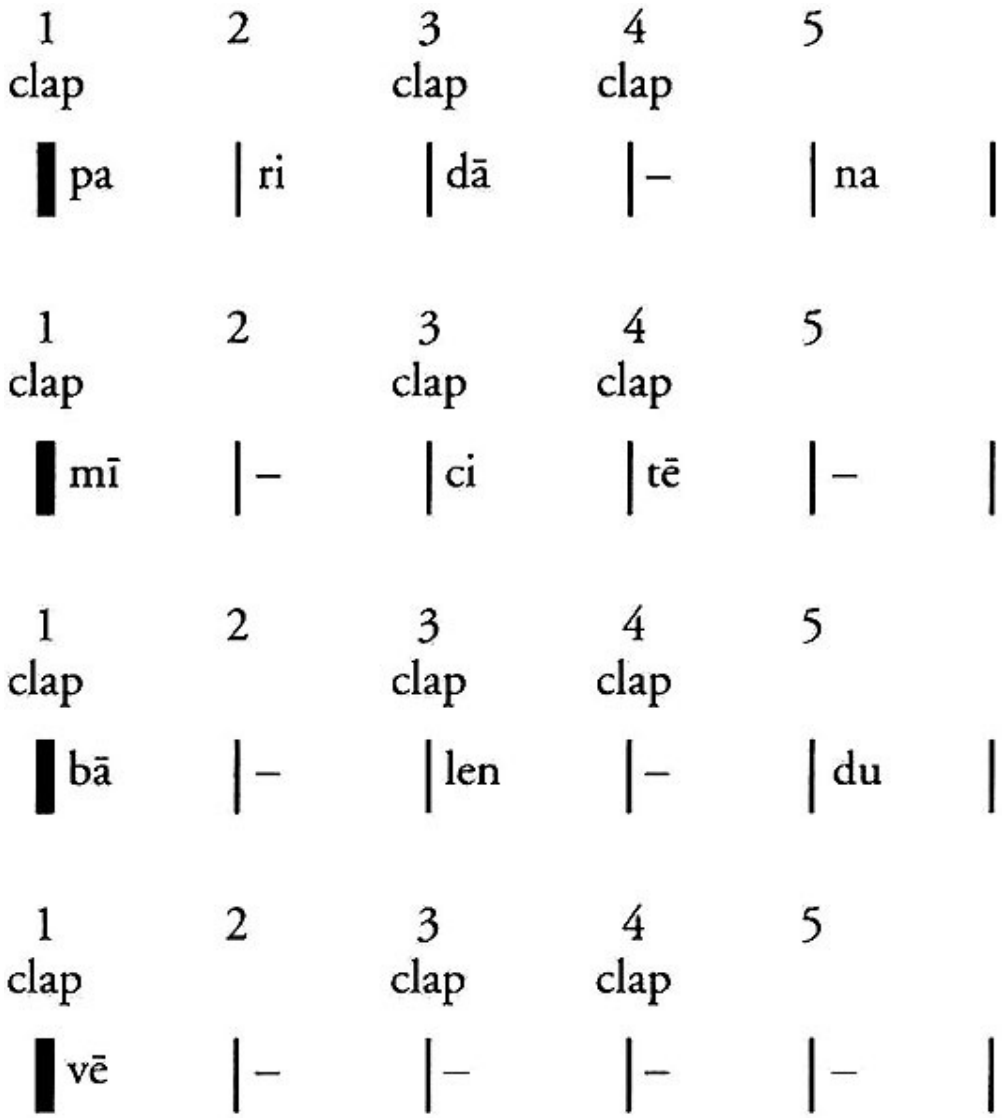

FIGU
First
sectic
palla
Paric
mīcit
kriti
Patna

Subramania Ayyar (1845-1902), in *bilahari rāga, khaṇḍa cāpu tāḷa*, showing the rhythmic setti the text.

The most important point in a tala is the point at which a text begins (*eḍuppu*). This is most commonly on the first beat (*sam*) or within the first two beats, but it can also be just before the first beat. Figure 9 shows a two-count beat, with the most common starting points. Different sections of a song may start at different points within the tala cycle. Even within a section, the start of one line of text may differ from that of the next. In figure 8 *b*, the beginning of the third and last section (*caraṇam*) of *Mīnākṣī mēmudam*, the starting point has shifted from beat 1 to beat 1 1/2.

Another important point in a tala cycle is the resolution (*arudi*). In long, slow talas such as two-count *ādi tāḷa*, if a text does not start on the first beat (which weakens the rhythmic force of that beat), a composer will often set the text so that a strong rhythmic resolution point occurs somewhere in the middle of the cycle. This point helps to anchor such a slow cycle. In figure 8 *b*, it is on beat 5, and coincides with the syllable *yē*. In shorter cycles such as the seven-beat *miśra cāpu*, it coincides with the first beat of a later cycle. The start and the resolution are important targets in melodic and rhythmic improvisation.

Karnatak composers use other devices to generate rhythmic interest within their songs. One of these is to include a passage with a lot of words and few ornaments at the end of a section. In *Mīnākṣī*

mēmudam, the composer has added such a passage at the end of the *caraṇam* (figure 8 *c*). The starting point for this passage has returned to

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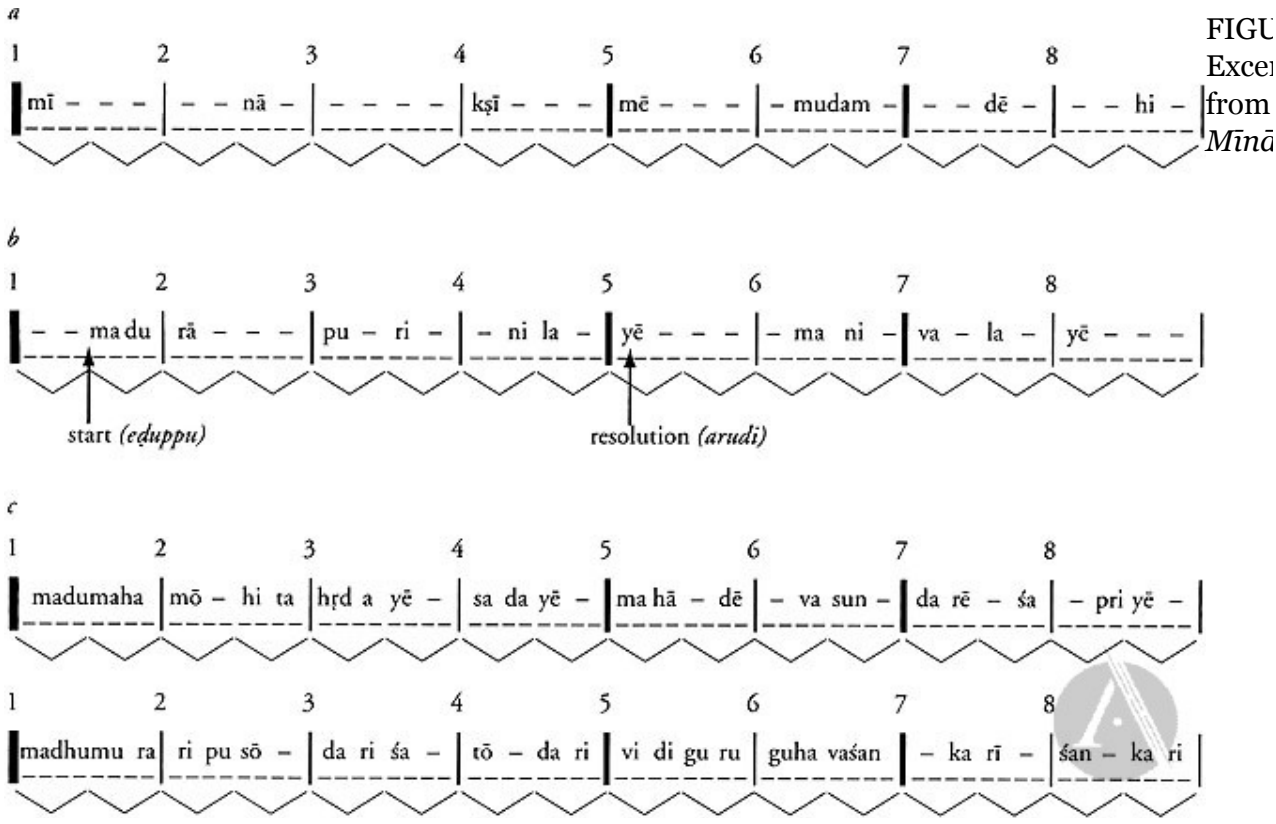


FIGU
Excer
from
Mīnā

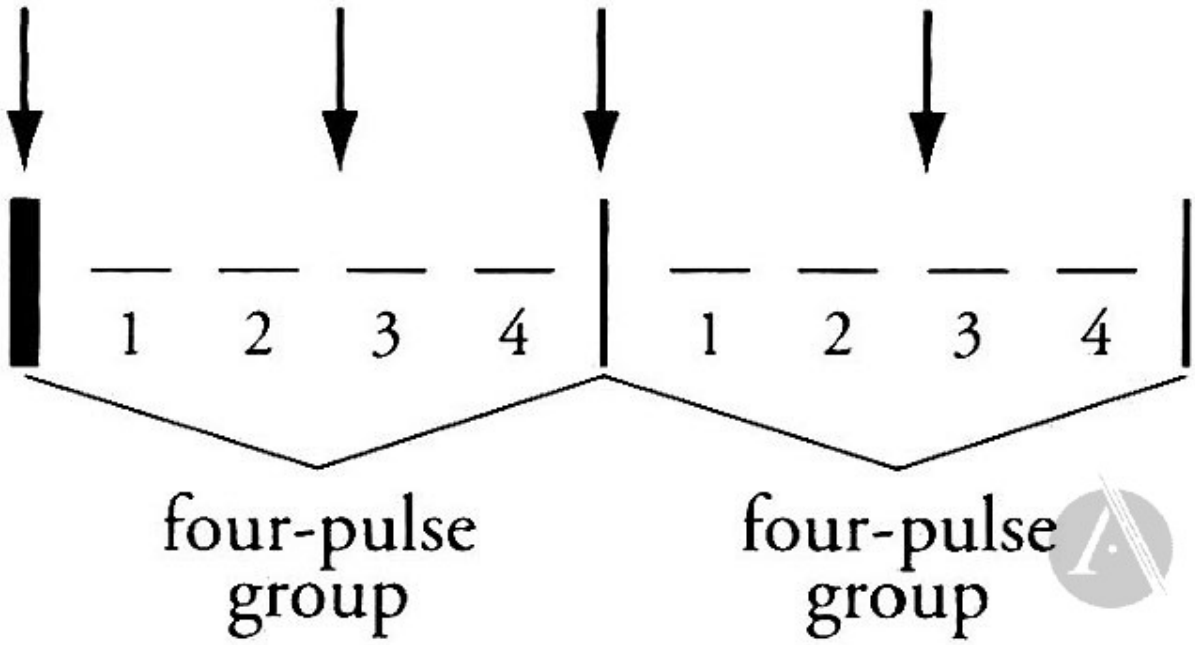
mēmudam, a *kriti* by Muttusvami Diksitar (1775-1835): *a*, first line of the first section (*pallavi*); first line of the third section (*caraṇam*), showing the starting point (*eḍuppu*) and the resolution point (*arudi*) of the text in the tala cycle; *c*, end of the third section (*caraṇam*). Each sung syllab occurs every two pulses. Thus, within each numbered section (1, 2, and so on) representing one b each text syllable or dash (representing the absence of a syllable or a continuation of the previou syllable) is aligned with two short dashes (representing pulses) on the line beneath.

the first beat. Because these passages have more words, they generate rhythmic momentum that effectively balances the much slower, heavily ornamented textual movement in the earlier parts of the song.

Another device for generating rhythmic interest is rhythmic shape (*yati*), the repetition of a musical idea in progressively shorter statements, progressively longer statements, or some combination of the two. These shapes occur ar all levels of musical structure, but they are easiest to demonstrare at the level of the phrase. The text in figure 10 *a*, an example of the cow's-tail shape (*gopucca yati*), follows an orderly reduction, Each stage of the reduction is a meaningful Sanskrit expression. The reverse of cow's tail is river mouth (*srotovaha*), as shown in the next example from the same song (figure 10 *b*). Again, each of the stages is a meaningful expression.

Other rhythmic shapes include the hourglass (*damaru yati*), named for the shape of the drum played by the god Shiva. The hourglass moves from long to short, then from short to long. Its opposite, *mridanga*, named for the barrel-shaped drum *mridangam*, is wider in the middle than at the ends. Two other shapes, all-the-same (*sama*) and random (*visama*), complete the six

possibilities Karnatak musicians use. Rhythmic shape is a powerful tool in melodic and rhythmic improvisation, and in composition.



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Tala and rhythmic improvisation

Several times during a concert, Karnatak musicians extend songs by improvising on them. Some of this improvisation occurs during an unmetered introduction before the song (and therefore the tala) begins, and does not concern us here. But three types of rhythmic improvisation take place within the tala. Two of these, *niraval* and

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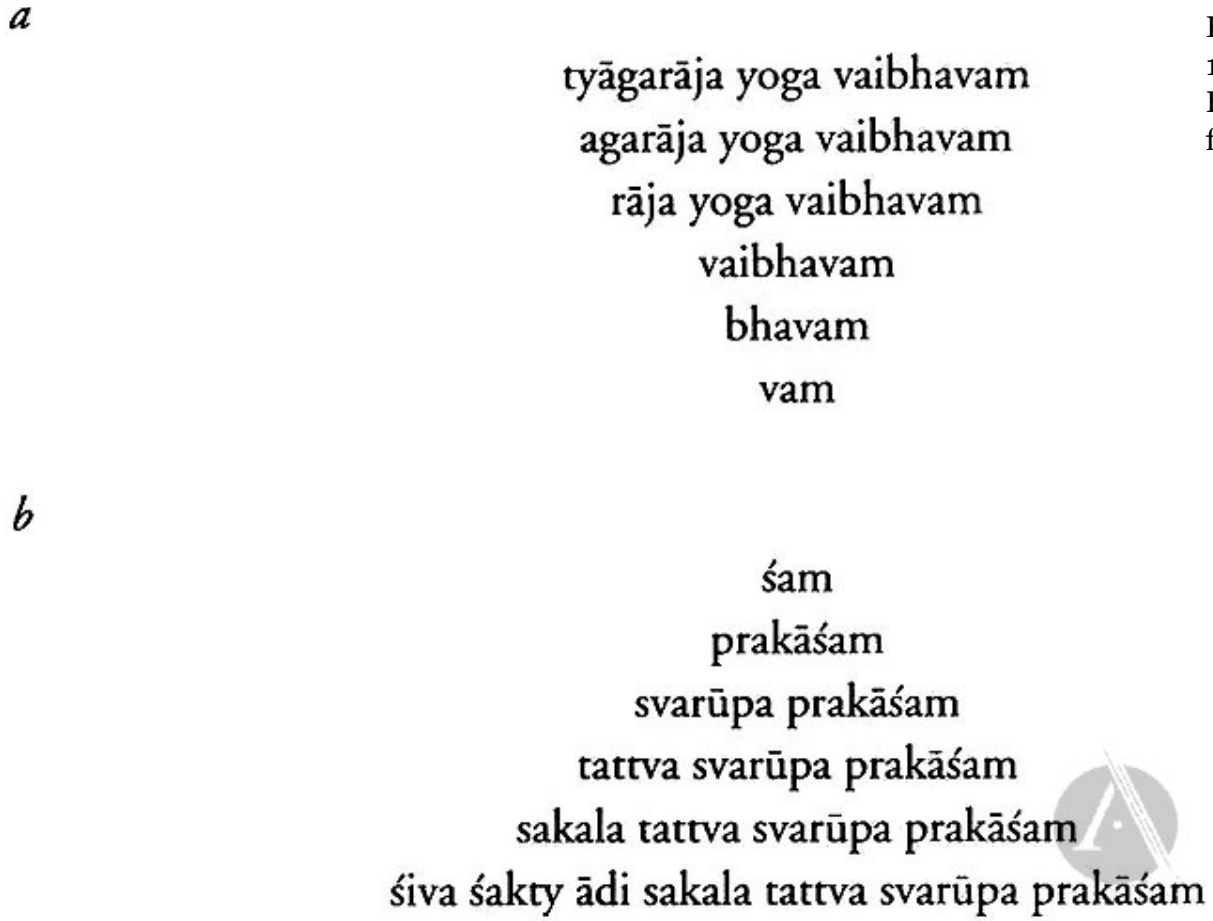

FIGU
10
Excer
from

Tyāgarāja yoga vaibhavam, a *kriti* by Muttusvami Diksitar (1775-1835) in *ānandabhairavi rāg rūpaka tāḷa*: *a*, end of the first section, showing a long-to-short pattern (*gopucca yati*); *b*, end o second section, showing a short-to-long pattern (*srotovaha yati*).

svara kalpana, involve melodic ideas as well as rhythmic ones. The third is the drum solo (*tani āvartanam*; see below), which happens in only one song per concert.

In *niraval*, the singer improvises on the melody of a text line while leaving the rhythmic setting of the words constant. The singer may choose any line from any section of the song for its lyrical and textual richness. Since *niraval* involves melodic elaboration on a text, singers most often utilize it, but it can also be used effectively by sensitive instrumentalists.

A musician usually begins *niraval* slowly, so that the text is clearly understandable. As the performance gathers in intensity, its focus shifts away from the words and more toward the melodic line; each text syllable may take on florid ornaments. This ornamentation progresses until the actual syllables are all but unintelligible. The increased density of notes, as in all forms of Karnatak improvisation, takes place without an increase in the speed of the tala. South Indian musicians double the number of notes per beat, say from four pulses to eight, and strictly maintain one tempo throughout a song, including its improvised sections. This approach provides a contrast with Hindustani music, in which musicians speed up the tala at later stages of a composition.

At the densest stage of *niraval*, the musician introduces *svara kalpana*, an improvisation that uses sol-fa syllables instead of words. Imagine a jazz singer scat-singing with the syllables *do re mi fa so la ti do* instead of the made-up syllables one usually hears. Now imagine that every one of these solfege phrases resolves by returning to the first words of the song, and you will have an idea of *svara kalpana*. Like *niraval*, this improvisation begins in a slow tempo; it gathers momentum and intensity

as the musicians trade phrases. Solfege improvisation may be brief (just a few phrases), or it may go on for as long as musicians keep thinking of ideas.

In solfege improvisation, musicians adopt two broad rhythmic strategies. Some, preferring not to think much about complicated rhythms, let their notes flow with the pulse of the tala. This approach is called time flow (*sarvalaghu*). More rhythmically energetic musicians work out patterns and designs that generate great tension with the tala. This approach is called calculation (*kaṇakku*). Either method can go too far. Sometimes avoidance of rhythmic complexity is an excuse for not developing strong rhythmic control (*laya*). At the other extreme, too much complexity results in rhythmic gymnastics at the expense of beauty. The best Karnatak improvisers make judicious use of both approaches, using time flow to draw attention to beautiful melodic ideas and calculation to reveal aesthetic aspects of rhythmic order.

Page Image

Musical forms and conventions

The *kriti* is the form most likely to be expanded and decorated by improvisation, but it is not the only musical form used in Karnatak music. Two other genres, concert études (*varṇam* 'color') and songs accompanying classical dance, provide examples of the relationship between tala and musical structure.

Classical études

The *varṇam* is an important form in the study of raga. A *varṇam* has little text, and elaborate ornaments and phrases provide the essential features of its raga. The best compositions are rich enough sources of musical insight that musicians learn them early in their musical careers and continue to practice them.

Because the *varṇam* has the character of an extremely sophisticated étude, musicians often experiment with its rhythm. A musician might perform a *varṇam* in an extremely slow tempo at one concert, at twice that speed at the next concert, and with each section in a different tempo at a third concert. Only the musician's imagination, taste, and willingness limit such an approach. This kind of flexibility does not exist when the same performer sings a *kriti*, for each *kriti* has its appropriate tempo (*kālapramana*), and musicians are strict about keeping it.

The manner of performing a *varṇam* is a matter of personal preference and learned style. Some musicians, disapproving of overtly rhythmic manipulation, do not teach their students these approaches. But nothing prevents rhythmically adventuresome students from working out how to perform them. Conversely, teachers who stress rhythmic knowledge (*laya gñānam*) are likely to encourage their students, even those who lack the interest or capacity for it, in such efforts.

Songs accompanying classical dance

Bharata nāṭyam, South India's classical dance, has its own literature of music and its own relationship with tala. In it, the dancer interprets or acts out the text. A rare dancer may be gifted enough to improvise such an interpretation, but the performance is usually precomposed or choreographed by a master (*naṭṭvanār*) and layered over the song, which may have been composed centuries earlier.

Choreographed material in classical dance is of two general types: pure, or noninterpretive (*nritta*), and interpretive (*nritya*). Noninterpretive dance sections of a performance are made up of rhythmically energetic patterns of movement (*aḍavu*) emphasizing drumlike footwork, leaps, and other physically demanding movements. Highly percussive footwork provides a distinct rhythmic counterpoint to the tala, which the accompanist plays on cymbals (*tāḷam*), and to the text. In

keeping with South Indian use of the voice as the fundamental musical vehicle, classical dancers use spoken syllables as a verbal notation for their footwork, in much the same way that Indian drummers use syllables as a notation for drumming.

TALA AND THE DRUMMER

The main percussion instrument of South India is the *mridangam*, a double-headed barrel-shaped drum made from a hollowed-out piece of jackwood about 60 centimeters long. Its heads are made from the hides of goats, cows, and buffaloes, and its right head (for a right-handed player) is precisely tunable thanks to the addition of a semipermanent tuning paste. The left head, also tunable to an extent but not so precisely, provides a low, booming sound. The *mridangam* is played with the fingers and palms and can produce about twenty distinct sounds. Other South Indian percussion instruments include a lizardskin frame drum (*kañjīrā*), and a tuned clay pot (*ghaṭam*); these are the secondary drums most often used (figure 11). Players of these instruments usually begin as *mridangam* students and change at some later time.

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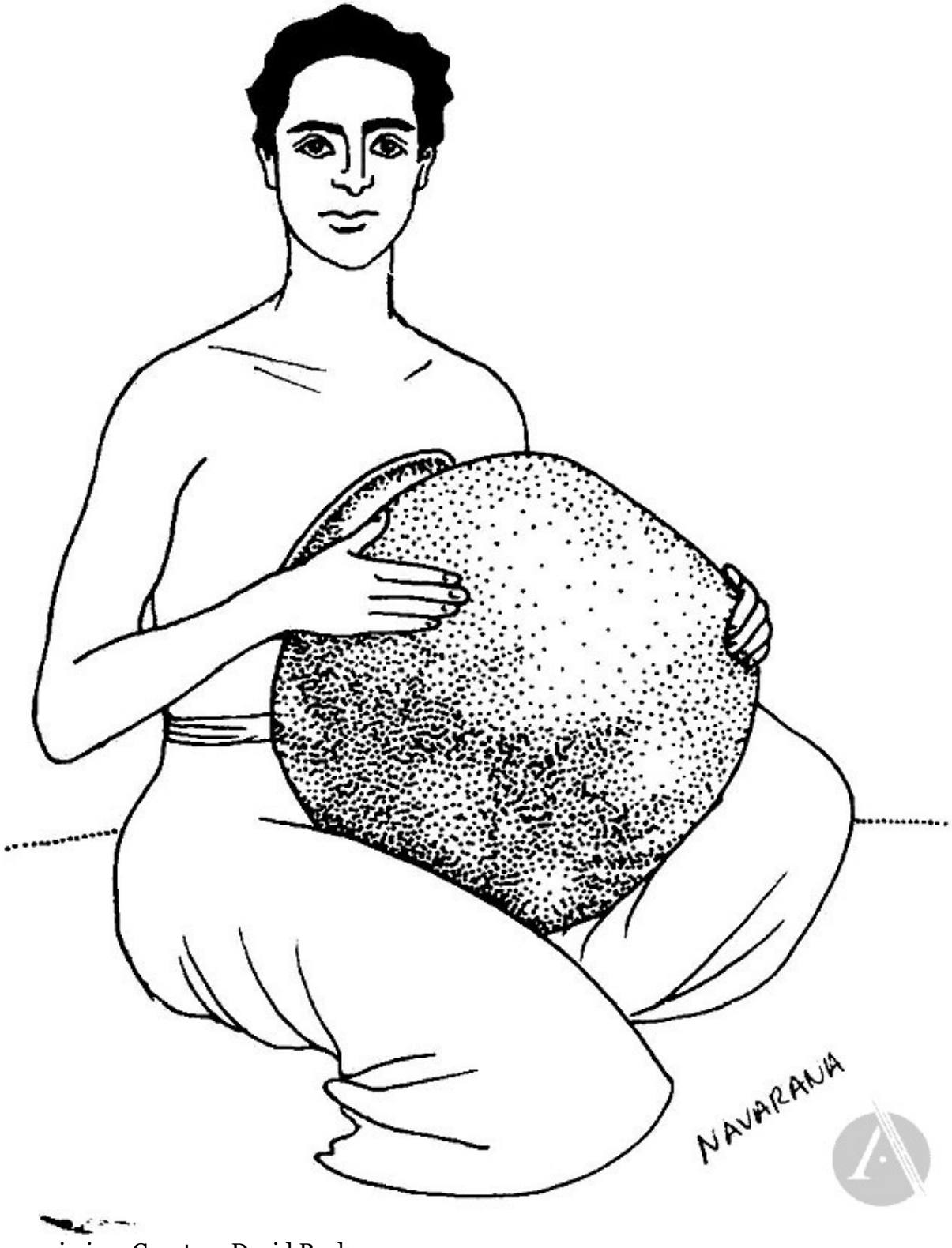


FIGU
11
Drun
with
pot (
ghaṭ
Draw
by
Nava
1996.
Used
permission. Courtesy David Reck.

Whatever the instrument, the technique is challenging, but this is only the first hurdle for Karnatak drummers; they must also master the arts of accompaniment and playing solo. Until about the 1980s, all drummers were men; even now, few women have developed concert-level proficiency.

Learning the fundamentals

A *mridangam* player's training usually begins at an early age; many drummers report having started at the age of six or seven. A child may begin studies with a parent, a relative who is a drummer, or, if the child shows early interest and no family member plays, with a local teacher.

A student's first lesson is an important occasion for the family. The parents of a Hindu student accompany the child to the Hindu temple, where they give offerings to Ganesha, the elephant-headed god worshiped as the lord of beginnings and remover of obstacles, seeking his help in making a good beginning. Then, after making offerings to the family's chosen deity, they go to the teacher's house. All students begin their training by making offerings (*guru-pūjā*) of fruit, flowers, incense, and money to the teacher. The student touches the teacher's feet and formally asks for blessing and instruction. Only after these formalities are over does the first lesson begin.

The bond between teacher (guru) and student (*śiṣya*) is a powerful one that lasts

Page Image as long as both of them live. The student considers the teacher's musical authority to be absolute and would not dream of questioning it. The student is not a slave to the teacher, but independent thought is thoroughly discouraged, at least in the early years of training. In some cases, unquestioning receptivity results in a continuity of style unheard of in the West. Under certain circumstances, such as changing residence or furthering study, students may change teachers, but they do so with care and trepidation. In any case, musicians always recall their first teacher with special regard.

The early lessons are the same, regardless of the teacher or the student's age. These lessons, on the *ta di tom nam* series, introduce fundamental strokes and pat terns that will form the core of the drummer's technique as both player and teacher.

From the beginning, *mridangam* students learn two approaches to the patterns they receive. Naturally, they must learn to play them properly. They must also recite them in syllables (*śolkaṭṭu*), a kind of drum language of spoken syllables bound together by a tala. Every stroke has its corresponding syllable; the student learns the stroke and the syllable together. When the teacher says, "play *ta*," there is no doubt that the teacher means an open-palmed slap on the left drumhead. Likewise *di, tom, nam*, and other syllables signify particular strokes on the drum.

A student learns quickly that a stroke may be indicated by more than one syllable, depending on the way it combines with other strokes. In the pattern *ta ka TA ri Kl ṭa ta KA*, the capitalized syllables refer to the same stroke, which is taught as *di* in the first lesson. At first glance, this may appear puzzling; on the one hand, every stroke has its own syllable; on the other, a particular stroke may be indicated by different syllables, as in this example.

Some Indian drummers have tried to change the drum-syllable system so that a given stroke is always represented by the same syllable, but their efforts have not gained widespread favor. Most drummers feel that the strokes are combined into pat terns designed for fast playing according to a logic of the hand. Some movements combine more easily than others. In the same way, the corresponding spoken pat terns are designed for fast reciting according to a logic of the tongue. Because the spoken and played patterns are learned together, students absorb their parallel structures without difficulty. Figure 12 shows typical drum-syllable phrases for some of the most common rhythmic groupings.

Practicing syllables is an extremely powerful tool, since it frees the hands for tala keeping. By reciting the patterns vocally and simultaneously keeping the tala, students walk a razor's edge: too much concentration on the phrases causes the tala to falter; too much concentration on the tala and the syllables break up. In either case, the student is quickly aware of the error and knows there is more work to do to master the pattern.

The awareness that the pattern and the tala are not synchronized is an important safeguard against mistakes in performance. Karnatak musicians and audiences are extremely forgiving of mistakes caught in time to abort and restart, but they become unsympathetic if a musician actually completes an improvisation on the wrong beat. In the words of one drummer, "Everybody makes mistakes, but you have to minimize the response time as much as possible. All's well that ends well."

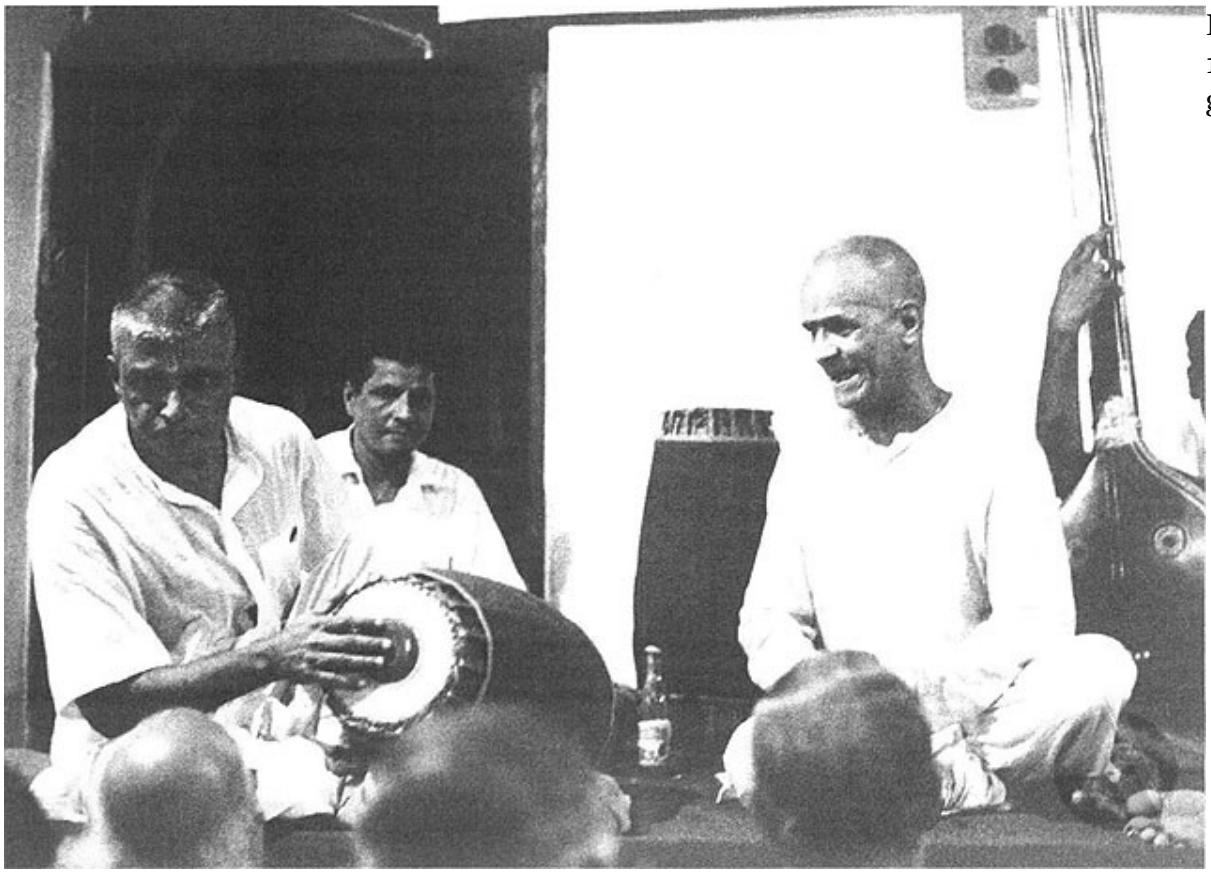
The necessity that a student of drumming learn flawless tala keeping leads the teacher to use every occasion as an opportunity for teaching. The teacher may direct an advanced student to sit on the concert stage during the teacher's performance to help prepare the drums. Sitting in an inconspicuous place but not out of the teacher's line of sight, the student keeps the tala (does the hand gestures) throughout the concert. The student would probably do so anyhow, but the pressure of doing it in sight of the audience and the teacher guarantees an attentive performance (figure 13).

Page Image

one syllable	ta, di
two syllables	ta ka, ki ṭa, jo ṇu, di mi
three syllables	ta ki ṭa, ta da ri, ta jo ṇu,
four syllables	ta ka di mi, ta ka jo ṇu, ki ṭa taka
five syllables	ta ka ta ki ṭa, ta din gi ṇa tom
six syllables	ta ka ta ka di mi ta ri ki ṭa ta ka ta din — gi ṇa tom
seven syllables	ta ka di mi ta ki ṭa ta ki ṭa ta ka jo ṇu ta — din — gi ṇa tom
eight syllables	ta ka di mi ta ka jo ṇu ta ka ta ri ki ṭa ta ka ta din — gi — ṇa — tom
nine syllables	ta ka di mi ta ka ta ki ṭa ta ka di ku ta di ki ṭa tom ta — din — gi — ṇa — tom

FIGU
12 So
comr
used
spok
drum
syllal
śolka
patte

Drummers need to make rhythmic control a matter of unshakable physical confidence. They frequently accompany solo instrumentalists whose hands are not free and therefore cannot show the tala. This is not a problem when a drummer knows a particular song, but if this is not the case, or if the other instrumentalist engages in rhythmic improvisation, the drummer must reckon the tala alone. To some extent in these cases, drummers and gifted instrumentalists can internalize the tala, but most transfer tala keeping to the feet and legs. In other words, musicians make up leg and foot movements that correspond to various talas so that they need not depend on somebody else to keep the tala.



FIGU
13 Th
great

mridangam master Palghat Mani Ayyar (1912-1981) in concert with Alathur Srinivasa Ayyar. An unidentified student sits to the drummer's left on stage. 1970. Photo © Carol S. Reck.

Page Image

Rhythmic steadiness is also necessary for solo playing. As described below, Karnatak drummers invent cadential patterns that can generate tremendous tension within the tala. These are often so difficult to execute in synchronization with the tala that drummers must practice them intensively before trying them in public. When they perform, another musician (who probably does not know the design in question) will keep the tala. Since it is nearly certain that the drummer's sense of rhythm is slightly different from that of the tala keeper, the drummer must be extraordinarily alert to avoid a mishap. If the tala slows down or speeds up, he must adjust his pace accordingly.

Four basic talas

Once the *ta di tom nam* series is completed, a *mridangam* student's course of study moves through four talas: *ādi tāḷa*, of eight beats (see figure 2 *c*); *rūpaka tāḷa*, of three beats (see figure 2 *d*'); *miśra cāpu*, of seven beats (see figure 5 *a*), and *khaṇḍa cāpu*, of five beats (see figure 5 *b*). In each tala, the structure of the lessons is a drum solo (*tani āvartanam*) in paradigmatic form. The first lessons comprise material appropriate for the beginning of a solo, the more advanced lessons reveal aspects of rhythmic form and development, and the final lessons demonstrate how a solo should end.

Time flow

At all these stages, a student learns two fundamental aspects of rhythmic form: time flow (*sarvalaghu*) and calculation (*kaṇakku*). Time flow includes all the repeating patterns and quasi-melodic figures drummers use to reinforce the flow of the tala. Karnatak drummers devise their time-flow figures as much for their pleasing sound as for their rhythmic effect. A listener will find it

relatively easy to keep the tala during sections that emphasize this kind of playing. These patterns may be compared with others found in drumming throughout the world: the tide cymbal patterns used by jazz drummers, the complex yet flowing patterns of African-Latin drummers, and the patterns employed by players of the Irish frame drum (*bodhran*) are all analogous to the time flow of Karnatak drummers.

Time-flow patterns are sometimes called by the North Indian term for drummed pattern, *ṭhekā*, though they are used more flexibly than their North Indian counterparts in tabla playing. For tabla players, the *ṭhekā* represents one cycle of the tala; Karnatak musicians use the hands to keep the tala, so this is not the drummer's job. Every musician in a Karnatak ensemble is equally responsible for keeping the tala.

Karnatak drummers use different time-flow patterns for different tempi (*kāla*). Figure 14 *a* shows one cycle of a slow-tempo (*vilamba kāla*) pattern often used at the early stages of a song or solo in eight-beat *ādi tāḷa*. As if to emphasize the inherent dignity of the tala, slow-tempo patterns accent only the first and third pulses of the pulse group in a slow, regular flow.

A typical medium-tempo (*madhyama kāla*) pattern for the same tala might look like the one in figure 14 *b*. Both the slow and medium-tempo examples require two pulse groups for each statement of the time-flow pattern. But although the first figure moves squarely with the pulse groups, the second is arranged so that it does not. In medium tempo, any of a group's pulses may be accented, drawing more attention to the pattern than to the tala. The following pattern's eight pulses are laid out in a three-three-two pattern:

(ta na ta) (din — ta) (din —)

Such a figure would be called syncopated in Western music, but Karnatak music requires no such naming, since every pulse of a beat has the same weight. Even if the

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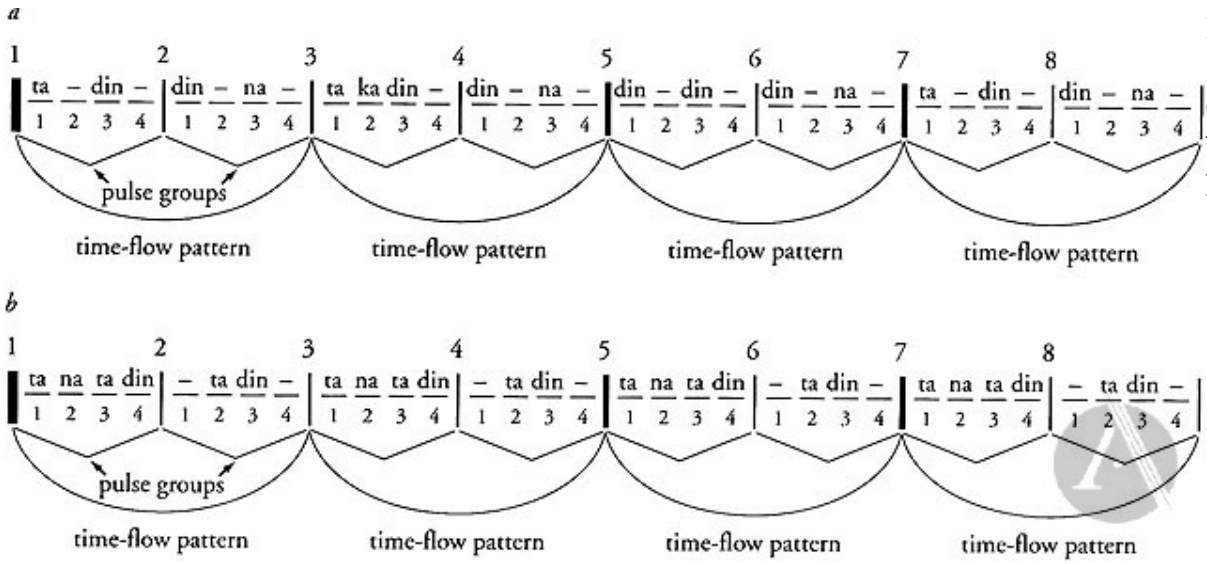

FIGU
14 So
comr
time-
patte

sarvalaghu) for *ādi tāḷa*: *a*, slow tempo, four pulses per beat; *b*, medium tempo, four pulses per

drummer shifts to a different pulse-shape, for example to three or five pulses per beat, the flow patterns of the new shape will share the twin characteristics of the time-flow approach: an easy relationship with the beat and tala structure and a pleasing sound. Pulse shifting is an important device for Karnatak drummers, who use it sparingly in accompaniment to generate tension with the

song. They make extensive use of it in solos, sometimes playing long sections in three or four of the pulse-shapes in a single solo.

Rhythmic design

Calculation (*kaṇakku*), the second approach to rhythmic form a student must master, is the study of generative principles that have something in common with mathematical formulas. These principles enable a drummer to create the intricate cadential designs called *mōrā* and *kōrvai*. A listener may know that one of these designs is unfolding by noticing that the tala has suddenly become hard to follow. Some sort of rhythmic shape emerges, but its relationship with the beat seems tense. When it resolves, informed listeners, including the other performers, may nod their approval or briefly applaud.

The kind of conscious thinking that goes into inventing these rhythmic compositions sets Karnatak drummers apart from percussionists in most other musical traditions. The use of the intellect to compose music for drumming is encouraged and actively cultivated among South Indian drummers. A teacher may give a student a *mōrā* or *kōrvai* for one tala and assign its recomposition for other talas, requiring the

Page Image student to shorten a thirty-two-pulse *mōrā* to twenty-eight pulses, or lengthen it to thirty-six pulses, and so on.

The effect on the student's mind is one of creative destabilization. No material is fixed, but can be transformed to fit circumstances. As the student's mind becomes accustomed to the fluidity of rhythmic structures, it goes beyond the first stage, permutation and combination (*prastāra*) of known material, into a state in which really new material arises. As is true of all music, the most important criteria for beauty in a rhythmic composition are intuitive and indescribable. The drummer and the informed listener inwardly "know" when something is aesthetically satisfying. In addition to creativity, a South Indian drummer has the additional ability to justify a composition in terms of its formal and arithmetical order.

The *mōrā* is the fundamental cadential design pervading all forms of tala-bound Karnatak music. It may end sections of songs, sections of classical-dance compositions, and solfege improvisations. It serves several functions in drum solos. It is analogous in form and function to the *tihāī* of Hindustani music, which melodic soloists and tabla players use. Countless *mōrā* are in use, but they share an inner, germinal form.

A *mōrā* consists of two types of material: a phrase stated three times and a gap (*kārvai*) separating the statements. Figure 15 *a* presents the same time-flow pattern as figure 14 *a* in its first four beats, with a *mōrā* on beats 5 to 8. The *mōrā* is a sixteen-pulse example, with groups of 4 + 2 + 4 + 2 + 4. *Ta ka di na* is the four-pulse triple statement, and *tam*—is the two-pulse gap. The final *tam* coincides with the start of the song (usually, as in this case, on beat 1); it is not, strictly speaking, part of the cadential design, but serves to release the tension generated by the preceding material. It may be helpful to think of the final *tam* as a punctuation mark—like a period—that ends a statement without being included in it.

The statement and the gap are different types of material. The statement must state something, and it has to comprise at least one syllable. The gap, however, may exist only as potential. In a particular case, its value may be zero, as in figure 15 *b*, a *mōrā* that appears to consist of a five-pulse figure (*ta din gi ṇa tom*) stated three times with no gap at all. But a Karnatak drummer might play a series of designs like this one, expanding the gap each time in a kind of motivic development. The next *mōrā* in the series might expand the gap to one pulse, as in figure 15 *c*, with subsequent patterns continuing to increase the gap.

The designs of *mōrā* may be quite elaborate. A drummer could play the three *ta din gi ṇa tom* designs mentioned above in sequence. In this case, each small design would become one of the statements in a compound design, with a zero-value gap. Figure 16 demonstrates that the three statements of a *mōrā* do not have to have the same duration but may make a rhythmic shape (*yati*) by expanding or contracting in an orderly way. In figure 16, the statements go from fifteen pulses (5 + 0 + 5 + 0 + 5) to seventeen (5 + 1 + 5 + 1 + 5) to nineteen (5 + 2 + 5 + 2 + 5)—an example of expansion (*srotovaha yati*). This structure could also be reversed to form a reduction (*gopucca yati*).

From this idea, myriad variations develop. The *mōrā* is an extraordinary generative device that has enabled every generation of Karnatak musicians to create fresh cadential material.

The other main cadential design, the *kōrvai*, is not nearly so pervasive as the *mōrā*. Its use is mainly confined to the drum solo, though rhythmically adventure-some singers and instrumentalists use it, set to a melody, in their solfege improvisations. It is also used in choreography.

There are only two requirements for a rhythmic structure to be called a *kōrvai:* it must have at least two parts, and the terminal part must be in the *mōrā* form.

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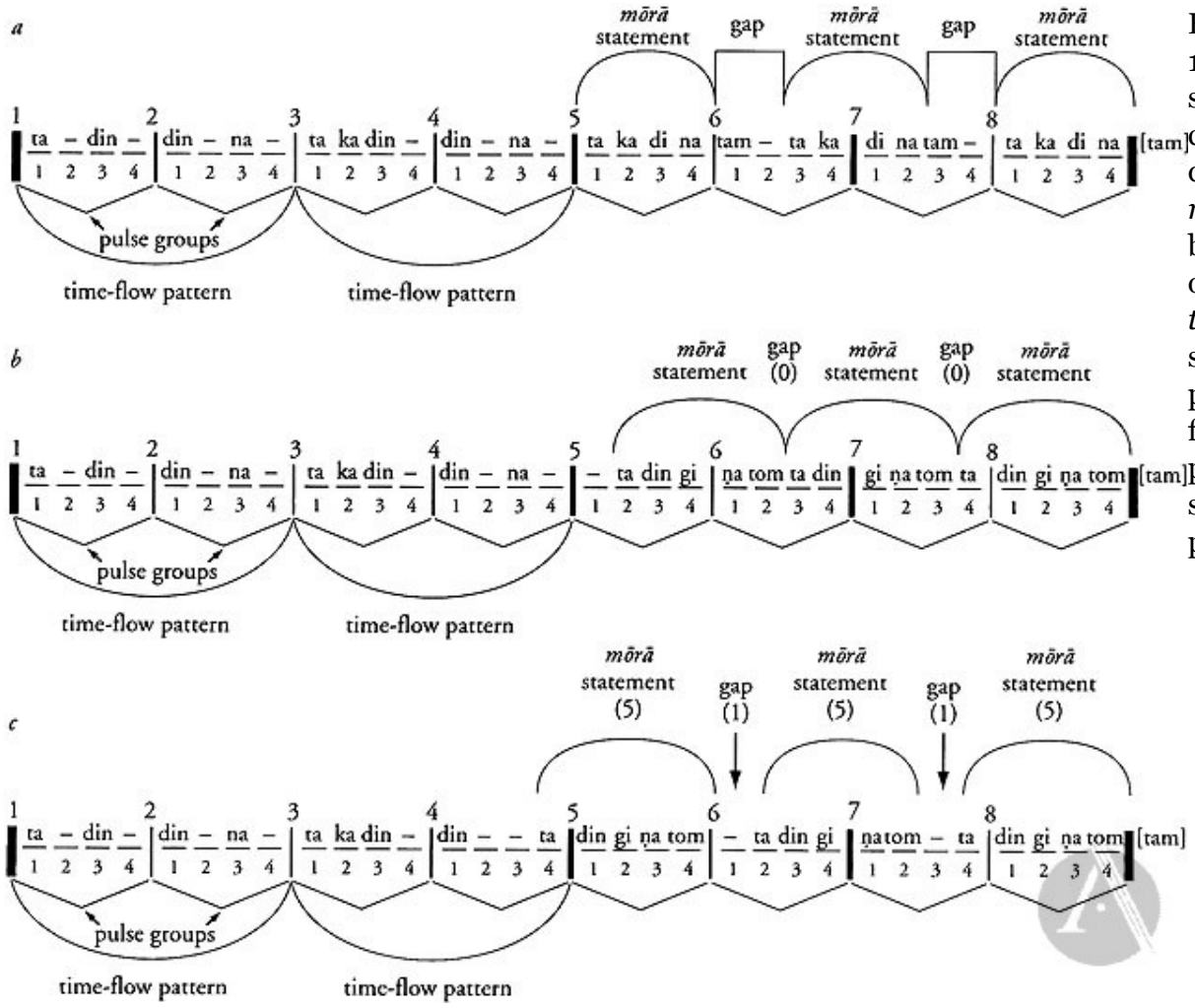

FIGU
15 So
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mōrā
beats
of *ādi*
tāḷa;
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pulse
fiftee
pulse
sever
pulse

Drummers most often play a *kōrvai* three rimes in succession, though they may play a long *kōrvai*

just once. Figure 17 shows a *kōrvai* with an hourglass (*damaru yati*) design; its introductory section moves from long phrases to short, whereas its *mōrā* proceeds from short to long. The composer created this design to fit neatly into a tala, as is characteristic of the *kōrvai*. In this case, its sixty-four pulses fit perfectly into eight-beat *ādi tāḷa*, no matter how many pulse groups per beat. A *kōrvai* is almost always precomposed; only rarely does a drummer create a fully formed *kōrvai* in the middle of a concert. A typical drummer uses dozens of *kōrvai*; some have been handed down by the guru or other respected elders, and some are self-designed.

Drummers design *kōrvai* with a wide range of aesthetic criteria in mind. Some drummers compose them so that they are immediately understandable and create little tension with the tala. Others favor concealment and the element of surprise. Some insist on strict arithmetical symmetry within and among the parts. Others value integrity of particular phrases more highly than numerical precision. A *kōrvai* does not have to begin in any particular place in the tala cycle. The only absolute requirement is that its end must resolve perfectly at the point in the tala cycle when the text begins (*eḍuppu*).

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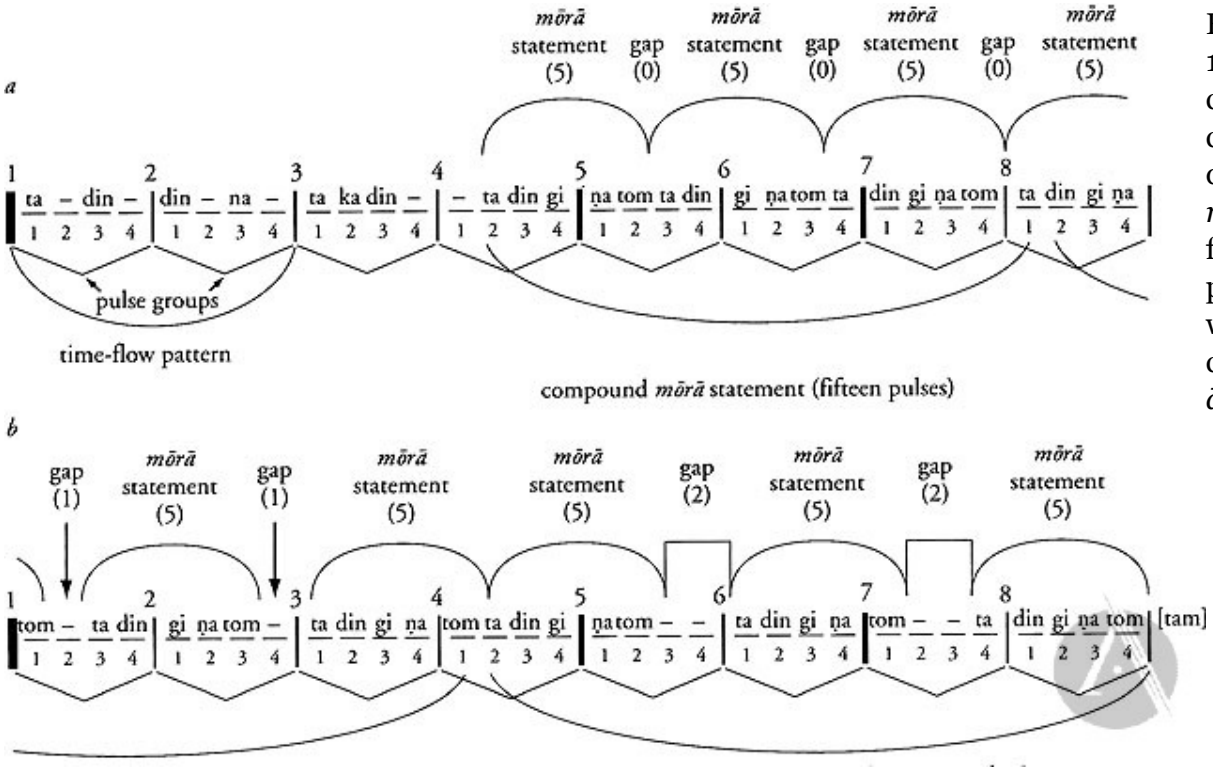

FIGU
16 A
comp
cade
desig
mōrā
fifty-
pulse
withi
cycle
ādi tā

comprising shorter to longer statements of the pulses.

Graduation day: The *arangētram*

When the teacher feels that a student has mastered enough or the above-mentioned meterial to play in public, he arranges a coming-out concert (*arangētram*). The other performers are often the teacher's peers and may include the teacher himself. Its purpose is to showcase the student in an emotionally supportive and musically high-caliber context. This concert is an important rite of passage; in the words of one well-known drummer, "There are certain dates that you don't forget in your life: your birthdate, your wedding date, your *arangētram*." Afterward, the drummer may continue studying, but on a different basis. His concentration now moves to developing accompaniment and playing as a solo concert artist on his own.

The drummer as concert artist

Accompaniment

A drummer spends about 90 percent of his career accompanying other musicians, and does it without notation or any absolute course of action. Given this fact, it may seem surprising that teachers almost never teach the art of accompaniment formally. Drummers are expected to absorb the principles of effective accompaniment by listening: first to the teacher, then to other senior drummers. A bewildered drummer may ask the teacher, "What should I play?" In the context of a lesson, such a question would prompt a specific response. Asked about accompaniment, however, the teacher might answer, "Play like the music," or "Play *ādi tāḷa*," or something equally unspecific.

Every drummer finds an individual path to accompaniment, much as every jazz drummer does. Some tend toward flashy displays and excess, while others adopt a reserved style. Drummers learn that some musicians like to be accompanied in an

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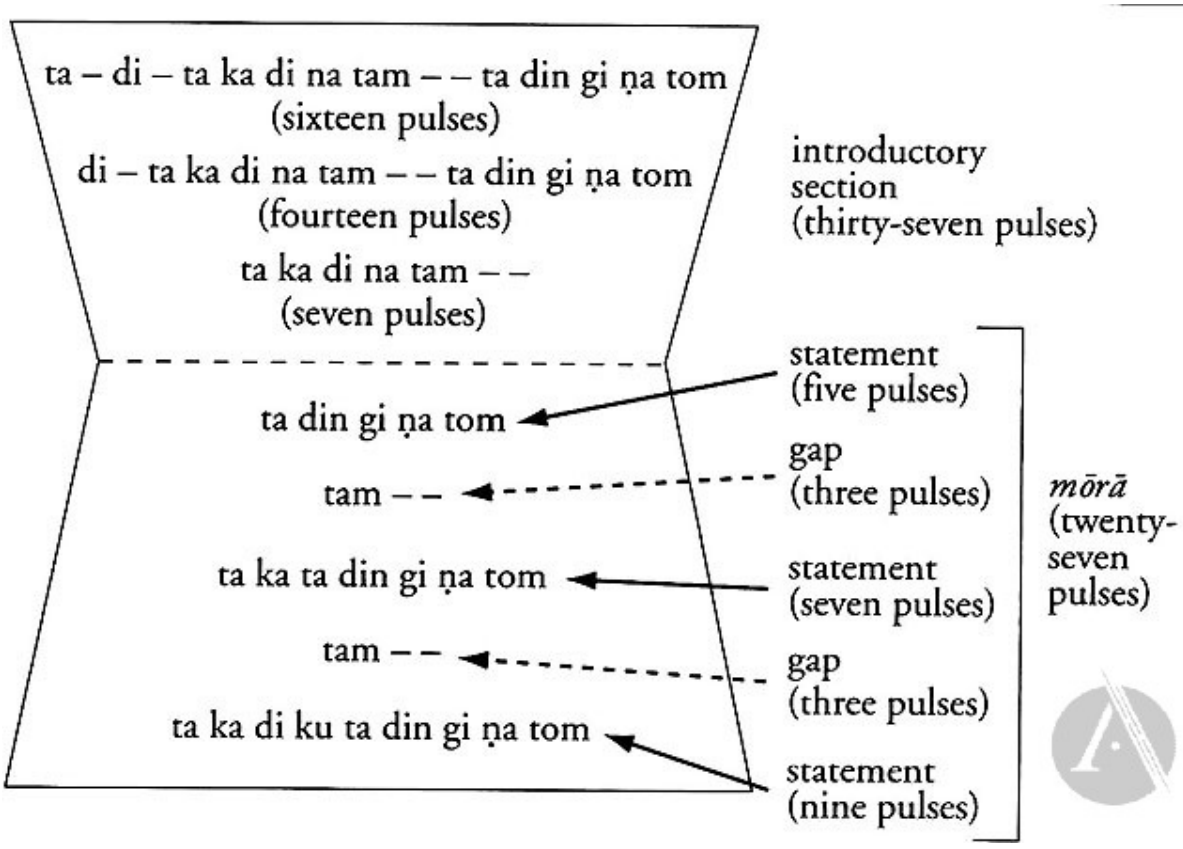

FIGU
17 Ar
tāḷa
cade
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aggressive style (loud, dominating, energetic), whereas others prefer a lighter, quieter approach. They also learn that their preferred style of accompanying makes their music more compatible with that of some musicians than with that of others. Most important, they learn that all those years of deferring to the teacher's wishes have not destroyed their individuality.

The drum solo

Once in every concert, the drummer plays an extended solo (*tani āvartanam*), an opportunity to demonstrate creativity, and without any direct reference to the music that preceded it. This solo may take from two to twenty minutes, depending on the situation. The drummer does not usually know beforehand in which piece the solo will occur, and in this sense the solo is improvised; however, the soloistic material and approach are part of a familiar vocabulary. So the solo may be said to be

improvised much as a conversation is improvised: the words and the grammar are familiar, but the exact expression is a function of the situation.

In general, experienced listeners can track the development of a solo by following the progression of its time-flow patterns. These evolve from sparsely articulated, slow-tempo figures at the beginning, through medium-tempo figures in the middle, to extremely dense patterns (*paran*) toward the end.

In the original tempo of the solo, the drummer punctuates the time-flow patterns with more densely articulated figures, usually at the ends of cycles. At the outset, such phrases do not necessarily herald a cadential design (*mōrā* or *kōrvai*), but

Page Image once a particular design has come to the drummer's mind, a phrase from it may serve to end cycles, then half-and quarter-cycles, even individual beats, until the drummer decides to play the whole pattern. After playing a cadential design, the drummer may return to the original tempo to set up another design or continue to the next section. Most often, the drummer will play an elaborate *kōrvai* before moving on to the medium-tempo section.

In the medium-tempo section (as in the slow-tempo section), the drummer sets up a cadential design by introducing its phrases into the time-flow patterns. Typically the longest section of the solo, this includes any pulse shifting the drummer wishes to do.

If more than one percussionist performs in a concert, each one in turn plays all the previous material, with the *mridangam* player signaling the changes of the sections. Just before the final section of the solo, two or more percussionists usually play a trading section (*koraippu*), in which they take turns playing sets of phrases of exactly the same length, usually generating tension with the tala structure. A trading section based on seven (*miśra koraippu*) is often performed in the eight-beat *ādi tāḷa*. In the first stage, each percussionist plays eight seven-pulse phrases, as in figure 18 *a*. To end on the first beat of this cycle (a thirty-two-pulse one), the player begins the fifty-six-pulse group after eight pulses and takes two tala cycles to complete the pattern. Each percussionist in turn waits for eight pulses, then plays the eight seven-pulse phrases.

In the second stage, the traded figure is reduced to four seven-pulse phrases. For this twenty-eight-pulse group to end at the point of the start, it begins after four pulses and takes only one tala cycle to complete (figure 18 *b*). The third stage follows the same pattern: two seven-pulse phrases begin after two pulses and last a half-cycle (figure 18 *c*). In the final stage, one seven-pulse phrase follows one silent pulse and lasts just a quarter-cycle (figure 18 *d*).

At this point, all the percussionists who have been trading come together in unison to play the terminal section. Because the length of the solo is not predetermined, this section is highly stylized so that the musicians playing melody instruments know when to rejoin the percussionists. It comprises three principal elements: *paran*, the big (*periya*) *mōrā*, and a final *kōrvai*.

The *paran*, a densely articulated pattern, is included more for its percussive force than for its rhythmic interest. Played energetically and on the high end of the dynamic range, it typically remains close to the tala structure, generating momentum toward the big cadential design (*mōrā*), which all the musicians immediately recognize as the next-to-last composition in the solo. On hearing it, they know that the solo will end after one more *kōrvai*, which usually fits neatly into the tala, and is always played three times. At the end of the third statement, the other musicians join the drummer and finish the song.

FURTHER LISTENING AND READING

Of the many available recordings of Karnatak singing, Ramnad Krishnan's *Vidwan* (1968) and *Jon Higgins* (1970) are both noteworthy. Vidwan presents one of South India's greatest singers with a

sensitive ensemble of accompanists; the main item is a *rāgam-tānam-pallavi* performance that features a lively solo by two drummers. Jon Higgins's recording features the first convincing non-Indian performer of Karnatak vocal music, and presents songs in six different talas.

Three compact discs on the Music of the World label present different aspects of Karnatak instrumental music and drumming. *Sunada* (1992) and *Laya Vinyās* (1990) feature the same pair of musicians, the vina player Karaikudi S. Subramaniam, and drummer Trichy S. Sankaran. The former, which includes extensive, helpful liner

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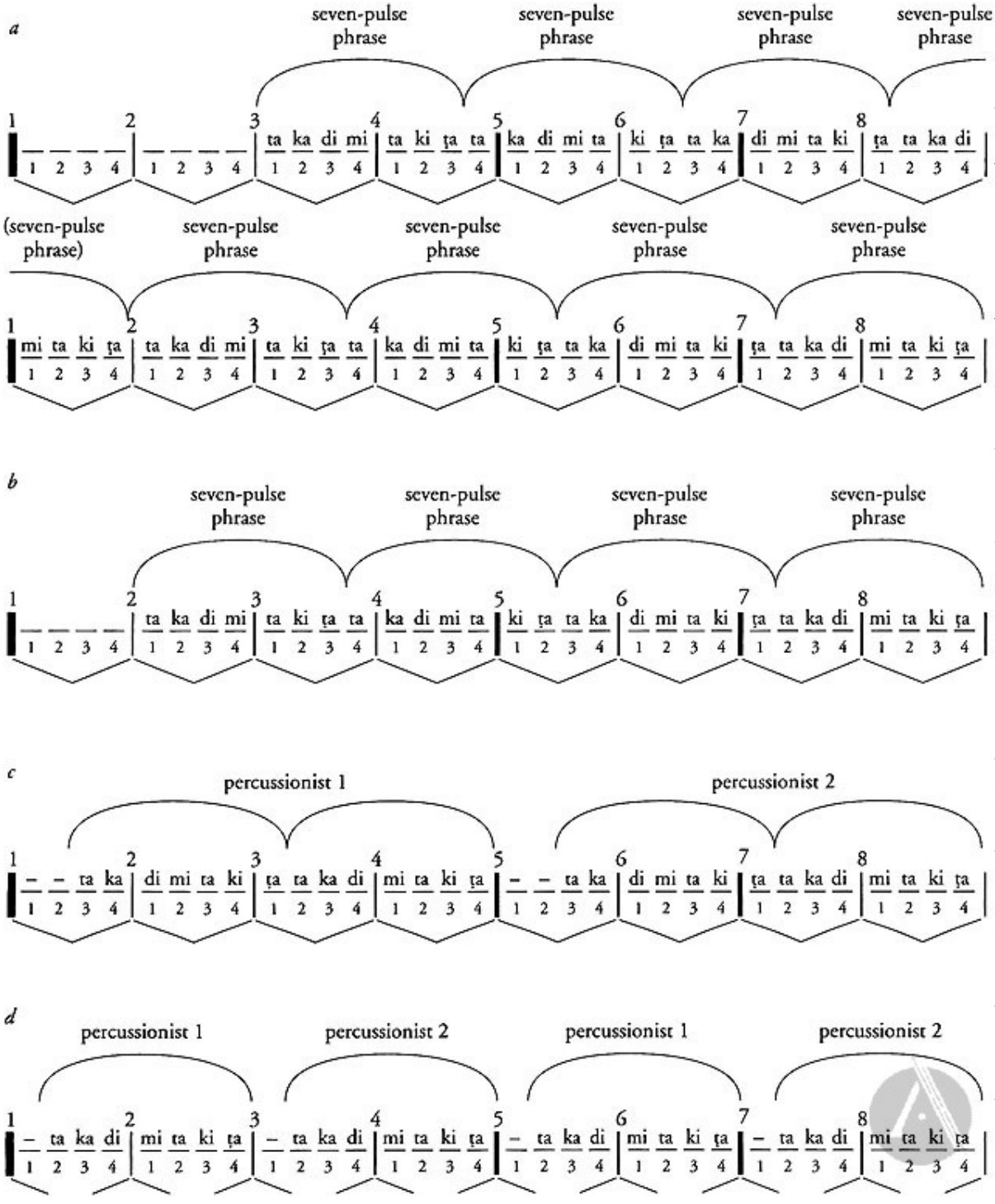

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fourteen-pulse set of phrases; *d*, fourth stage, showing the one-pulse rest and the seven-pulse ph

Page Image notes, provides a good survey of musical styles featuring the *mridangam* as an accompaniment to the soft, subtle sound of the vina. Its companion recording, *Laya Vinyās*, features the *mridangam* as a solo instrument. On the third CD recording, entitled *Vadya Lahari* (1992), the violinist A. Kanyakumari leads an innovative ensemble combining relatively soft-sounding chamber instruments (violin, vina) with much louder temple music instruments (*nāgasvaram* and *tavil*). A drum "solo" features both *mridangam* and *tavil*, instruments only rarely played together.

Books on subjects related to Karnatak tala can be divided into two groups—those dealing with music theory and those dealing specifically with drumming. Lath (1978) and Sambamurthy (1963-1969) fall into the former category; their writings are useful as reference material, and cover all facets of Karnatak music. In the second category, Sankaran (1994) and Sarma (1969) both provide background information on tala theory, but their main focus is drumming pedagogy. Both have developed drum-stroke notations: Sarma's is an attempt to equate drum syllables with specific strokes, whereas Sankaran's is graphical. Brown (1965) also deals with pedagogy, but from the point of view of the student. He uses yet another stroke notation, developed during his study under the *mridangam* player T. Ranganathan. Nelson (1991) surveys five styles of *mridangam* playing, including full transcriptions in the Ranganathan-Brown system, detailed analyses of all five drum solos, and interviews with the drummers.

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