Speaking Time, Being Time:

Solkaṭṭu in South Indian Performing Arts

by

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A dissertation submitted to the Faculty of Wesleyan University in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Middletown, Connecticut May 2015
Abstract

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Fugan Dineen

Solkaṭṭu translates from Tamil as “syllables bound together.” In this dissertation I investigate the nuances with which the consonants and vowels, syllables, units, and phrases comprising South Indian solkaṭṭu are bound. In the process, I uncover and explore a more expansive binding; one in which solkaṭṭu forms a nexus connecting artists, scholars, and audiences through a shared system of rhythm and timing. Long-term continuities in solkaṭṭu form and functioning reflect its primacy in transmitting this system over vast stretches of historical time. Nevertheless, the devaluation of rhythm in colonial, postcolonial, and nationalist revisions of the southern arts fostered narrow yet tenacious portrayals limiting solkaṭṭu to “drum syllables.” My contrasting theorization replaces this narrative with a broad model drawn from local forms and based in the cognitive sciences. In dialogue with musicians, dancers, and choreographers, I map this theoretical model of solkaṭṭu onto performance practice. My detailed analysis of stroke–movement–syllable relationships advances an understanding of solkaṭṭu as embodied, interactive rhythmic production realized in a multimodal system of temporal modeling. The complexity of rhythmic design and execution in South India’s performing arts relies on the efficacy of the solkaṭṭu system as comprehensive musical communication. As solkaṭṭu expands to new musical, conceptual, and geographic spaces, its utterances continue binding people through this system of speaking, embodying, and thereby becoming, musical time.
# Table of Contents

Acknowledgements ........................................................................................................... v

A Note on Notations .......................................................................................................... vii

**Introduction** ................................................................................................................. 1

  Multimodal Temporal Modeling

  Drum Syllables?

  Solkaṭṭu and Other Syllable Systems

Methodology ....................................................................................................................... 11

Literature Review ................................................................................................................. 13

  Brown and the Status Quo

  Solkaṭṭu Translations

  Mṛdaṅgam Mind

  Theses

  General Publications

Contents ............................................................................................................................... 22

**Part I: Context**

**Chapter 1: Solkaṭṭu; Saṅgītaśāstra; Sampradāya**

  Streams of Music History ............................................................................................... 24

  A Sanskrit Cosmos

  Oral and Written: The Veda-s

  Written and Oral: Sanskrit Literature

Sampradāya and Saṅgītaśāstra ......................................................................................... 34

  Intertwined

  In Dialogue

Saṅgītaśāstra ...................................................................................................................... 41

  Authority

  Authorship and Dates

  Notation

**Nātyaśāstra** .................................................................................................................. 46

  Chapter 31: Tālam

  Chapter 33: On Covered Instruments

  The Drums

  The Syllables (and Strokes)

  Applications

  Consequences of Solkaṭṭu in the NŚ

**Saṅgītaratnākara** .......................................................................................................... 65

  Deśī Tāla-s

  Upāśraya

  Drums and Solkaṭṭu of the SR
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Šrama-Vāhanī</td>
<td>78</td>
</tr>
<tr>
<td>Sampradāya..................................................................................................................</td>
<td></td>
</tr>
<tr>
<td>Parameters of Sampradāya</td>
<td></td>
</tr>
<tr>
<td>Sampradāya and Rhythm</td>
<td></td>
</tr>
<tr>
<td>Conclusions...........................................................................................................</td>
<td>85</td>
</tr>
<tr>
<td>Chapter 2: Solkaṭṭu in India’s New Pasts</td>
<td></td>
</tr>
<tr>
<td>Introduction........................................................................................................</td>
<td>86</td>
</tr>
<tr>
<td>Orientalism, Nationalism, and Colonial Knowledge..................................................................</td>
<td>87</td>
</tr>
<tr>
<td>Notational Agenda</td>
<td></td>
</tr>
<tr>
<td>Madras Music Academy: The Fall (and Rise) of Rhythm</td>
<td></td>
</tr>
<tr>
<td>Foreign Exchange</td>
<td></td>
</tr>
<tr>
<td>Bharatanatyam...........................................................................................................</td>
<td>100</td>
</tr>
<tr>
<td>The Devadāśī</td>
<td></td>
</tr>
<tr>
<td>The Dance Revival</td>
<td></td>
</tr>
<tr>
<td>Conclusions...........................................................................................................</td>
<td>112</td>
</tr>
<tr>
<td>The Bridge</td>
<td></td>
</tr>
<tr>
<td>Chapter 3: Thinking Time: Solkaṭṭu in Rhythmic and Temporal Cognition</td>
<td></td>
</tr>
<tr>
<td>Introduction........................................................................................................</td>
<td>113</td>
</tr>
<tr>
<td>Analogy..................................................................................................................</td>
<td>114</td>
</tr>
<tr>
<td>Temporal Models.......................................................................................................</td>
<td>117</td>
</tr>
<tr>
<td>Numeric Time</td>
<td></td>
</tr>
<tr>
<td>Cyclical Time Model</td>
<td></td>
</tr>
<tr>
<td>Kriyā</td>
<td></td>
</tr>
<tr>
<td>Syllabic Time Model</td>
<td></td>
</tr>
<tr>
<td>Phrase Shapes: Yati....................................................................................................</td>
<td>124</td>
</tr>
<tr>
<td>Intra-Domain Solkaṭṭu Analogies......................................................................................</td>
<td>127</td>
</tr>
<tr>
<td>Solkaṭṭu-to-Solkaṭṭu: Analogy as Analysis</td>
<td></td>
</tr>
<tr>
<td>Conclusions...........................................................................................................</td>
<td>133</td>
</tr>
<tr>
<td>Part II: Applications</td>
<td></td>
</tr>
<tr>
<td>Chapter 4: Form and Function</td>
<td></td>
</tr>
<tr>
<td>Form...................................................................................................................</td>
<td>134</td>
</tr>
<tr>
<td>Counting Solkaṭṭu</td>
<td></td>
</tr>
<tr>
<td>The Components</td>
<td></td>
</tr>
<tr>
<td>Syllable Units</td>
<td></td>
</tr>
<tr>
<td>Retroflex</td>
<td></td>
</tr>
<tr>
<td>Changes in Pronunciation</td>
<td></td>
</tr>
<tr>
<td>Syllable Ordering: Syntax</td>
<td></td>
</tr>
<tr>
<td>Function...........................................................................................................</td>
<td>143</td>
</tr>
<tr>
<td>Tāḷa</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions .......................................................................................................................... 222
Future Research .................................................................................................................. 223

Epilogue: Solkaṭṭu Circulations
Introduction............................................................................................................................. 226
I. A Tamil Film Song: “Raa Raa” ......................................................................................... 227
   The Scene
   The Context
   Analysis
II. Non-Karnāṭak Performance/Composition ................................................................. 234
   Konakkol Groove: “Catch 21”
III. Pedagogy ....................................................................................................................... 239
   Instrument-Specific Solkaṭṭu
   General Rhythm Training
   South Indian Focus
   Re-Circulations

References ............................................................................................................................ 246

Appendices ........................................................................................................................... 260
Acknowledgements

I am deeply indebted to my advisor, David P. Nelson. His knowledge, expertise, attention to detail, and willingness to explore were crucial in developing and shaping this dissertation. Moreover, his unflagging commitment as a mṛdaṅgam teacher, mentor, and friend inspired and supported me throughout. Mark Slobin and B. Balasubrahmaniyan, who are on my dissertation committee, both offered insightful comments and suggestions that vastly improved the quality of this work. Their enthusiasm, coming at critical junctures, has been invaluable.

Studying konakkol with V. Suresh in Chennai was as challenging as it was rewarding. His musical and personal generosity, openness to this project, reflections on South Indian music, and guidance in the music scene contributed greatly to my fieldwork. I am also grateful to T. Narendran, S. Kannan, and Anilkumar, who were my other teachers in Chennai. And to Hari Krishnan, who communicated insights on dance syllables as clearly in words as in movement as I accompanied his bharatanatyam courses at Wesleyan.

Beginning with his candid and astute comments on my first proposal for this project, through thought provoking discussions in his home and ongoing correspondence, N. Ramanathan has been an outstanding resource and collaborator. I am also grateful to M. Premeeela Gurumurthy, who, as my affiliate with the University of Madras, provided both access and direction throughout my stay in India. B.M. Sundaram, C.V. Chandrashekar, S. Karthick, and K.S. Kalidas were generous with their time and knowledge born of scholarship and practice. Likewise, I am indebted to
Trichy Sankaran, who has shared his deep understanding of solkaṭṭu with me on various occasions and continents.

My heartfelt thanks extend to the other artists in Chennai who generously engaged with me in discussion and discovery about solkaṭṭu. They include Hari Babu, Tiruvarur Bhaktavatsalam, Raphaëlle Brochet, Guruvayoor Dorai, N. Govindarajan, Chita Kalyandurg, Mosalikante Kishore, Amrita Lahiri, Adyar K. Lakshmaman, M. Lalitha, Umayalpuram Mali, Mythili Prakash, Pete Lockett, V.V.S. Manian, Harish Narayan, S.M. Raju, Santhakumar, Patri Satish Kumar, T.H. Subash Chandran, Trichy Thayumanavan, Shaly Vijayan, and K.G. Vijayakrishnan. Their insights give life to this project. I am grateful for the research funding provided by Fulbright and Wesleyan that made these encounters possible.

Finally, I am both grateful and humbled by the ceaseless support and encouragement of family and friends throughout this process. You are too many to list individually, but know who you are. I wish to especially thank Renee Dineen who once again proved unmatched as mother and editor, aided by my sister Julie Klusza, and brother-in-law Martin Walenga. Enkyo Roshi, as always, knew just what to say and when to say it to keep me on track. And finally, to my partner Amy: thank you, thank you, thank you!
A Note on Notations

South Indian rhythmic practice is considered an oral tradition. Though written notations exist, they are not traditionally intended to be comprehensive representations of performance practice. Rather, scholars and musicians have used written representations of solkaṭṭu as an addendum to (or signal of) the oral tradition. Like Indian notations, my solkaṭṭu examples are not meant as comprehensive representations of practice. Their varied forms are intended to clarify the specific aspects of the practice they address. Because South Indian rhythmic play often clouds the relationship between tāḷa (the metric cycle) and phrase (as solkaṭṭu), it is sometimes beneficial for me to transcribe phrases without tāḷa. Likewise, some phrases are laid out as text, some depict designs. In all cases, the solkaṭṭu examples are read from left to right, top to bottom, and adhere to the following conventions:

1) Outside of quotations taken from written sources, all solkaṭṭu are written in bold type.

2) Syllables comprising a consonant and vowel (i.e., ta) or two consonants separated by a vowel (i.e., tam) are both one-pulse in duration.

3) Two consonants without vowels (i.e., tk or dn) indicate a pair of syllables moving at double the prevailing tempo. I group the consonants in twos to demonstrate that they are equivalent to one pulse/full syllable. Therefore tk dn is recited as four even syllables at double the speed of ta ka di na. Missing vowels should be apparent from the context.

4) Pauses, or unarticulated pulses, are of the same duration as one syllable (or two double-time syllables). Each unarticulated pulse is notated as a bullet “•”. Therefore, the phrases ta • • •, ta • di •, ta ka di na, and tk dn tk dn are all four pulses long.

5) When tāḷa is indicated, I notate beat-divisions with a straight line just before the syllable falling on that beat and show the end of a cycle with a double line.

6) Kriyā, if necessary for an example, are written above the pulse falling on the beat (see below).

7) Instrument fingerings are situated similarly to kriyā (see below).

8) At times I call on Nelson’s analytical tools—comprising parenthesis and brackets—to indicate statements and gaps of mōrā-s (see app.I).
Kriyā Key
X = clap
O = wave (often realized as a palm-up clap)
2 = pinky
3 = ring finger
4 = middle finger
5 = index finger
• = unarticulated pulse

Mṛdaṅgam Notation Key
Toppi (bass head)
\( \ddot{x} \) = damped stroke, four fingers strike the center of the head
\( \ddot{o} \) = open bass stroke, (three or) four fingers played on the outer skin
• = unarticulated pulse

Valantalai (pitched head)
3 = damped stroke, three fingers (pinky, ring, index) played on the spot
1 = damped stroke, pad of the index finger strikes the center of the spot
n = resonant stroke, index finger plays outer rim, spot is damped by the ring finger
o = resonant stroke, index finger plays spot, which is damped by the ring finger
d = open stroke, index or four fingers playing spot
a = arai cāpu
c = cāpu
• = unarticulated pulse

Stroke patterns are written left to right. When two strokes are played simultaneously (on both heads), they are notated as toppi then valantalai with no space in between.

On Transliterations and Spellings
A number of non-English terms common to Indian music scholarship and discourse appear throughout the text. These are transliterated/transcribed using basic diacritics to make their pronunciation—as used by the artists and scholars with whom I have worked—as transparent as possible. I add an “-s” for plurals to indicate that the addition of the English convention is not part of the transliteration. Non-English terms, except those whose frequent use in English makes them especially familiar, are italicized the first time they appear, or until they are translated.

While I attempt to provide continuity with related literature, that literature is often inconsistent in spellings and word usage. This reflects the capriciousness of transliteration and the reality that musicians (and scholars) in different lineages (and at different times) often use terms in distinct ways. For terms with multiple spellings in regular circulation, such as karnāṭak (Karnatak, Karnatik, Carnatic), I follow my mentor’s version. Likewise, I adhere to his use of terminology in describing rhythmic forms such as mōrā and kōrvai. For consistency and readability, I use the term “solkāṭṭu” for individual syllables, groups of syllables, and (at times) for the entire syllable system. Context should make each meaning clear.
As this dissertation unfolds, I bind together numerous syllable applications and contexts under the rubric of solkaṭṭu. Many of these have more specific designations. For example, solkaṭṭu recited on the concert stage is known as konakkol; syllable recitation in dance is called naṭṭuvangam. While more explicitly stated here than in previous scholarship, my expansive use of the term is drawn from common practice and the testimonies of collaborating artists and scholars. It also reflects the long story of South Indian musical syllables tied to rhythm and timing. This is not an attempt to simplify or smooth over distinctions among solkaṭṭu’s various iterations. On the contrary, this work highlights the diversity of solkaṭṭu applications found throughout music and dance. It is through detailed explorations of the variety in syllable use, contexts, and meanings that I uncover the depth of the solkaṭṭu network as it crosses forms and connects practitioners.
Any art form is too big to understand.

– Patri Satish Kumar

**Introduction**

_Solkaṭṭu_ is a lexically meaningless musical syllable system imbued with multiple layers of musical (and extra-musical) meaning in the South Indian performing arts. As the English translation of this Tamil word spells out, solkaṭṭu consists of “syllables bound together.” In South Indian metered music, the syllable is foundational. It pervades temporal and rhythmic conception, communication, and action. The Sanskrit term for syllable, _akṣara_, can also be translated as “the imperishable.” Solkaṭṭu’s consistently central positioning in the South Indian arts reflects that meaning. The binding of syllables in solkaṭṭu takes place on a number of levels. Consonants and vowels are combined into syllables, which are, in turn, strung into units, phrases, and compositions. These formations adhere to a syntax based on linguistic, phonetic, and musical considerations, all determined by well-defined aesthetics shaped over a long history of practice and scholarship. Artists realize solkaṭṭu phrases as drumming, dance, recited syllables, or as melodic constructs. In these analogues solkaṭṭu are bound to movements, sounds, and structures. Solkaṭṭu-based rhythmic phrases are further coordinated in musical time according to metric cycles (i.e., _tāla_ realized as repeating series of hand gestures (known as _kriyā_). These cycles, too, are conceptualized and performed (especially in the first stages of training) according to solkaṭṭu syllables.

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Personal communication (02/22/09)
I began corresponding with the esteemed Indian musicologist N. Ramanathan in the early stages of planning this project. In response to an email outlining my proposed aims, Ramanathan flatly replied: “In South India as such, there is no art of solkaṭṭu being transmitted.” He then asked, “In the absence of such an art in South India, what are you going to study?”¹ Ramanathan’s assertion was absolutely correct: in India solkaṭṭu is not traditionally treated as a separate art, learned and passed along on its own. Rather, solkaṭṭu is part and parcel of multiple forms. It is the medium musicians, dancers, choreographers, and scholars use to convey and communicate rhythmic materials, both immediately and over time. Solkaṭṭu resides at the center of pedagogy and performance in drumming and dance; melodic musicians use it to understand and compose rhythmic materials; solkaṭṭu is heard as lyrics in a number of song genres, and is recited on stage in dance and, less frequently, during karṇāṭak concerts. In addition, solkaṭṭu has become the central medium propelling South Indian rhythmic practice outwards, to new geographic and conceptual spaces.

I first encountered solkaṭṭu in these new spaces: hearing it as exotic vocal percussion in fusion musics and learning it as a method for developing rhythmic prowess on drumset and (non-Indian) percussion. My pursuit of solkaṭṭu led to a serious interest in South Indian rhythm and, eventually, to the study of mṛdaṅgam, karṇāṭak music, and the music of bharatanatyam. My avenue into South Indian rhythm shaped my view of solkaṭṭu—as a multivalent medium of rhythmic

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¹ Personal communication (10/01/06)
communication—and informed my MA thesis on its applications outside traditional South Indian performing arts (Dineen 2005).

The deeper I became involved in studying and performing South Indian music, the more naturally and intimately I engaged with solkaṭṭu—individually and in concert with others. Over time, limited definitions of solkaṭṭu increasingly chafed against my observations and growing experience of its multifaceted usage and prevalence. Moreover, the lack of clarity in discourses on the subject, and the general lack of those discourses, compelled me to focus more intently on the nature of these syllables. There is, indeed, no “art of solkaṭṭu” being transmitted. Rather the rhythmic arts of South India are being (and have been) transmitted—as well as transferred and transmogrified, disseminated, discussed, performed, and transfused—through solkaṭṭu. An accurate and more complete accounting of the scope and centrality of this syllable system in South Indian performing arts has, thus far, been absent from the discourse. In taking up the issue of solkaṭṭu, both broadly and specifically, I aim to fill this lacuna. And in doing so, I discern the connections and modes of communication with which we (practitioners, listeners, and observers of solkaṭṭu) embody and become musical time through speaking rhythm.

The syllables and usage under investigation (especially in the latter part of the dissertation) correspond mainly to karnāṭak music and bharatanatyam, with additional references to closely related genres such as the perīya mēḷam ensemble.² It should,

² Periya mēḷam (Tamil “big ensemble”) earns its name from the double-reed nāgasvaram that is its sole melodic voice. This is in contrast to the cinna mēḷam (Tamil “small ensemble”), which traditionally used a smaller double reed known as mukhaviṇā. This instrument has since been replaced by clarinet and flute as bharatanatyam, the dance cinna mēḷam accompanies, moved to concert stages
however, be understood that musicians and dancers performing many other southern genres also rely on solkaṭṭu; often in quite similar ways, and many times, with a similar vocabulary of syllables. Drummers in the well-known Tamil naiyāṇṭi mēḷam “folk” ensembles, for instance, share much of the solkaṭṭu and rhythmic practice used by perīya mēḷam and kāṇṭak performers (Paige 2009:7–8). Likewise, the solkaṭṭu for kuchipudi dance pedagogy and performance is functionally (and, at times, sonically) comparable to that of bharatanatyam. Nevertheless, detailed investigations of solkaṭṭu in other genres (especially those that have been overlooked in the musicological focus on South India’s art music and dance) are called for as they will undoubtedly reveal further nuances leading to an expanded (and more expansive) understanding of South Indian rhythmic practice.

Multimodal Temporal Modeling
Performing solkaṭṭu (recited vocally or as drumming, dance, or melody analogues) with tāḷa gestures is central in South Indian rhythmic practice. As David P. Nelson describes it:

> The tāḷa in its unwavering repetition exerts a centripetal force on the material, while the grouping into rhythmic phrases at times exerts a centrifugal pull with respect to the tāḷa. Rhythmic unity requires simultaneous attention to the structure of the tāḷa and the movement of the patterns. (1991 vol.1:2)

In the act of reciting solkaṭṭu with tāḷa, “both cycle and pattern are, literally, embodied” (ibid.:3). Performed correctly, the practitioner achieves “rhythmic unity” based on syllabic alignment between the two spheres: tāḷa and phrase. When out of sync, the practitioner experiences a (physical and cognitive) sense of disunity.

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in the early 20th century (Knight 2010:11). One or more tavil drums and tāḷam cymbals round out the periya mēḷam ensemble, which mainly performs music in temple and processional settings.
Reciting solkaṭṭu while keeping tāḷa is introduced early in musicians’ training as a pedagogical tool, which Nelson refers to as the “solkaṭṭu method” (ibid.:2).

In chapter three, I propose an analytical model describing solkaṭṭu’s many roles in South Indian artists’ understanding of musical time. Here I preview that model in order to introduce solkaṭṭu’s cognitive dimensions and to frame the forthcoming discussion. My formulation builds upon Nelson’s description of embodied rhythmic cognition produced through the solkaṭṭu method. I rely on indigenous cultural models to analyze time and rhythmic understanding through a theoretical framework drawn from the cognitive sciences and especially, cognitive linguistics. Conceptual analogies—mapping correspondences between (mainly) experiential source domains, such as keeping tāḷa with hand gestures, and more ephemeral target domains, such as understanding those gestures as cyclical musical time—are the primary mechanisms I use to locate solkaṭṭu in rhythmic and temporal cognition.

My approach to situating solkaṭṭu within South Indian cultural knowledge, and analyzing its use as a specialized cultural practice, is strongly influenced by Bradd Shore’s views on knowledge production (1996, 1991). More specifically, I create a version of Shore’s “conceptual ladder by which we can begin to traverse the conceptual gap between brain, mind, and culture” (1996:339). In my version, artists use analogy to implement cultural models, drawn from broad-based foundational schema, to create individual (though shared) cognitive models of time and rhythm production. Solkaṭṭu is key in the multiple modes of transmission and conception in
which this occurs—i.e., kinesthetic, visual, oral, and/or aural. My analysis of these metaphorical pathways is closely aligned with Gina A. Fatone’s consideration of vocal-motor transfer (2002) and visual-image models in bagpipe music pedagogy (2010), as well as Marc Perlman’s insights on intra-domain analogy in gamelan melody (2004).

**Drum Syllables?**

Although solkaṭṭu is pervasive throughout South Indian rhythm, the dominant body of academic literature has overwhelmingly confined it under the limiting category of “drum syllables.” Because this work has mainly drawn conclusions about solkaṭṭu from studies of mṛdaṅgam, the “drum syllable” ascription is hardly surprising. It is also accurate—as far as it goes. Drummers consistently use a specific body of solkaṭṭu as mnemonics for phrases and compositions played on mṛdaṅgam and/or other South Indian percussives. In this context, solkaṭṭu syllables can indicate particular stroke patterns, compositions, sonic contours (including timbre and pitch), and articulations. Moreover, a handful of syllables are onomatopoetic for individual drum strokes: a relationship that is especially important in the early stages of pedagogy. Though most solkaṭṭu do not maintain a one-to-one relationship with drum strokes, they operate in parallel sonic realms: one guided by vocal recitation, the other by the acoustics and physicality of drumming.

In the close analysis of practice in chapters four and five, I delve into the complexity of solkaṭṭu used in drumming (and dance) pedagogy, communication, composition, and performance, thereby undermining simple readings of solkaṭṭu as
“drum syllables.” Without getting into detail here, simply noting that drummers often conceive pauses and unarticulated spaces as solkaṭṭu phrases immediately distinguishes solkaṭṭu from stroke patterns and highlights its conceptual role. This aspect of solkaṭṭu comes to the fore, and expands exponentially, as percussionists—along with other musicians, dancers, choreographers, and (some) audience members—perceive and communicate the variety of rhythmic structures used in music and dance through these syllables.

**Solkaṭṭu and Other Syllable Systems**

Solkaṭṭu shares a number of features with other syllable systems from diverse musical, geographic, and linguistic climates. While a comprehensive survey is beyond the scope of this study, marking connections between solkaṭṭu and other systems is useful to further clarify and locate the South Indian model. At its most basic level, solkaṭṭu’s component consonants and vowels adhere to typical phonetic

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3 A set of questions about the stroke–syllable relationship that I do not address elsewhere is whether solkaṭṭu evolved as a spoken representation of drum sounds—i.e., as oral mnemonics or “drum syllables”? Or, conversely, did South Indian drumming develop as a surrogate (language or, perhaps better yet, utterance) for solkaṭṭu? Because I believe solkaṭṭu goes far beyond drumming, these questions are peripheral and (at most) relevant to a specific body of drum-related syllables. Moreover, I do not consider the propositions behind each question as mutually exclusive or jointly exhaustive, as many of my examples will show. Nevertheless, a minority of scholars has promoted the view that drum-sounds evolved as representations of spoken syllables (i.e., as a surrogate language), which contrasts the overwhelming opinion that solkaṭṭu developed as mnemonics for drumming. Ter Ellingson (1980) offers a powerful argument for the former in his analysis of notations in the *Sarvadurgati* (an 8th century Indian Tantric Buddhist text containing a variety of rhythmic syllables and mantras written in Tibetan-Sanskrit characters). Ellingson concludes that the *Sarvadurgati* rhythmic notations are intimately related to spoken ceremonial mantras “and the drumbeats merely represent an alternative means of ‘voicing’ the syllables” (1980:447–48). Extrapolating to the larger sphere of Indian rhythm, Ellingson refutes “the consensus [which] seems to be that the drum syllables represent a kind of oral notation devised to represent what must have been, by implication, independently existing musical sounds” (ibid.:431). Instead, he concludes, “the *Sarvadurgati* beats” and other early Indian drum patterns “belong unequivocally to the ‘drum language’ category” (ibid.:448). Ellingson stresses that if we leave this dynamic out of our analysis of solkaṭṭu, we risk “a complete misunderstanding of the evolution of Indian rhythm” (ibid.:447).
patterns and musical applications. In a comprehensive accounting of what he terms, “acoustic-iconic mnemonic systems,” David W. Hughes observes:

“stop” consonants such as [p, t, k, b, d, g] generally mark the sharp attack of a plucked string or struck membranophone or idiophone. The deeper pitches are more commonly marked by the voiced consonants [b, d, g]. [...] Final consonants often help show decay. In many drum mnemonics, a final [k] (or other stopped sound) represents a damped stroke, while a final nasal or vowel shows that the sound is left to resonate and decay naturally. (2000:97)

Like Hughes’ examples of mnemonics for berimbau, Middle Eastern and Javanese drums, as well as shamisen (ibid.), solkaṭṭu (often) follows this paradigm. More interestingly, at least for Hughes, is the consistency with which syllable systems adhere to the phonetic parameters of vowels’ intrinsic pitch, intensity, and duration. Like the Japanese kuchi-shōga mnemonics, Korean kuŭm syllables, and Ugandan harp vocables that Hughes examines, solkaṭṭu typically aligns with a common pitch–vowel contour.

As instrument mnemonics, solkaṭṭu parallels other systems in conveying a complex matrix of information, including: stroke patterns or playing techniques, timbre, intonation, duration, dynamics, decay, and articulation. Like David Locke’s description of Ewe drum mnemonics, solkaṭṭu is “an elegant, rigorous and musical method of oral notation” (1987:40). Moreover, the elevation of the voice in South Indian music leads to vocal imaginings of rhythmic design (as solkaṭṭu) in a similar way that prioritizing the voice in many West African genres promotes complex drum mnemonics and, at times, instrumental speech surrogates. As Kofi V. Agawu

4 For a detailed analysis of this vowel-contour in solkaṭṭu, as well as a discussion of the phonetic properties of the syllables, see chapter four.
emphatically states, West African “music is founded on language, not on drumming, for unless one understands the rhythmic formations that stem from language, one misses a crucial dimension in what would appear to be a purely instrumental genre” (1987:414).

Because of the historical, cultural, geographic, and musical proximity between tablā bol-s in hindustānī music and solkaṭṭu, certain parallels and (perhaps more interestingly) divergences between the two syllable systems are also worth noting.5 Both systems are situated in musics often (though not without controversy) considered part of the “Great Tradition.”6 And they are, in turn, linked (at least in the scholarship) to the canonical drum syllables catalogued in the early music treatises (Powers 1980:134). Although modern solkaṭṭu mostly avoids aspirated sounds common to tablā bol-s, both systems employ similar basic groupings for counting, calculation, and analysis (see p.134).

Beyond syllable construction, modern usage clearly separates the two drumming traditions. The northern drummer’s role as timekeeper is perhaps the most obvious divergence. A specific pattern, or thekā, is assigned to each of the northern

5 Bol-s are used in many northern musical styles, including dhruпад (played on the pakhāvaj barrel drum), khvāl, thumrī, and kathak (all of which use tablā). In addition, bols are central to the gaudīya-vaishnava kīrtana (played on khol) and are found in similar genres where additional (devotional) meanings may be ascribed to the syllables. Sidhar Khan founded the oldest tablā performance tradition, the Delhi gharānā (Hindi “household”), around 1700 (Gottlieb 1993:11). According to Sudhish Chandra Banerjee, “it was Sidhar Khan who first started adapting and using the various rhythmic patterns and Bol[s] [...] of the Pakhawaj for playing on the Tabla” (2006:11).

6 According to Harold S. Powers, “To be deemed ‘classical’ and representative of the Great Tradition, a south Asian performing art must satisfy two criteria. Firstly, it must establish a claim to be governed by authoritative theoretical doctrine; secondly, its practitioners must be able to authenticate a disciplined oral tradition of performance extending back over several generations” (1980:72). For an overview of the “folk” vs. “classical” polarity implicit in this widely accepted formulation, see Aaron J. Paige (2009:21–25). And for a critical examination of the imperatives behind its implementation, see chapter two of this study.
meters and it is the tabla player’s responsibility to articulate it in their playing. The thekā, importantly, indicates both tabla strokes and bol-s. In contrast, southern musicians (and some audience members) mark the metric cycle by keeping tāla. This leaves the percussionist relatively free to explore patterns, approaches, and rhythmic designs, all conceived as solkaṭṭu.

James Kippen defines the bol as “a syllable representing drum strokes, or the stroke itself” (1988:206). His definition rightly implies that the link between bol-s and strokes is exceedingly close, often to the point of being onomatopoetic. Powers suggests that the relationship between tabla strokes and bol-s approaches “an idealized paradigm” in which syllables are consistently matched to strokes (1980:134). While “the mapping between syllables and drum sounds is not one-to-one” (Patel and Iverson 2003:925), it is far closer here than in the southern system.

As I explore in detail below, the divergence between strokes and syllables in the southern system is indicative of a functional distinction between drumming and solkaṭṭu. Solkaṭṭu as a system of mnemonics for drumming is only one of its many facets. This decoupling underlies solkaṭṭu’s central position in a rhythmic system accessed by percussionists (playing a variety of instruments) as well as melodic musicians, dancers, and choreographers. And it marks solkaṭṭu as unique among rhythm-focused syllable systems. The extensive diffusion and application of solkaṭṭu

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7 Aniruddh D. Patel’s and John R. Iversen’s study of the vocalized and played bol-s of six professional tabla players found “that the acoustic properties of drum sounds were reflected by a variety of phonetic components of the vocables,” and can therefore be considered “a case of sound symbolism (onomatopoeia)” (2003:925). The onomatopoeias used in tabla playing, however, are far from universal. Different gharānā-s often maintain unique bol patterns. For example, the same sequence of tabla strokes recited as dha dha tīt in the Delhi gharānā would be spoken as dha ger trak by the Ajrada gharānā (Saxena 2006:19).
outside of its originating contexts (explored in the epilogue) is a reflection of this
distinct status.

**Methodology**

When an artist engages musical time, rhythm, and movement through solkaṭṭu, it is personal (and, most often, interpersonal). Body, speech, and mind align as syllables in the creation of fleeting, yet powerful, expressions of temporal flow. This living engagement is mediated by a profoundly detailed musical system; refined, defined, codified, debated, and theorized by generations of artists and scholars. A holistic analysis of solkaṭṭu must, therefore, consider its internal and external manifestations, communicative properties, and historical (as well as social and cultural) constructions. Keeping in mind Satish Kumar’s admonition (celebration?) in the epigraph, I attempt to weave these threads together into a comprehensible narrative by drawing on three sources: (1) my experiences working with solkaṭṭu as a student, performer, and researcher; (2) the knowledge produced through dialogue—especially in formal interviews—with professional artists and scholars of South Indian music and dance; (3) archival and textual research.

The practice of reflexively turning our gaze towards our own experience of musicking, and using that experience as a tool, research methodology, and data set, is well established in ethnomusicology. As the central means of South Indian rhythmic communications, solkaṭṭu has been both the object and (very often) the medium of my research. My studies of mṛdaṅgam, solkaṭṭu, and konakkol—and performance experience in South Indian music and dance—have provided me with direct access to musical, interpersonal, as well as internal processes mediated through solkaṭṭu.
During fieldwork for this project—undertaken in Tamil Nadu from November 3, 2007 to June 25, 2008 and from November 1, 2008 to March 31, 2009—I furthered my study of solkaṭṭu in performance that began with Nelson in 2000. In Chennai, I studied advanced rhythm theory and konakkol with ghaṭam exponent, V. Suresh, and took a more limited number of private lessons on mṛdaṅgam with T. Narendran and Anilkumar and on morsing with S. Kannan.

In addition to frequent informal conversations with my teachers, other musicians, dancers, choreographers, and audience members, I conducted numerous formal interviews. Because solkaṭṭu use is rarely a subject of inquiry among artists (and perhaps more surprisingly, among Indian scholars) these interviews were less about gathering information than the co-production of (at times tentative or conditional) knowledge. Like the dispersion of didjeridu that Peter D. Hadley traces and analyzes, the subject of solkaṭṭu is “too large and varied for any one person to know or accurately represent” (2007:19). I therefore look to my collaborators’ perspectives to help clarify solkaṭṭu’s various modes and meanings.

The Indian music and dance traditions conveying solkaṭṭu (as considered here) are among the most thoroughly documented on the planet—both historically and in contemporary times, by local and foreign observers alike. Although solkaṭṭu has not been a focus of contemporary scholarship, academic and popular writings provide clues to the context and discourses in which solkaṭṭu operates. Likewise, written

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8 Although I had been working with solkaṭṭu for some time prior, it was under Nelson’s guidance that I began viewing solkaṭṭu in its Indian context and studying the implications of its use in communication, conception, and performance.
manuals and videos on drumming and dance (as well as a few on solkaṭṭu itself) demonstrate artists’ positioning/perceptions of solkaṭṭu. As my reference list demonstrates, I consider a wide range of voices, past and present, in constructing (and deconstructing) a historical framework for viewing solkaṭṭu.

**Literature Review**

As already noted, despite continuous appearances in treatises, manuals, and texts on music and dance, solkaṭṭu has not been a central focus of modern music scholarship produced in India. An aversion to studying performed music in general, and drumming in particular, has only recently begun shifting in Indian musicology. While the historical and social trends that left drumming out of the academic spotlight will be examined below (especially in chapter two), for now it is enough to note that despite its ubiquity in practice, solkaṭṭu has resided at the peripheries of contemporary scholarly discourse in its place of origin.⁹

In contrast, foreign-based researchers have focused intensively on South Indian rhythm and its drumming traditions since the 1960s. Many of these investigations were shaped by the performance-based approach to ethnomusicology arising in the wake of Mantle Hood’s “The Challenge of ‘Bi-musicality’” (1960). As a central feature of pedagogy and performance, solkaṭṭu has been a significant and

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⁹ Nevertheless, a few recent scholars in India have paid attention to solkaṭṭu. B.M. Sundaram, for example, has written extensively on percussion. His works include “The Vanishing art of Konakol” (1995), a short article focused on solkaṭṭu used in performance. Like most authors in India writing on the subject, Sundaram avoids musicological analysis of performance practice. And yet, his historical, cultural, and musical location of solkaṭṭu reflects a fundamental understanding of its broad presence in the Indian arts that eludes many foreign commentators. His nonchalant coordination of solkaṭṭu’s many roles reflects the depth of the syllables’ integration into his and (from his perspective) all Indians’ musical consciousness. “Everyone,” notes Sundaram, “would know the Nattuvanar’s recitation of Jatis and Sollukatts” (ibid.:65).
highly visible element in this literature. Moreover, the complexity of the musical
tradition has elicited a decidedly technical body of work in which solkaṭṭu has proved
invaluable. Because the approach created within this scholarly tradition has
permeated larger academic (and popular) conversations on solkaṭṭu, it is my focus
here. Specifically, I consider the trajectory of solkaṭṭu in key academic works on
South Indian drumming, and in the few publications directed towards wider audiences
that insightfully address solkaṭṭu.

**Brown and the Status Quo**

South India” (1965), presents the earliest detailed analysis of South Indian drumming
in contemporary scholarship. In this highly influential work, Brown aims for a
comprehensive statement on karṇāṭak drumming based on a series of basic mṛdaṅgam
lessons undertaken with T. Ranganathan (1925–1987). Throughout his study, Brown
relies on solkaṭṭu to convey fundamental mṛdaṅgam strokes and the more complex
contents of his lessons. Using solkaṭṭu in this fashion—as a written version of oral
drum mnemonics—is standard fare in Indian texts. Working from the vantage point
of a mṛdaṅgam student, Brown variously defines solkaṭṭu as “spoken syllables
imitating the sound of drums,” “vocal syllables [used] to represent the sounds of the
mṛdaṅgam,” “the symbolic language in which the drummer thinks of his patterns,” or
simply, “spoken drum syllables” (1965:342,92,88). While important distinctions can
be drawn between the onomatopoetic, mnemonic, and semiotic features that these
definitions invoke, his location of solkaṭṭu as “drum syllables” has been widely
adopted in subsequent academic (and popular) works on Indian rhythm.
Nevertheless, as an early practitioner of learning-to-perform as investigative methodology, Brown is clearly interested in the medium through which mṛdaṅgam pedagogy is conveyed. This is how he frames solkaṭṭu. Chapter five, “The Solkaṭṭus used in the Lesson Materials,” is a wide-ranging investigation of solkaṭṭu closely tied to Brown’s observations and study of mṛdaṅgam. Not surprisingly, his overarching aim is deducing “the principles behind the choice of vocal syllables to represent the sounds of the mṛdaṅgam” (1965:92). While Brown presents a compelling reading of the syllables’ linguistic, phonetic, and sonic properties, his framing of solkaṭṭu in relation to mṛdaṅgam is limiting. Even when Brown encounters non-drumming syllables, such as the “compounds used by all South Indian musicians to count time,” he automatically positions them as “undoubtedly derived from the drumming tradition” (ibid.:100).

After Brown’s dissertation, direct analysis of solkaṭṭu was largely put aside, suggesting that later authors viewed questions of solkaṭṭu’s production, nature, and meaning as being sufficiently addressed. Most subsequent academic works either aim to develop, refine, or expand upon Brown’s understanding of drumming, or apply it to non-Indian musical endeavors. While both approaches rely on solkaṭṭu as the main vehicle of musical communication, they propagate a vision of solkaṭṭu limited to its role with mṛdaṅgam.

**Solkaṭṭu Translations**

The subtitle of Russell Hartenberger’s, “Mrdangam Manual: A Guidebook to South Indian Rhythm for Western Musicians” (1974) captures the spirit and intention of his dissertation. It is mainly an adaptation, or translation, of karṇāṭak rhythmic
material for performance on non-karṇāṭak percussion by musicians versed in western art music. Similar to Brown, Hartenberger derives his data from lessons undertaken with a single mṛdaṅgam teacher—in this case, Ramnad V. Raghavan (1928–2009). After a short introduction to South Indian rhythm theory, Raghavan’s lessons are analyzed as mathematical constructs, transcribed into a “mṛdaṅgam notation” with solkaṭṭu, and then into staff notation.

The term solkaṭṭu is only found a handful of times in Hartenberger’s text. Where it does appear, it is simply translated as “syllable,” or “mṛdaṅgam syllable,” thereby supporting its positioning as mnemonics (1974:16,21). Hartenberger’s solkaṭṭu use, however, has three important characteristics carried into subsequent (translational) works: (1) he presents a simplified version of solkaṭṭu with little structural analysis; (2) solkaṭṭu patterns are equated to western rhythmic models and presented in staff notation; (3) despite certain misalignments—where staff notation alters or modifies South Indian constructs—Hartenberger’s solkaṭṭu conveys significant amounts of musical information (to the reader versed in staff notation).

Royal J. Hartigan’s “Blood Drum Spirit: Drum Languages of West Africa, African-America, Native America, Central Java, and South India” (1986) moves solkaṭṭu applications in a dramatically different direction from Hartenberger’s direct translation. Hartigan taps South Indian solkaṭṭu as a resource, which he applies to drumset in the African-American jazz tradition. Interestingly, the section on South India stands out among the regions Hartigan draws on because no indigenous drums
are cited. Instead, Hartigan’s approach to articulating and interpreting South Indian rhythmic materials on drumset is based solely on solkaṭṭu.

While Hartigan is not directly concerned with the details of karṇāṭak rhythm, he presents a fair, yet limited, portrait of Indian solkaṭṭu. His initial description of solkaṭṭu as “spoken rhythmic syllables [used] as accompaniment for dance and as a counterpart for drum phrases and compositions” (1986:1236) is both accurate and portends his subsequent use of solkaṭṭu away from mṛdaṅgam. Furthermore, Hartigan observes that “solkaṭṭu serves as a teaching and memory aid in the passing on of drum compositions” (ibid.:1237), thereby articulating the mode of transmission between his teacher, Ranganathan (also Brown’s teacher), himself, and the reader. Hartigan, however, does not expand on his presentation of Indian solkaṭṭu, nor does he explore the implications of his own adaptations. Nevertheless, like Hartenberger’s, Hartigan’s solkaṭṭu applications still carry significant amounts musical information.

Mṛdaṅgam Mind

Nelson’s “Mṛdaṅgam Mind: The Tani Āvartanam in Karnatak Music” (1991), is the most detailed study of South Indian drumming to date. Its main concern is advancing and applying a comprehensive practical analysis of karṇāṭak drumming to five mṛdaṅgam solos by top tier players. The interviews that Nelson conducts before and after the performances lend a strong ethnographic element to the dissertation while providing space for the drummers’ voices to be heard. Nelson’s analysis is derived from his own long-term, performance-based investigation of karṇāṭak drumming and expanded on through his conversations with the five artists whose solos comprise his data.
While focused on drumming, “Mṛdaṅgam Mind” significantly advances the scholarship on solkaṭṭu in three ways. First, Nelson demonstrates that solkaṭṭu functions as well and expansively at the highest levels of karṇāṭak performance as it does for the lesson materials seen in previous studies. Second, he expands the base of documented solkaṭṭu communications beyond the previously noted teacher–student relationships; in “Mṛdaṅgam Mind” solkaṭṭu is as central in the players’ thinking and communication as it is in Nelson’s analysis and representations. Third, in “Mṛdaṅgam Mind” Nelson refines the academic understanding of solkaṭṭu in his analysis of karṇāṭak pedagogy, a proposition I expand upon in chapter three.

Theses

Master’s theses on South Indian drumming follow the aforementioned dissertations in their reliance on solkaṭṭu to communicate rhythmic ideas through syllabic transcription. Some define solkaṭṭu more broadly, i.e., as “a rhythm language” (Paige 2009:7) or as “rhythmic groupings and phrases in Karnatic music” (Sherinian 1991:169). Others follow common usage and label solkaṭṭu as a “mnemonic drum language” (Falkenau 2004:113) or simply a “drumming language” (Van Hulzen 2002:iv). However defined, solkaṭṭu remains peripheral—functioning as a tool rather than an area of inquiry. Because solkaṭṭu is generally confined to its direct relationship to drumming, the mnemonic aspect of solkaṭṭu as “drum syllables” is foremost in these works.

I am aware of three master’s theses focusing on solkaṭṭu as a subject:

Raphaëlle Brochet’s “‘Add Some Spice!’: Intonation in Konnakol” (2010); my

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thesis, “At Home and Abroad: An Investigation of Solkaṭṭu in Karṇāṭak and Non-Karṇāṭak Contexts” (Dineen 2005); and Lisa Young’s “Konakkol: The History and Development of Solkattu: The Vocal Syllables of the Mridangam” (1998). Young’s subtitle reveals the primary influence of the “drum syllable” discourse on her thesis, in which she mainly evaluates solkaṭṭu in relation to mṛdaṅgam. Nevertheless, Young—a jazz vocalist known for using konakkol in her compositions—intimates a broader viewpoint. For example, she notes that solkaṭṭu is “a vocal reference for all Karnatic percussion instruments” (1998:13) and considers it “the basic language for percussion composition” (ibid.:13–14). Young’s focus on the performance aspect of konakkol also includes a brief section on tone color, contour, and intensity that opens the possibility of an expanded discussion of solkaṭṭu (ibid.:25). Brochet picks up and expands on the performance aspects of solkaṭṭu in her thesis on its intonation. As a vocalist trained in karṇāṭak singing and konakkol (among other styles), Brochet brings valuable insights to solkaṭṭu’s conceptual roles in melodic performance as well as in rhythmic transmission. Perhaps the most interesting contributions of “Add Some Spice!” are Brochet’s use of graphic representations of intonation and her analysis of how it functions with konakkol.

**General Publications**

Numerous articles in trade magazines, along with a handful of method books and teaching videos, attempt to transmit South Indian rhythmic models to more general audiences. Among these authors, Trichy Sankaran (2010, 1994) and Nelson

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11 For examples, see Jain 2009; Lockett 2008; McLaughlin and Vinayakram 2007; Anandan 2004; Leake 2003; Haddad 1986; and Montfort 1985.

Although Sankaran includes beginning mṛdaṅgam exercises notated in syllables, his presentation of solkaṭṭu goes well beyond mnemonics. Sankaran defines solkaṭṭu as “a special vocabulary of phonetic syllables” central in karṇāṭak practice (1994:43). Its crucial roles in the conception and transmission of rhythmic fundamentals, in composition and performance, and in dance figure prominently in Sankaran’s list of solkaṭṭu’s eight essential functions (ibid.:44–45). The exercises that follow, demonstrating Sankaran’s approach to pedagogy, are depicted through a combination of solkaṭṭu and staff notations.

Sankaran further codifies his rhythm pedagogy in The Art of Konnakkol (Solkattu): Spoken Rhythms of South Indian Music (2010). Here, he entirely shifts attention away from mṛdaṅgam, instead focusing on solkaṭṭu and the rhythmic principles guiding its use. As Sankaran states, his goal is “to make available the vocal percussion – solkattu [sol-KA-tu] – system in a simple form, without a great deal of theoretical details” (2010:ix). Sankaran’s accounting of solkaṭṭu in drumming is expansive. “On one level,” he notes:

12 It is no coincidence that Sankaran and Nelson are highly regarded mṛdaṅgam artists as well as scholars of karṇāṭak music.
the syllables represent the tone-rhythm-drum stroke relationship, and on another level they carry lingual dexterity and euphonic beauty. Moreover, it is also true that the drum imitates vocal syllables just the way the voice imitates the drum sounds. At an advanced level, solkattu – with its ornamented and improvised syllables – becomes an art itself, sometimes even poetic. (2010:2)

Moreover, Sankaran’s list of solkaṭṭu’s functions now mentions its growing prominence in Tamil film songs and television (ibid.:3). Additionally, he provides insight into the difference between dance solkaṭṭu and drumming syllables by relating them to Sanskrit and Tamil, respectively (ibid.:2). Though briefly stated, Sankaran lays out a broad and compelling vision of solkaṭṭu that compliments the aims of the practical exercises that follow.


_The patterns and designs of any Karnatak music that makes use of tāḷa can be expressed in solkaṭṭu._ In other words, whether a passage is sung, played, danced, or drummed in a meter, its underlying rhythmic pattern can be spoken in syllables along with the particular tāḷa’s hand gestures. (ibid.:2)

Nelson goes on to describe solkaṭṭu’s roles in mrdaṅgam pedagogy, in bharatanātyam, and in composition and analysis before providing a brief historical context for the syllables—all as a prelude to the practical exercises that follow.

Throughout these discussions, Nelson provides nuanced interpretations that expand even the most well-worn concepts. For example, Nelson points out two levels
at which the common translation of solkaṭṭu, as “words bound together,” operates: (1) syllables are strung together into typical phrases and (2) phrases are bound by tāḷa (2008:1). Later, he distinguishes five layers of syllables active during a bharatanātyam performance, clarifies the non-linear relationship between strokes and syllables, and considers how melodic musicians employ solkaṭṭu. This final use, according to Nelson,

has perhaps the broadest implications. Musicians who use solkaṭṭu to solve problematic passages take this expressive rhythmic language out of the realm of drum and dance syllables and into the world of general rhythmic analysis and training. (ibid.:4)

Like Sankaran, Nelson capitalizes on this aspect of solkaṭṭu in making it available to audiences beyond the realm of karṇaṭak music. Moreover, both Nelson’s and Sankaran’s efforts significantly weaken earlier depictions of solkaṭṭu limited to mṛdaṅgam mnemonics.

Contents
This study is divided into main two parts, Context (chapters one and two) and Applications (chapters four and five plus the epilogue), bridged by chapter three on cognition. I begin the context section by considering features of the oral and literate in the Indian arts. The complexity of the oral/aural and written modes of transmission in music—*sampradāya* and *saṅgītaśāstra*—play out throughout the dissertation. I then offer detailed readings and synthesis of sources on solkaṭṭu in both historic modes. The resulting expansion and re-contextualization of claims about solkaṭṭu goes far in reframing contemporary syllable use. Chapter two puts my long history of solkaṭṭu in conversation with 19th and 20th century movements that reshaped the
narratives of South Indian music and dance. In it, I consider the consequences of orientalist critiques, nationalist initiatives, and colonial and postcolonial discourses on artists and the arts. It is my contention that the downplaying of percussion and rhythm-play during this era helped create the limiting view of solkaṭṭu prevalent in the modern landscape.

Chapter three, on cognition, delves into the processes with which practitioners encounter, engage, and embody time and rhythm in the South Indian arts. This chapter connects the preceding section (on context) to the later half of the dissertation (on contemporary applications) with a model of rhythmic cognition grounded in Indian forms and informed by the cognitive sciences. In chapter four, I turn to the makeup and action of contemporary solkaṭṭu. Here, detailed analysis of the syllables’ linguistic and phonetic features is synthesized with close readings of their functions in South Indian rhythmic processes. Chapter five grounds the models developed in the preceding chapters in the particulars of drumming and dance and the viewpoints of those drumming and dancing. Informed through dialogue with my collaborators, I parse the nuances of solkaṭṭu in mṛdaṅgam playing and among the various South Indian percussives before turning to its many roles in bharatanatyam. In the epilogue I look outward to solkaṭṭu in other music spaces. Case studies of non-traditional solkaṭṭu use—in film music, non-karṇāṭak performance, and in North American pedagogy—demonstrate the durability and flexibility of the system, even as it moves away from its originating contexts.
Old is best, oral is pure

– Lewis Rowell

Chapter 1
Solkaṭṭu; Saṅgītasastra; Sampradāya

Streams of Music History
Early in the recorded history of Indian music nāda (sound) was positioned as an elemental power permeating the universe. In the Brhaddeśī (c. 800), the principal exposition of nāda in the saṅgītasastra, Mataṅga gives its seed syllables as na, derived from prāna (air), and da, which relates to fire (v.20 in Sharma 1992a:9).¹ Fire and air fuel the movement of nāda along pathways through the human body, leading to its true expression in the voice. In Indian music, orality is imbued with veneration of nāda as humanly produced sound.

Solkaṭṭu is transmitted over time through two modes, sampradāya (the oral tradition) and the saṅgītasastra (comprising the music treatises). In India, where “the dichotomy oral–literate neither recapitulates that of folk–elite nor fits with received European notions of cultural-historical stages” (Pollock 2003a:22), there is a firm embrace of the oral tradition as the medium of untainted transmission. In contrast, “knowledge in written form is to a certain extent to be regarded as suspect” (Rowell 1992:125). As Richard Widdess notes:

The Western belief that memory is short-term, limited in capacity, and treacherously fallible, whereas writing is comparatively long-term and reliable,

¹ Rowell finds the connection between da and fire obscure. He speculates that da may be related to the root word dah (“to burn”), or is somehow connected to the patronage of the fire god Agni (1992:45). The type of analysis Mataṅga uses to illuminate nāda, garnering the etymology of a word through an investigation of its seed syllables, is known as nirukta or nirvacana. It was developed by the early Sanskrit grammarian Yāksa and is common throughout the music treatises and commentaries.
is reversed in India: there, collective memory can transmit a complex tradition with astonishing accuracy over centuries, whereas writing is perishable and leads to corruption, forgetfulness, or misuse.2 (1996:391)

Misusing, or learning from corrupted literature opens the door to “false knowledge,” which, according to Rowell, “is to be feared above all” (1992:129).

And yet, writing was (and is) indispensable to supporting, maintaining, and conveying key aspects of music. In fact, knowledge of ancient and medieval music (through the 13th century) comes “only through the documents in which scholars sought to describe and prescribe it” (Rowell 1999:17). Terminology suggests that thinking about and categorizing music and its constituent elements was well underway at a very early date. In the Jātakas (4th c. BCE), vocal and instrumental music were referred to by one term, gāndharva (Ghosh 2007:5). Prior to that, the music-specific terms gīta (song), vādyya (instrumental music), and the compound gītavāditra were used in Sanskrit texts (ibid.). By the time of the Nāṭyaśāstra (NŚ, 200BCE–200CE),3 the principle text in the saṅgītaśāstra, music, in combination with dance and drama, was known as saṅgīta. That these terms continue to appear in subsequent historical records indicates a profound tendency towards conservation in the literature that mirrors an impressive consistency in theory and practice.4

2 Richard M. Swiderski (1988) goes one step further by observing “Western typocentrism.” In his example of Kerala wedding songs, typocentrism is a foreign response to “a fear that the songs might die out if not made over into print” (1988:125). It is a bias explained by “the assumption that print makes its contents immortal and shows a failure to appreciate the stability of texts in oral transmission, or at least a failure to appreciate people’s feeling of assurance that oral transmission is stable” (ibid.).

3 Like other ancient works, the Nāṭyaśāstra cannot be precisely dated. While 200BCE–200CE is commonly cited, scholars’ estimates range from 5th c. BCE (Ayyangar 1978:v; Ghosh 2007:1xi) to the 5th c. CE (Powers and Katz 2001:156). Rowell has suggested that the text reached its final form between 100–500CE (1999:25).

4 These two trends, however, are not rigidly linked. Often, terminology is staunchly preserved against changing musical practices.
The historical success of the oral flow of Indian music derives, in great part, from its place in an intellectual climate profoundly committed to literary preservation. “The survival of incomparably vast quantities of texts,” notes Sanskrit scholar Sheldon I. Pollock, “is testimony to the enduring devotion to and care for literary learning that people in south Asia have displayed for centuries” (2003a:3). This devotion is visible in the results of scribes’ continual efforts to preserve the fast-decaying (palm leaf and birch bark) manuscripts of the saṅgītaśāstra. And it underlies India’s “unbroken tradition of literacy of some two and a half millennia” (ibid.:31). Because the saṅgītaśāstra and sampradāya are inexorably intertwined, it is necessary to address this literary tradition in order to understand orality in music. Therefore, I begin this chapter with a brief overview of the Sanskrit tradition supporting the saṅgītaśāstra, and by considering the oral and literate manifest in two formative examples central to that tradition. This context grounds the subsequent historical investigations of solkaṭṭu in a deeply Indian model of oral and written transmission.

**A Sanskrit Cosmos**

Successful conservation of early texts has relied, in great part, on the consistency and clarity of Sanskrit, the treatises’ main scholarly language. With a thorough knowledge of its grammar and prosody, scribes and scholars could reconstitute deteriorating texts according to clearly defined rules. As Sanskrit moved from its liturgical settings into more secular usage it became a written idiom well designed for communicating precise ideas across vast expanses of time. Furthermore, Sanskrit transcended geographic and linguistic boundaries. Indian literary scholar, Shonaleeka Kaul, suggests, “Sanskrit was a universal language par excellence […] in
that its linguistic affiliations were genuinely trans-regional and tranethnic, as was the sphere of its cultivation and circulation” (2011:33). Sanskrit was a cosmopolitan idiom reaching a “cosmopolitan readership of truly vast proportions” (Pollock 2003b:74). Numerous early translations of music treatises into southern scripts attest to the widespread dispersion of Sanskrit texts and their unifying impact across a range of geographic and linguistic areas (Rowell 1992:19).

India’s deep devotion to maintaining its textual history reveals a deeper facet of its scholarship. Pollack describes this as a commitment to “the ideology of antiquity” in which “the more archaic a text, the purer it was thought to be” (2003a:4). The conservational (and conservative) nature of the historical body of Indian scholarship is evident its tendency to incorporate and build upon previous materials rather than displacing them with new theory. “Many authors,” according to musicologist R. Sathyanarayana, “view their original creativity, innovation or revolutionary contributions as commentaries, which add to the mainstream of tradition and continue it” (2004:145). Pollock sees this as an aspiration to “simultaneity rather than succession (let alone supersession)” and concludes, “later works were intended to supplement rather than supplant earlier ones” (2003a:16).

According to textual evidence, the Sanskrit cosmopolitan even extended beyond South Asia. Pollock notes that the oldest manuscripts of the literary genre known as kāvyā, dating to the early centuries of the Common Era, were discovered in Central Asia (2003b:88). In addition, “As far as we can judge form the evidence of epigraphy, these lands of Southeast Asia [Laos, Cambodia, South Vietnam, and Indonesia] participated as fully in the culture of the Sanskrit cosmopolis as did South Asia itself. Indeed, to think of South and Southeast Asia in this epoch as separate areas makes little sense; the processes of cosmopolitanization and vernacularization occurring in the one region were identical to what we find in the other at the same period” (ibid.:108).

References to normative music treatises in early non-Sanskrit texts attest to their widespread influence. For example, when the courtesan Mātavi plays her lute in the Tamil epic poem Cilappatkāram (5th c.), she is “guided by the exact conventions of the texts” (Aṭika canto 7 v.47 in Parthasarathy 1993:79).
Kaul describes the resulting documentation as “a discourse about the past that self-reflexively projects continuity rather than disruption” (2011:32).

At times, however, scholars’ adherence to this “ideology of antiquity” has led to excessive disjuncture between theory and practice. On a small scale, this can be seen in the changing meanings of retained terms: mātrā, jāti, and śruti, for example, refer to different musical realities in different time periods. More dramatically, ruptures occurred when theory had departed from practice to the point where massive self-corrections were needed. The twilight of the ancient mārga system is one such instance. Sathyanarayana describes the situation at the end of the ancient period as follows:

Geriatric problems of the [mārga] system disabled it from accommodating the abundant practical musical material which emerged without the back up of adequate theoretical frames and classificatory criteria. (2004:148)

And yet, ancient theory evolved from mārga to the subsequent deśī system and many of its key elements, underlying aesthetics, and procedures were preserved and adapted.

The continuity of Indian music, in the face of disjuncture and gaps in the written record, vividly demonstrates that the textual tradition only stands in relation to the oral. The saṅgītaśāstra’s importance in preserving deep history is dampened by cultural doubts about written knowledge. To unpack the complexity of music’s written/oral legacy, I turn to two apparently contrasting (yet for music, formative) models: Vedic ritual and Sanskrit literature. Distinguishing “the written” in a tradition soaked in the rhetoric of orality (the Veda-s) alongside “the oral” in a proudly literate tradition (Sanskrit literature) “reveals,” what Swiderski in his study of South Indian
orality calls, “cultural trends previously unnoticed” (1988:122). Coming from proximate cultural practices, these trends go far in clarifying the intersection of written and oral in music.

**Oral and Written: The Veda-s**
Vedic chant, its written texts, and surrounding discourses display the complexity of the oral/written relationship in India. The Veda-s themselves are considered śruti—revealed and infallible knowledge. Śruti is orally produced and aurally absorbed. Vedic chant is most often presented as “the world’s oldest oral tradition.” The widely held belief that the Veda-s were transmitted orally for centuries “before being written down in precisely the form in which they had first been composed” (Henige 1988:236 n.7) subordinates the written texts while supporting the Veda-s’ divine status as śruti. It also suggests that the texts, including their internal mnemonics and metric formulas, are products of a purely oral tradition.

What Pollock characterizes as “an archaic conviction about the magical efficacy of [the Veda-s’] purely phonic dimension” (2003b:49) requires the utmost

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7 In this context, śruti is contrasted with smṛiti (remembered knowledge), comprising later scriptures, performance manuals, mythologies, treatises, compilations of laws, and commentaries. Because such works are based on humanly produced knowledge, they are considered inherently less credible.

8 This quote, from the Indira Gandhi National Center for the Arts/Ministry of Culture’s video presentation to UNESCO in 2000, was the basis of efforts resulting in UNESCO’s 2003 proclamation (and 2008 inscription) of the “Oral Tradition” of Vedic chanting as a “Masterpiece of the Oral and Intangible History of the World.” Although the inscription itself offers a slightly less hyperbolic account, it duly leaves written texts aside in insisting the Veda-s “have been transmitted orally.” Their survival as oral literature is due to the “ingenious techniques employed by the Brahmin priests in preserving the texts intact over thousands of years.” At the same time, their inclusion in this listing is due to the fact that “Although the Vedas continue to play an important role in contemporary Indian life, only thirteen of the over one thousand Vedic recitation branches have survived. Moreover, four noted schools […] are considered under imminent threat” (accessed 09/18/14 http://www.unesco.org/culture/intangible-heritage/masterpiece.php?id=66&lg=en).

9 According to Swiderski, “Milman Parry’s important discovery that the oral antecedents of a written text are visible in attributes of the text itself has tended to obscure oral–literate coexistence by making it appear that the oral state simply was ‘written down’ to make that text” (1988:122). This characterization holds true for most popular and many academic discourses on the Veda-s.
precision and fidelity in their recitation. Many instructional manuals on Vedic chant include dire warnings such as this one from the Nāradiyaśikṣa (500CE):

> If a mantra is defective either in accent of quality of sound, or is employed in performing the wrong rite, it does not convey the proper meaning. It then becomes a thunderbolt in the form of speech and kills the sacrificer. (v.1.1.5 in Rowell 1992:57)

Not only are mistakes dangerous for the sacrificer (the patron of the ritual), they will have disastrous repercussions for his offspring and beasts (ibid.: v.1.1.6 in Rowell 1992:56). This is because correct recitations of the Vedas are considered no less than “the axis around which the universe revolves” (Staal 1961:1).

Because of the ultimate risks/benefits inherent in Vedic recitation, specialized mnemonic devices are incorporated into the verse structures. As an example, consider the following line from the Rgveda:

**Example 1: Rgveda** (v.8.100.11 in Filliozat 2004:139) samhitā text

\[
\text{devīm vācam ajanayanta devās tām viśvārūpāḥ paśāvo vadanti |}
\]

In this basic version, called *samhitā-pātha* (“continuous recitation”), the text is written out following the *sandhi* rules of elision for Sanskrit. The simplest mnemonic reordering is *krama-pātha* (“step by step recitation”) (ibid.:138). In krama recitation...

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10 Brian K. Smith (1996) explores an intriguing class of intentional variations in Vedic performance, which he terms “ritual sabotage.” These purposeful changes to ritual are subtle to the point that the sacrificer (patron) will most likely not notice them. Tonal variations, skipping sections (including silent recitations), varying ritual materials (such as the color of a sheep’s hair inserted in a water strainer or using meat without fat), and distorting ritual activity (e.g., bent rather than straight knees) are all means by which a priest can cause a range of harms. These include depriving the patron of the ability to inhale or exhale, causing blindness, deafness, loss of virility, crippling, loss of speech, and even death (Smith 1996:295–96). Smith hypothesized that these techniques or “weapons” were developed “at least partially because of the perceived and real disadvantages Brahmins faced in staking their claims to superiority in a social and political world ruled by Kshatriyas” (ibid.:302).

11 “Gods engendered the goddess Speech. Creatures of all forms speak her” (Filliozat 2004:139).
the second word of a pair is repeated as the first in a subsequent pair: i.e., \( ab \mid bc \mid cd \mid de \), … (see ex.2):

Example 2: \textit{Rgveda} (v.8.100.11 in Filliozat 2004:139) krama text

\[
\text{devīṃ vācam} \mid \text{vācam ajanayanta} \mid \text{ajanayanta devāḥ} \mid \text{devās tām} \mid \text{tām}
\]

\[
\text{viśvārupāḥ} \mid \text{viśvārupāḥ paśāvah} \mid \text{viśvārupāḥ iti viśvā-rūpāḥ} \mid \text{paśāvo vadanti}
\]

The most complex mnemonic device is the \textit{ghana-pātha} or “dense recitation.” In \textit{ghana-pātha} a pair is presented and then reversed; then a third word is added and the three are reversed. These three words are then presented in the original order before the process is taken up again starting with the second word of the text: i.e., \( ab \mid ba \mid abc \mid cba \mid abc \mid bc \), … (see ex.3):

Example 3: \textit{Rgveda} (v.8.100.11 in Filliozat 2004:139) \textit{ghana} text

\[
\text{devīṃ vācam vācam devīṃ vācam ajanayantājanayanta vācam devīṃ}
\]

\[
\text{devīṃ vācam ajanayanta} \mid \text{vācam ajanayanta} \ldots
\]

The form (and multiplicity) of mnemonic modes and processes used in Vedic recitation assure that the original text is faithfully transmitted.

Perhaps, as David Henige suggests, the orality of these devices remains largely unchallenged because of the Veda-s’ status as scripture (1988:236 n.7).\footnote{Musicologist R. Obrhai’s description of Vedic transmission exemplifies this special status. “The unwritten Vedas,” writes Obrhai, “were committed to memory and the sheer force of their rhythmic composition helped retain them there through successive generations. Their metered progression bound them together into flowing sequences that seems [sic.] to move by some kinetic force, from one stanza to another. The metre charged them, as it were, and set them into a sort of self-propelling movement” (2003:135).} Jack Goody, however, contends that Vedic memorization techniques encode information in “the equivalent of the mathematical table in ‘oral’ arithmetic” (1987:122). He argues:
These appear to be not so much residues of oral cultures as the instruments of written ones. They are more frequently used in such a context because it is with literacy that the notion of exact verbatim reproduction becomes possible and valued. That is why such recall is associated with Brahmans [...]. (2000:43)

The cognition necessary for Vedic memorization, Goody speculates, “seems almost to require the prior reduction of language to a visual form, providing speech with a spatial dimension” (ibid.). That responsibility for maintaining the “oral tradition was vested in a caste of literate specialists” (ibid. 1987:110) demonstrates the complexity of this intersection.

In addition to textual devices, fidelity in Sāmavedic chant is aided by a detailed system of gesture. A wealth of temporal and melodic information is conveyed through a cheironomy of specialized hand mudrā-s.13 Rowell draws “a clear connection between the Sāmaveda mudrās and the finger counts (the jātis) of later tāla systems, which mark off and count the small units between the major divisions of a rhythmic cycle” (1992:66). These, and other rhythmic processes in karṇāṭak music, explicitly utilize visual clues and spatial understandings of rhythmic “texts” as memorization and performance aids. The transferences seen in the Veda-s—between oral speech and mathematic-like matrices, spatial constructs, and written words—allow for the exact performance required of their ritual context. While orality dominates the discourse on the Veda-s, performance relies on a balance of strategies arising over a long history of interaction between oral and literate. Later discussions

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13 Typically, right hand gestures control melodic content while the left controls temporal aspects of chant.
of similar (or at times, parallel) rhythmic processes in music offer an alternate version from Goody’s on the exactitude of oral transmission (in a literate culture).

**Written and Oral: Sanskrit Literature**

The discourse on, and practice of, the Veda-s (whether they are reliant on writing or are merely reflected in it) supports the primacy of orality. In contrast, Sanskrit literary culture indisputably relied on texts. “There can be no doubt,” writes Pollock,

that Sanskrit literary culture was thoroughly imbued with and conditioned by writing from its earliest period. [...] Sanskrit literature circulated not in oral but in written form, and [...] it was consumed, so to speak, through the eye: read and studied and annotated on birch bark or palm leaf. (2003b:88)

How then does Sanskrit literature fit into the “general belief in the validity of testimony” (Rowell 1992:125) pervading Indian thought?

While reliant on writing, this literary culture was conditioned by what Pollock has called, “the enduring ideology of orality” supported by “the actuality of oral performance” (2003b:88). As in Vedic practice, Sanskrit literature was committed to both the ideal and practice of orality while maintaining its commitment to writing.

The introduction to the *Ramayana*, for example, purports to be a “documentary account of oral creation and transmission” (ibid.:87). Pollock, however, suggests that it “is better seen as an attempt to reimagine orality and recapture its authenticity in a post-oral world” (ibid.). In practice, the *Mahabharata* and *Ramayana* continually recaptured the authenticity of orality because there is “massive evidence” of public readings of both epics from early times (ibid.:89). And, though on a lesser scale, the kävyas were also rendered in oral performances (ibid.:90).
This propensity to frame texts as “objects for listening,” notes Pollock, constitutes one importantly different feature of the medium of Sanskrit (and generally South Asian) literature in comparison with other forms. […] If literature is communicated largely through oral performance, then in addition to whatever significations and functions we may imagine, it represents a social, indeed almost a collective or even congregational, phenomenon. (2003b:90)

By moving from writing/reading to voiced/heard, the Sanskrit literary tradition recasts “texts” as oral/aural public performances. While Vedic performance was (and continues to be) performed under more restrictive circumstances than performances of literature such as kāvya or the epics, it parallels Sanskrit literary practice in its ardent devotion to performed orality and displays a similar simultaneity of oral and written text. The complex interplay between the oral/aural and the written in Sanskrit literary culture and in Vedic practice offers both context and a platform for understanding transmission, continuity, and change in music.

**Sampradāya and Saṅgītaśāstra Intertwined**

The foregoing brief consideration of Vedic practice and Sanskrit literature describes an elevation of the oral mode in which writing is crucial. Similarly, the body of oral teaching/practice in music is intimately intertwined with its written texts. The 15th century commentator on the Saṅgītaratnākara, Kallinātha, defined sampradāya as: “Instruction imparted through the tradition of teacher and taught which, even though not explicitly propounded in śāstra […] with regard to a particular subject-matter, is yet endorsed by it (in principle) and is not against it” (in Shringy 2007:153). Kallinātha’s definition underscores two essential feature of the
oral–written relationship in music: first, face-to-face instruction is primary; second, texts are not meant to convey all aspects of the tradition.

That sampradāya requires a teacher–student relationship, formalized in the gurukula\textsuperscript{14} system, adds an important layer of cultural support to the oral mode of transmission in music. As in religious practice, one’s teacher (guru, ustād) is the principle authority for music (Widdess 1996:391). Students adhering to the traditional paradigm display “unquestioning receptivity” to their guru’s teachings (Nelson 1999:151). In many cases, this “results in a continuity of style unheard of in the West” (ibid.). In his typically florid style, R. Rangaramanuja Ayyangar highlights the prominence of the oral over writing when he notes, “the ancient Gurukula persisted in the field of music alone until the end of the nineteenth century. The use of written material was denied even a dog’s chance” (1978:31).

Since then, textbooks, instruction manuals, and various types of electronic media have affected music transmission by, for example, opening music study to formerly excluded groups.\textsuperscript{15} Changing modes of transmission, along with broader changes to music culture, prompted Ayyangar to declare that “the gurukula system collapsed around 1900” (1977:10). And yet more than a century later—in an age where almost limitless information is widely accessible—the practice of South Indian

\textsuperscript{14} (Skt. “in the guru’s house”) “Gurukulavasam” according to Amanda J. Weidman, “refers to the long years in which the sisya, or disciple, lives with the guru, learning music by a process of absorption, serving and learning humility before the guru” (2003:457).

\textsuperscript{15} Brahmin women and others outside the traditional music/dance lineages, foreigners, and university students are among the beneficiaries of alternate sources of music instruction.
art music is still considered an oral tradition passed directly from teacher to student.\textsuperscript{16} This is even more pronounced for the complex rhythmic aspects of South Indian music, which have been almost entirely left out of written notations and, until very recently, most literature on music.

The second feature Kallinātha highlights is that śāstra is not an explicit statement of sampradāya. Rather, the saṅgītaśāstra offers a theoretical guide, an “endorsement,” and a range of possibilities for sampradāya. It is not surprising, then, that the style and content of the saṅgītaśāstra indicate an integral oral counterpart. The treatises were, according to renowned musicologist Prem Lata Sharma, “formulated with the view that the oral tradition would supplement them” (2002:18). Bharata, the purported author of the Ā Ś, recognizes the limitations of śāstra and role of sampradāya. For example, after writing 298 stanzas on the art of drumming—the most detailed statement on performance practice in the Ā Ś—Bharata advises, “that which has not been mentioned should be devised by good [producers] after considering the Mārga and Jāti [of songs]” (ch.32 v.299 in Ghosh 2007:200). The ability to devise correct performance practices not spelled out in the texts falls distinctly in the sphere of sampradāya.

Even specific information, such as notation, is recorded with the oral tradition in mind. Because they are written representations of oral artifacts, notations found in

\textsuperscript{16} Weidman posits that the gurukula was revived, or more precisely was reinvented, through interventions of foreign students and recording technology in the 1960s (2003:474). These students took on aspects of the role of śīya, leaving aside (in most cases) service to the house of the guru that the traditional relationship implied. As a result, many pedagogical models springing from these interventions continue to use (or at least hold in nostalgic regard) oral instruction and the elevated role of the guru.
the texts lack sufficient information for their full realization. And as Widdess notes, “a characteristic of oral notations in India is that they tend to capture fully only one parameter of the music” (1996:392). “Such notations,” he goes on, are never intended to replace or precede demonstration and oral instruction, only to reinforce it; their limitations become problematic only when they are divorced, through writing, from the oral tradition of which they are an integral part. (ibid.:392–93)

In these written-oral notations we see a clear example of the interdependence of the two traditions; sampradāya is reinforced by the saṅgītāstra while the saṅgītāstra provides a textual (and theoretical basis) for sampradāya.

Sampradāya has transmitted the “musical flesh” of the textual tradition (Rowell 1992:244), yet there is another oral tradition for music that has been lost: namely, the sampradāya of studying the texts. “All the texts,” argues Sharma, were supposed to be supplemented by the oral tradition. The text by itself was never sufficient. Our irony today is that we are left with the text alright but there is very little oral tradition for studying the texts. The oral tradition for performance is there fortunately but the oral tradition that must have accompanied the study of the texts, we now have to resurrect it and some of us are trying to reconstruct it. We have reconstructed it, it has not been handed down to us.17 (2002:19)

Sharma calls the oral tradition of musicological interpretation the “unwritten-written” tradition, as opposed to the “written-written” tradition of the texts themselves

17 Sharma contrasts this with Sanskrit grammar, another area with a deep textual tradition. Pāṇini’s grammar treatise, the Āṣṭādhyāyī (circa 5th c. BCE), is considered the foundational text of Classical Sanskrit. The explanations and commentaries that allow scholars to interpret Pāṇini’s grammar were perpetuated through a “guru-śiṣya paramparā which was to come down to us even till today” (2002:19).
In response to breaks in this lineage, modern scholars have undertaken the task of deciphering and interpreting the saṅgītaśāstra, often using clues from musical sampradāya in their efforts. The saṅgītaśāstra was partly shaped by scholars’ confidence in the concurrent oral traditions designed to clarify, amplify, and transmit its messages. At the same time, as Weidman notes, “writing shapes the oral and aural” (2001:217). This can be witnessed in a number of ways. On the most basic level, the texts set out the possible parameters for musical practice. As Rowell suggests:

Authors sought above all to provide guidelines within which valid music making could occur—in ways that would give pleasure and take advantage of fresh sources of inspiration, but which would also be in harmony with the existing tradition. These documents record a continuous attempt to provide theoretical authority for every conceivable type of musical expression. (1999:18)

This penchant for inclusivity explains the great lengths authors went to document the furthest realms of musical possibility. Within these broadly defined spaces, “it was expected that music makers would select the most pleasing varieties according to personal and regional tastes” (ibid.). When these choices veered from established

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18 Because the aim of the written record was “to do no more than call to mind material which will already have been committed to memory in far greater detail,” Rowell similarly posits the necessity of an oral tradition of music scholarship (1992:100).

19 The success of contemporary scholars’ re-imagining of the ancient tradition contrasts with many earlier commentators who, “despite their virtuoso command of the tools of linguistic reconstruction and comparative textual analysis, […] lacked the expertise in the technical subject under investigation and were therefore unable to provide insight gleaned from practical experience” (Rowell 1992:100). It seems that paying attention to sampradāya is key to the reconstruction of a textual tradition so intimately tied to practice.

20 For example, the sūlādi sapta (primordial seven) tāla system codified by Purandaradāsa (1484–1564) offers a theoretical basis for 35 tāla-s derived from the seven. With the introduction of note-rates (or gati-s), 175 tāla-s become theoretically possible.
śāstra and became ingrained in sampradāya, scholars would be compelled to create further theoretical justification for musical practice.

**In Dialogue**

In addition to their explicit formulation as interrelated parts of a whole (musical heritage), and the influences of oral and written traditions on the style and make up of one another, there have been critical junctures when sampradāya and the saṅgītaśāstra directly affected one another’s content. We can surmise that major changes in śāstra, such as the shift from mārga to deśī or the introduction of solkaṭṭu to describe tāla patterns (see below), resulted from long trending divergences between performance practice and theory. When the living tradition of musical practice had developed in new and innovative directions, it was up to theoreticians to legitimize the practice in light of the śāstric tradition. At other times, the saṅgītaśāstra has been an important reference for sampradāya. For example, Ayyangar notes that the 13th century Saṅgītaratnākara “was the source tapped” by numerous composers and musicians, including: Arunagirinadhar (15th c.), Ootukadu Venkatasubbier (c. 1700–1765), and the Tanjore quartet (early to mid 19th c.) (1978:289). This trend continues as contemporary artists, like dancer and choreographer C.V. Chandrasekhar, borrow source material from the ancient texts (see p.214).

Another powerful example of written texts directly affecting the oral tradition takes place with the rescue and reintegration of many Tiruppugazh hymns into the

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21 Today, the space between theory and practice, and theoretician and practitioner, is often perceived as vast. Characterizing this divide, karṇāṭak singer and scholar B. Balasubrahmaniyan suggests, “musicologists go their way; musicians go their way” (pers. comm. 09/29/04).
modern art-music and dance repertoire. Composed by the 15th century Tamil poet-saint Arunagirinadhar, the Tiruppugazh (Tamil “Glory to the Lord”) are devoted to Lord Murugan, the son of Śiva beloved in southern India. Arunagirinadhar first composed and transmitted these songs through the oral tradition. However, many of the hymns were lost from performance practice in the oral tradition. Much of the Tiruppugazh poetry survived precisely because it was written down and preserved in various archives.

It was only in the 19th century that many of these songs were reintroduced into the performance repertoire. Because of breaks in sampradāya, many of the hymns’ original melodies were lost. In contrast, the tāla structures survived because they are imbedded in the texts themselves. Early in the 20th century, Karnāṭak musicians, most notably Kanchipuram Naina Pillai (1889–1934) and Konakkol Pakkiri Pillai (1867–1937), began re-setting Tiruppugazh poems to music (Sankaran 1989:97). The

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22 The Tiruppugazh unique tāla structures, based on the poetic structures of the texts, are of special interest to musicians and scholars and provide many valuable perspectives on the use of syllables in South Indian music. The multiple roles of solkaṭṭu in the formation, transmission, and composition of these songs will be explored in detail below.

23 As such, many of the Tiruppugazh texts convey valuable information on medieval musical practices, including instrumentation (especially types of drums being used) and solkaṭṭu patterns (Balasubrahmaniyan pers. comm. 10/13/14).

24 The person credited with rediscovering and popularizing the Tiruppugazh hymns was a court official (District Munsif) named V.T. Subramania Pillai, or VTS (1846–1909). One version of events has VTS in attendance for a case in which a group of Diksitar temple priests were attempting to prove their long-standing residence in the Chidambaram temple. Some lines of Tiruppugazh poetry, presented as evidence in the case, intrigued him and so he investigated further. From this serendipitous start, VTS took up a campaign to collect all available manuscripts (Balasubrahmaniyan pers. comm. 10/27/03). VTS published his collection in two volumes (1894, 1901) with a third being released posthumously (1926). Of the purported 16,000 hymns composed by Arunagirinadhar, Balasubrahmaniyan reports that 1,323 are currently available (ibid.).
reintegration of these songs into the active karṇāṭak repertoire was dependent on the existence of written texts.25

While the Tiruppugazh are not śāstra, as written texts they related to the oral tradition along similar lines. Like other music texts, these manuscripts needed to be immersed in sampradāya in order to be revived. Their tāla-s, evident in the syllabic layout of the poetry, had to be realized according to contemporary practices and their melodic content reimagined by performers versed in the tradition.26 The popularity of the Tiruppugazh in contemporary staged performance and devotional settings attests to the beauty and cultural importance of these works. It also depicts an instance where the written tradition was called upon to revive sampradāya.

**Saṅgītāśāstra**

The intimate relationship between written and oral in India is reflected in the interdependent correlation between music text and practice noted above. In the following, I focus on details of solkaṭṭu in each mode of transmission. The treatises are a logical starting point because they offer the best resource for understanding the early state and formation of music, of thinking about music, and of the oral tradition.

25 A similar story of loss and recovery is embedded in the mythology of the Tamil Tēvāram devotional hymns (6th–8th c.). Composed by three poet-saints, the 8,284 verses of the Tēvāram hymns to Lord Śiva form an important part of Tamil devotional music. A 14th century text, the Tirumūraikanta purāṇam, recounts the 11th century discovery of Tēvāram manuscripts, half-destroyed by insects, in a sealed room in the great Chidambaram temple in Tamil Nadu. According to the text, the poet-scholar Nampi ᴬṁṭār Nampi, in conjunction with a descendent of an accompanist of one of the original poet-saints, undertakes the task of recovering the melodies and rhythms for the surviving textual versions of the hymns (Peterson 1989:15–16). “Since at least the eleventh century,” when the hymns were reset to music, notes Indira Viswanathan Peterson, “the oral tradition of the professional singers of the hymns in the temples [the ġūvāṛ-s] has been the principle means for the preservation and transmission of the saints’ poems as songs” (ibid.:23).

26 Alongside karṇāṭak interpretations, there are a number of popular versions of Tiruppugazh sung in simpler meters that do not conform to texts’ syllable structures (Balasubrahmaniyan per. comm. 10/13/14).
The saṅgītaśāstra was given its form and theoretical basis through the Sanskrit drama and dramatic theory from which it emerged (Rowell 1992:95). It is testament to the strength of this model that its two-millennia-old conceptual underpinnings “still resist all pressures for substantive change” (ibid.).

Authority
Like other normative texts, the saṅgītaśāstra sought to prescribe more than describe. “Śāstra as a whole,” notes Jonathan Katz, “assumes the precedence of norms over practice” (1992:4). While sampradāya holds the primary position in discourses on music making, the saṅgītaśāstra derives its authority from articulating—and thereby prescribing—validity. This authority rests in large part on the valuation of ancient knowledge. As with the Veda-s, the knowledge of early music writers is referred to as śruti: i.e., divinely received and infallible.28

Because the core knowledge of the saṅgītaśāstra is śruti, “the task of later scholars is to interpret and amplify—not to contradict” (Rowell 1999:21). Therefore, these authors regularly incorporate and refer to earlier works, making each individual treatise “more like a small library than a book” (ibid.:22). Because the “musical systems of India remain open-ended and retain the power to generate new formations, so long as these do not violate the traditional guidelines” (ibid.:124), authors

27 While Sanskrit is the primary language in which musical traditions were etched into history, its poetic meters had little impact on the metric structuring of Indian music. Rather, tāla was (and is) responsible for large-scale rhythmic organization. This is, according to Rowell, “in striking contrast to the music of ancient and medieval Europe” (1992:215).

28 In the context of the written and oral, it is worth recalling that śruti also translates as “that which is heard.” While this meaning comes to the fore in music—where śruti refers to pitch in general and, in the ancient system, 22 divisions of an octave—it also crosses over and implies that the sages’ knowledge of music was heard. The multiple meanings of śruti thereby graft the oral/aural basis of knowledge onto the textual tradition.
throughout the saṅgītaśāstra go to great lengths to reconcile musical innovation with previous scholarship. What Pollock calls a “habit of sedimentation (rather than the will to supersession)” (2003b:43) results in familiar terminology, categorization schemes, processes, and aesthetics being applied to emerging musical situations. As a result, “all the Indian musicological literature is a massive, running commentary on itself” (Rowell 1992:129).

Authorship and Dates
The process of amassing a comprehensive volume on an increasingly complex area of study makes determining authorship (according to a one-work/one-author paradigm) difficult. According to Rowell:

Authorship of treatises is multiple, consisting of a team of sages, teachers, editors, commentators, and copyists—most of whom have never met, and some of whom may be as mythical as the author of the Iliad. [...] Their job was to sift through everything they could find on a given subject and produce a synthesis of previous learning. The author in this case can best be described as the chairman of a committee.29 (1999:22)

The time involved in the compilation/creation, “perhaps as long as five hundred to one thousand years” (ibid.), further undermines the concept of a solitary author. It also makes determining a specific “date” for each treatise problematic. Given these broad time spans, treatises are generally dated to the time of their completion.

Even if works compiled over centuries are dated to the point in which the text seems to have stabilized, this still leaves questions concerning the age of the practices described therein. It is almost certain that approaches to music, and theoretical underpinnings for those approaches, were in the oral tradition for many generations.

29 Sharma applies the Sanskrit term saṅgraha (gathering or collection) to this process and, notably, includes the oral tradition as a source taped by the treatises’ authors (2002:20).
before being committed to writing. Sharma, musing on the principal treatise in the
corpus, offers a long view. “The Nāṭyaśāstra,” she suggests,
is not the creation of one day. A thought was there and also a performance
tradition of many thousand years, perhaps, a millennia. Many millennia would
have preceded to make possible a text like Nāṭyaśāstra and Nāṭyaśāstra itself
refers to the formulations preceding it. (2002:15–16)

From our vantage point, subsequent treatises become more and more fixed in time
and place. Yet the traditionalist bent of the literature—in incorporating previous
works and ideas and in maintaining a consistent style and methodology—assures that
each treatise’s final form comprises far older materials.

**Notation**

Notations throughout the saṅgītaśāstra are syllabic and phonetic, with each
written syllable reflecting the phonetic value of a spoken syllable in Sanskrit, Tamil,
and other Indian languages. “In one form or another,” writes Rowell,

> the concept of syllable dominates all descriptions of Indian language and
> music, and virtually all melodic and rhythmic concepts are syllabic in nature:
> musical ideas are conceived in terms of syllables and syllable complexes,
> learned and remembered by an indigenous system of sol-fa syllables.

(1992:74)

Because the syllable is the basic building block of Indian music and languages, it is “a
short step from an oral to a written notation” (Widdess 1996:392). The overwhelming
majority of notations found in the saṅgītaśāstra are, as Widdess notes, “written
representations of oral notation” (ibid.).

Indian syllabic notations, however, “tend to capture fully only one parameter
of the music” (Widdess 1996:392). According to Rowell,

> The task for music theory was to describe the musical materials and their
> structure in terms of this syllabic core, but it remained for oral instruction to
demonstrate and teach the many additional sound distinctions too subtle to be captured in the filter of syllabic description. (1992:75)

The subtle contours of melodic gamaka-s, tonal inflections, timbre, micro-rhythmic shaping, and the range of possible realizations are among the crucial musical elements unseen in notations. Like Vedic texts, musical notations “were designed as jogs to the memory, not as full performance scripts” (Rowell 1992:59). The purpose of these skeletal notations is to support the oral tradition; through it, they become relevant.30

In the following sections, I focus on solkattu in the two most important treatises spanning, what Sharma terms, the “Primary and Formative” and “Expository and Expansive” periods of Indian music history—running from 2000BCE to 1200CE.31 The principal formulations, and subsequent shaping and positioning of solkaṭṭu in the saṅgītaśāstra, take place in these texts. The first and foremost in the canon, the Nātyaśāstra, is fundamental in setting the form and trajectory of the entire written tradition. Because of its primary position, considering how the NS treats and deploys solkaṭṭu offers the deepest evidence of both its historicity and continuity. The other work to be considered, the Saṅgītaratnākara (SR, 1250), is often considered the culmination of Ancient and Medieval thinking on music and a bridge to subsequent

30 Syllabic notations in the treatises can be grouped in two broad categories: sargam and solkaṭṭu. The former comprises the seven svaras and conveys a range of information related to melody. Sargam and solkaṭṭu present as like-sized units that can be easily transposed into alternate syllable tracts (Rowell 1992:74). This concordance is central to the conceptual role of solkaṭṭu in guiding melodic timing (for more on this, see ch.3).

31 Sharma divides Indian music history into four major periods: (1) Primary and Formative (2000 BCE–500CE); (2) Expository and Expansive (600–1200); (3) Reconciliatory and Revaluative (1300–1750); (4) Critical and Interpretative (1750–present) (in Shringy 1999:xxxii). In a later presentation, Sharma extends her first historical period as far back as 5000BCE (2002:15).
periods. After the *NŚ*, it is, chronologically, the next available text with a detailed account of drumming. Because of its eloquent structure, the breadth and depth of its contents, and historical location, it has become, perhaps, the definitive textual reference for modern Indian art musics. The discussion of the *SR* will be augmented with references to the *Saṅgītopaniṣatsāroddhāra (SUS)*, written by the Jain scholar Sudhākalaśa in 1350CE. Appearing about a century after the *SR*, this treatise presents details on medieval rhythmic practice that are key to subsequent developments in solkaṭṭu use.

**Nāṭyaśāstra**

The *NŚ* was compiled around the turn of the Common Era and is attributed to the legendary sage Bharata. Contemporary knowledge of it comes from manuscripts collected in the 19th and 20th centuries, from references in subsequent treatises, and from numerous commentaries. While secondary sources clarify some of the more arcane passages in the *NŚ*; recensions, corruptions, and a terse scholarly style—meant to be augmented through sampradāya (of scholarship)—still leave many obscurities. Nevertheless, this treatise is far and away the most important early text on music. In it, we not only find a wealth of information on the ancient music system, but witness the basis from which Indian art music evolved.

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32 In a common nirukta analysis of the name Bharata, *Bha* signifies *bhāva* (emotion); *ra*, *rāga* (melodic mode); and *ta*, *tāla* (meter or metric framework). In short, the name Bharata comprises the major elements of Indian theatre. Another explanation relies on the association of the name Bharata (भरत) and Bhārata (भारत), the Sanskrit term for the Indian subcontinent, suggesting Bharata muni is the sage of India. Somewhat more mundanely, bhārata is sometimes translated as “actor.”

33 Two important sources of information in the *NŚ* are the contemporaneous *Dattilam* and the *Abhinavabhāratī* (11th c.). The former is the first treatise to deal exclusively with music and it corroborates many details of the *NŚ*, the latter is an extensive commentary on the *NŚ*. 
Classical Sanskrit theatre, the subject of the NŚ, included music, dance, and drama. Bharata writes detailed and explicit instructions on these topics, covering practically all aspects of early Indian theatrical production. Approximately 1,500 of the 6,000 verses in the text focus on music. These are divided into six chapters. In addition to a chapter on instrumental music and one on songs, the division of instruments into four classes—stringed, hollow, solid, and covered—provides the headings for the remaining chapters on music. Bharata uses these to present broad outlines as well minutiae on music.

With the exception of the chapter on drumming (discussed below) the NŚ pays little attention to individual instruments, playing technique, or performance practice. Instead, chapter headings serve as points of departure for relevant theoretical issues. The chapter on stringed instruments (vīṇā), for example, includes discussions of melodic modes (jāti-s), contours (vartta-s), and ornaments (alāṃkāra-s) while offering little direct instruction on playing the vīṇā. The general lack of information regarding the practical aspects of making music points to the necessity of a concurrent sampradāya for maintaining musical praxis.

Because music was an integrated and integral aspect of Sanskrit theatre, valuable information on drumming appears in various sections of the NŚ. For example, in chapter four “Descriptions of Class Dance,” the text indicates exact points in the performance when drumming should begin and end and offers guidance
on playing technique: e.g., “the drum should be played with the Graha by the fore finger after its [first] foot has been sung” (ch.3 v.323 in Ghosh 2007:75).

Prescriptions such as these, found outside the music chapters, are important for understanding drumming in theatre. They also add valuable information about aesthetics and production practice in Sanskrit theatre while underscoring the didactic nature of the saṅgītaśāstra.

Chapter 31: Tālam

The chapter on solid instruments, the tālam cymbals still used in certain genres of South Indian music, offers little on the instrument or its playing technique. Instead, it serves as a platform for presenting the system of rhythm, meter, and musical form (tāḷa). This chapter offers what is likely the most detailed account of time organization in the ancient world (Rowell 1999:26). Here, however, I limit my inquiry to elements directly related to solkaṭṭu.

The imperishable syllable (ākṣara) was the fundamental temporal unit underlying the rhythmic system described in the NŚ. Durations, however, were determined according to a larger entity: the māṭrā. Sharma defines māṭrā as “a conceptual time-unit that is concretized or manifested in aṣṭara” (1992b:143). Unlike today’s māṭrā, which is generally considered equivalent to a syllable, the early māṭrā was defined as the duration required for uttering five syllables. The time-units of the mārga tāḷa-s—laghu (short), ghuru (long), and pluta (protracted)—were organized in

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34 Here the term graha likely refers to the beginning of the musical phrase—akin to eduppu in contemporary karnāṭak music.

35 The early māṭrā is typically defined as five nimeśa-s (NŚ, ch.33 v.3 in Ghosh 2007:53)—a nimeśa being an extremely short unit of time, “(wink of the eye) or one short syllable” (Sharma 1992b:144).
a ratio of 1:2:3. In a tāḷa’s basic state (known as yathākṣara, “according to the syllable”) one laghu equaled one mātrā.

There were five mārga tāḷa-s, with varying organizational schemes, temporally arranged according to (a profusion of) syllables. The time units comprising each are indicated as mnemonics in the tāḷa-s’ names. For example, the most common, Śatpitāputrakaḥ, is made up of six syllables corresponding to the following pattern: pluta, laghu, guru, guru, laghu, pluta. At five syllables per mātrā, the duration of the tāḷa’s basic state would be 60 spoken syllables. In the yathākṣara state, each syllable of a tāḷa’s name also corresponds to one tāḷa gesture, or kriyā. For Śatpitāputrakaḥ: saṭ=sannipāta (two hand clap); pi=tāla (left hand clap); tā=śamyā (right hand clap); pu=tāla (left hand clap); tra=śamyā (right hand clap); kaḥ=tāla (left hand clap) (ch.31 v.69–70 in Ghosh 2007:61). Silent gestures were inserted as prefixes to create expanded states of twice and four times the yathākṣara length (ch.31 v.34–38 in Ghosh 2007:58). This type of formal inflation “is one of the most distinctive structural features of ancient Indian music” (Rowell 1992:195). Its ratio of 1:2:4 remains key to South Indian rhythm, as does the specific practice of expanding a tāḷa by inserting additional gestures. Like

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36 The five mārgā tāḷa-s in order are: Caccatputaḥ, Cācapuṭaḥ, Śatpitāputrakaḥ, Sampakveṣṭaḥ, and Udghattaḥ.
37 Rowell speculates that one function of the palindrome structure of this tāḷa (and two other tāḷa-s that also have agogic accents at both ends) was to make transitions from one tāḷa to the next more obvious (1992:199).
38 As in today’s system, these kriyā are visual (and embodied and sounded) cues organizing the performance of tāḷa. Along with the three main audible kriyā used with Śatpitāputrakaḥ, the NŚ prescribes five further gestures, one sounded and four silent.
today’s simpler repertoire of kriyā, these eight gestures did not indicate accent or metric stress in the music. With the exception of sannipāta, the initial or final marker in a tāḷa cycle, the gestures operated on a structural level with minimal direct influence on the rhythmic (or melodic) shape of performed content.

In addition to actual visual (and auditory) cues, the ancient system relied on visual analogies to control and shape rhythmic processes. Two stand out. First, there are two types of mārga tāḷa-s: caturaśra (“four-sided” or “square”) and tryaśra (“three-sided” or “triangle”). Caccatpuṭaḥ, is caturaśra, its duration being 8 mātrās in its basic state. The remaining tāḷa-s are tryaśra (6, 12, 12, and 6 mātrās in their yathākṣara states). The two categories were applied (hierarchically) to different musical situations, with caccatpuṭaḥ being elevated (Caudhary 1997:43). The second visual analogy introduced in Chapter 31 is that of yati, which here means the regulation of timing and tempo (v.489–93 in Ghosh 2007:104). Bharata introduces three yati-s: sama (“even”), srotovaha (“river’s mouth”; increasing), and gopucch (“cow’s tail”; decreasing) (ibid.). These yati formations, which are central to contemporary karṇāṭak rhythmic design, appear with more detail two chapters later in the NŚ (ibid. ch.33 v.93–101).

Chapter 33: On Covered Instruments
The chapter on covered instruments (avanaddha) provides a wealth of information on ancient percussion, including: the mythical origins of drums, the types of drums used in theatre and their relative importance, drum-specific solkaṭṭu, playing

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40 See chapter three in this work for a detailed accounting of spatial analogies used in contemporary South Indian rhythmic design.
techniques, rhythm theory particular to drumming, appropriate accompaniment for various aspects of a play, suggested (or archetypal) solkaṭṭu patterns for different playing situations, construction methods, proper ritual dedication of the instruments, and the qualities of good (and poor) drummers. The chapter, according to Rowell, “is more self-contained than any of the previous chapters and includes virtually everything pertaining to the drummer’s profession” (1992:100). The quantity and specificity of Chapter 33 is indicative of the value placed on percussion and the percussionist in the context of ancient theatre. If there is any lingering doubt, the last verse in this chapter explicitly states: “One should first of all bestow care on the playing [of drums]. For this playing has been called the basis (lit. bed) of the dramatic performance” (ch.33 v.301 in Ghosh 2007:200).

The composition of Chapter 33 not only highlights the importance of drumming, but also underscores the ancient drummer’s unique role. Rowell suggests that in the early treatises, “the drummer seems to have inhabited a self-sufficient musical world, as a counterdimension to all other musical activity” (1992:117). In this way, the NŚ reflects the rhythm/melody division central to Indian performance practice. The more remarkable contrast made in the NŚ with regard to rhythm, however, is between tāla and drumming. While drumming is fully represented in

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41 The description of Mātala’s skilled drummer in the Cilappatikāram—as knowledgeable in all aspects of music and dance, well versed in the intricacies of the Tamil language, and sensitive as an accompanist—resonates with the qualities described in the NŚ (ch.33 v.293-98 in Ghosh 2007:199-200). Regarding the deficiencies of a drummer, verse 240 of chapter 33 says, “The wise say that a player of drums, who does not know about the Tāla, [proper] occasion and the Sāstra about it, is merely ‘a striker of hides’” (in Ghosh 2007:195).
Chapter 33, rhythmic structuring and the procedures and practices of meter are contained in the tāla chapter (ch.31).

The fact that abstract principles of rhythm and meter and practical instructions in drumming appear in two separate chapters illustrates an understanding of their roles in Indian music as valid and important today as it was two thousand years ago. The drummer is not solely responsible for timekeeping; tala is the mutual responsibility of all the performers. (Rowell 1999:29)

The freedom provided by this arrangement is at the root of virtuosic rhythmic practices developed in South Asia (Powers 1980:72).

**The Drums**

In the NŚ, drums are divided into two types: aṅga and pratyaṅga (principal and secondary). The main percussion instruments comprising the theatre orchestra—mṛdaṅga, paṇava, and dardura—known collectively as tripuṣkara (“the three

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42 Mṛdaṅga (mṛdaṅgam, mṛdaṅgam) is a Sanskrit compound comprising mṛda (“clay” or “earth”) and aṅga (“body”). This definition compels many scholars to conclude the instrument was a clay-bodied drum (see Sachs 1940:154–55). Following this logic, Ghosh equates the mṛdaṅga described in the NŚ with the North Indian khol used to accompany kīrtana and other devotional music (2007:161 n.1). While khol is sometimes called mṛdaṅga, and is part of the barrel drum family, its playing technique (not to mention repertoire) differs dramatically from South Indian mṛdaṅgam. Other authors, such as Powers (1980:133) and V. Raghavan (1953:135–36), suggest “clay” (mṛda) refers to the black river mud used for the tuning spot on wooden-bodied drums. To these two possibilities, Brown adds Mudaliar’s (1948:19), “who says the name derives from the instrument’s soft (mṛdu) sound” (1965:17). These types of inconsistencies reflect the difficulties of reaching definitive conclusions about such a long-developing tradition. Because of its cultural (and actual) positioning as the premier drum in southern art music and dance, ample evidence of consistencies in playing style, historical uniformity in its basic lessons, and most importantly here, the coherence of the solkaṭṭu related to the drum, contemporary South Indian mṛdaṅgam can be closely linked to the drumming tradition described throughout the śāstric tradition.

43 The NŚ lacks detailed descriptions of both the paṇava (Skt. “small drum”) and the dardura. Shankaran suggests the paṇava is an hourglass drum while the dardura is a “pot drum” (1994:65). Powers describes the paṇava as a “waisted drum” and the dardura as “a moderately large globular pot with a stubby, wide neck covered with hide,” noting both these drums “were required to follow the mṛdaṅgam player” (1980:134). Ghosh cites Abhinavagupta’s description of the dardura “as being like a large gong of bell-metal; some consider it to be a flute.” “Dārdurika,” Ghosh notes, “may however be derived from dādura which means a conch-shell the valve of which opens to the right. […] But in spite of all this, Dardura was a kind of drum” (2007:2 n.6). Clarifying (or perhaps further muddying) the picture, Ghosh later adds “one side of [the Dardura’s] wooden frame is covered with hide; it looks like a large gong” (ibid.:161 n.3).
drums”)—are aṇga. The mṛdaṅga, according to Powers, comprised a set of three individual drums—ankika (“lap”), ārdhvaka (“upright”), and āliṅgya (“embraced”)—played by one musician (1980:133). Other drums mentioned in the text, such as bherī, dundubhi, bhambhā, and diṇḍimas are of the less-valued pratyaṅga class.

This division affects when and how the drums are used and has implications for solkaṭṭu associated with them. According to the NŚ, pratyaṅga drums have harsh sounds and “produce no [distinct] notes, for them no [regulated] strokes [are necessary], no distinct syllables are available from them, and they require no Mārjanā” (ch.33 v.25–26 in Ghosh 2007:164). These drums seem to have been relegated to the role of sound effects, i.e., when “one desires the depth of sound from their slackness and extensive surface” (ibid.).

Shortly after differentiating the two classes of drums, Bharata reiterates that “notes coming out first from the human body go to the wooden Viṅā and then they go

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44 In the origin story of drums in the NŚ, Svātī is divinely inspired by the sounds of a rainstorm of Indra’s making showering a lotus pond. Retiring to his hermitage, he and the celestial instrument maker, Viśvakāraṇa, devise the mṛdaṅgam followed by the other two drums of the major class (ch.33 v.4–13 in Ghosh 2007:161–62). We are also told that the minor drums were fashioned by the same pair but seem to lack any divine impetus for their creation.

45 The descriptions of three shapes and sizes of mṛdaṅga, followed by those of the paṇava and dardura in verses 242–50, seem to confirm Powers’ claim of a mṛdaṅgam set. If true, it complicates readings of the term mṛdaṅga in the NŚ as being nearly equivalent to the contemporary instrument. Brown, however, provides a solution in his review of iconography. From the 2nd through the 8th centuries, notes Brown, “barrel drums were played in groups of two or three by one performer. One drum was used horizontally, with two heads for striking, a second was used vertically, with one head. From about the fifth century, a second vertical drum was added to the group” (1965:58).

46 Some of these instruments, like the bherī, the bhambhā, and possibly the dundhubi, were kettledrums, which have a long history in India. Brown speculates that name dundhubi appearing in the Rig Veda “is onomatopoetic, and may indicate that some sort of rudimentary syllable system was already used [at the time of the Veda-s] to represent the drum sounds” (1965:57). In the context of NŚ, however, solkaṭṭu were not associated with the dundhubi and other drums of the minor limb. A bhumi-dundhubi (“earth-kettledrum”), possibly created by stretching a skin over a hole in the earth, is also mentioned in the Rig Veda (see Brown (1965:49) and Sankaran (1994:65)).

47 A paste used to make the black spot on a drumhead. Today, the spot (karanai) is made from kittam, which is manganese oxide and iron oxide mixed with cooked rice.
to the Puṣkara and the solid instruments” (ch.33 v.32 in Ghosh 2007:164). These notes specifically include solkaṭṭu. “In the Vīṇā of the human body,”⁴⁸ states Bharata, “there should be Vāṣkarana [sic.] (mnemonic patterns) such as jhiṇṭu jagati kāṭ” (ibid. v.34).⁴⁹ It is this vocal/syllabic connection that raises the status of the tripuṣkara above sound effects. In contrast to other drums, the aṅga instruments correspond to humanly produced sound via solkaṭṭu. At the same time, in these passages we see solkaṭṭu in the human body clearly distinguished from, and prized over, syllables realized on (or through) instruments. In the first case, notes are voiced or internally sounded as solkaṭṭu. In the second, spoken solkaṭṭu is performed on drums as percussion sounds, which are, in turn, understood as solkaṭṭu.

The Syllables (and Strokes)

Bharata explores fifteen aspects of puṣkara functioning. Because solkaṭṭu is the prerequisite for organizing, creating, and communicating drumming, it stands to reason that the first aspect presented is an exposition of their (spoken) syllabic sounds. “K, kh, g, gh, t, th, ḍ, [ṇ], l, and h are the sixteen syllabic sounds. They are the always to be used in the Vāṣkaraṇa of the Puṣkara music” (ch.33 v.40 in Ghosh 2007:165). Solkaṭṭu are formed by combining the sixteen syllabic sounds with the following vowels: a, ā, i, ī, u, ū, e, ai, o, au, aṃ, and aḥ (ibid. v.42 in Ghosh 2007:165).

⁴⁸ The Sanskrit term Ghosh translates as “Vīṇā of the body” is gātra vīṇā. The literal translation, “body instrument,” emphasizes the human basis of musical sound. Instrument classification schemes in early Tamil literature include mitatru karuvi (Tamil “throat instruments”). According to Reis Flora, this term “indicates a local transformation of the phrase ‘body instrument’ (gātra vīṇā), used to signify a vocalist in the Nāṭyaśāstra” (1999:327). Such concordance is indicative of the broad impact of the Sanskrit Cosmopolitan on regional traditions.

⁴⁹ Ghosh believes that vāṣkaraṇa “is probably to be derived from vācaskaraṇa and is similar in meaning to bol used by modern drummers of Northern India” (2007:164 n.(34)¹). Ramanathan more precisely translates the syllables of this term as vāk, meaning “speech” or “voice” and karaṇa, which translates as “doing.” The term refers to lexically meaningless syllables used in music (pers. comm. 11/18/14).
2007:166). The text then specifies fifty-two available combinations. For example:

“To kh—i, u and o can be added to produce khi, khu and kho. To g—a, e and o can be added to produce gu, ge and go” (ibid.). The NŚ also mentions consonants (h and m) that are used without vowel sounds and the possibility of using r, k, and l, as “appendages (anubandha)” to create ghruṃ, dhra, tre, kram, thra, [dram], dhram, [klaṃ, and kle] (ibid.:167). These combinations and permutations of consonants and vowels create, what Powers calls, “the canonical series of drum syllables” (1980:134).

Once spelled out, syllables are related to specific playing techniques for the mṛdaṅga, such as “running the finger” to produce ku, striking with the back of the hand for kl, and “curving the fingers” to make kṣa (ch.33 v.42 in Ghosh 2007:167).

The five main hand strokes (pāṇiprahata) follow. They are full (samapāṇi), half (ardhapāṇi), quarter (ardhārdhapāṇi), side (parśva-pāṇi), and forefinger (pradeśinī), and can be played with three degrees of damping: i.e., controlled, semi-controlled, or free. The strokes and damping are subsequently associated with various solkaṭṭu, including: klaṃ, a forefinger (free) stroke; kleṃ, a half-hand (controlled) stroke; and draṃ, dhraṃ, and klaṃ, two-handed side-hand (controlled) strokes (ibid.:167–68).

Instructions for playing the two other drums in the puṣkara appear in a later section. “The syllabic sounds such as k, kh, g, pṇ [dh] r v ān pr, h, nād bhṛulān dhṛā hu lāṃ are to be used in playing a Paṇava” (ch.33 v.58 in Ghosh 2007:171). Combined with vowels, they produce the following phrase, described in the text as “music of the Paṇava”:

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50 The solkaṭṭu created with ṇ—ṇa, ṇi, and ṇe—are apparently corrupted or missing from the text and are added in, or corrected, by Ghosh (2007:167).
Kiri ghiniṭam tho tho no dho tr hulām kiri ghiniṭam no no nā nṭām co ktri kiri kandā maṭa maṭa tthi te te te donnam. (ibid.)

A dozen verses detailing paṇava hand and finger techniques and their related solkaṭṭu follow. Notably, only six of the syllabic sounds of the paṇava correspond to the earlier list for mṛdaṅga. Even less information is given regarding the solkaṭṭu and playing of the dardura. Yet, the few syllables and strokes listed (totaling five verses, 72–76) are characterized as “pure strokes not mixed up with strokes of drums of other types” (ch.33 v.77 in Ghosh 2007:173).

Here Bharata marks off specific sounds and solkaṭṭu for different drums. This is in contrast to the subsequent section in which he addresses the three instruments playing together with much shared solkaṭṭu (v.78–91). It also diverges from the large majority of later verses in which there is no distinguishing amongst the solkaṭṭu of the puśkara. This level of differentiation—slight variation according to instruments within a generalized framework closely related to mṛdaṅga—foreshadows contemporary solkaṭṭu used with South Indian percussion.  

The basic materials described and prescribed in these sections reveal two important characteristics of South Indian drumming. First, the playing techniques for the ancient mṛdaṅga appear similar to those of the contemporary mṛdaṅgam, suggesting an extraordinary continuity in the technical approach to sound production.  

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51 For more on this, see chapter five, “Solkaṭṭu and Other Percussion.”  
52 Powers goes as far as stating that the “tonal colors implied by so many drum syllables is produced with the same techniques that are still used” (1980:134). While this may be true in the general sense of applying various hand and finger strokes to create distinct syllables, the necessary detail in hand
construction. Second, and more central to this study, the strokes do not maintain a one-to-one correspondence with the syllables. For example, the single solkaṭṭu da can be played with a half hand (semi-controlled) or side hand (controlled). At the same time the half-hand (semi-controlled) stroke can be called da, ga, or dha (Powers 1980:134). This nonexclusive relationship between strokes and syllables is a hallmark of contemporary solkaṭṭu and is critical to its flexible applications (see ch.5).

Bharata concludes the section on the sixteen syllabic sounds with the following couplet: “Sixteen are the sounds coming out of [covered] musical instruments. The wise are to make Vāṣkaraṇa from their combinations” (ch.33 v.43 in Ghosh 2007:168). Notice how here, at the end of a detailed exposition of strokes and related solkaṭṭu, the text again indicates sampradāya. It is only through the oral tradition that one gains the wisdom necessary to develop appropriate solkaṭṭu phrases from the basic building blocks.

**Applications**

After prescribing basic syllable formations, and their associations with drumming, Bharata introduces solkaṭṭu phrases appropriate to various musical (and dramatic) situations. First, he discusses playing in the four mārga-s performed during the ritualized ceremonies preceding a theatre production. These phrases, which Ghosh notes are only “tentative” reconstructions because of loss or corruption in transmission (ch.33 v.44 n.1 2007:168), include the following:

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57 Here, the term mārga (Skt. “path”) is likely used in reference to the four states of rhythmic density used in the ancient system. The density of the musical activity in a specific mārga is doubled for the next, creating a ratio of 1:2:4:8. See Rowell (1992:202–07) for an exposition of mārga in this sense.
ghaṭṭam, katthita ghaṭṭam ghetā ghaṭṭam gatthimāṃ gatthi ghaṇṭāṃ gatthi

dadhro mā mādṛma mām sta du rprere ghrām ghrām ghrām ghrām ghrām, preṁ (ghra) draṁ ghrēm dro mām

takītān takītān sentām kinānāṃ ghisaṃketā idu hudu ketāṃ⁵⁴ (ch.33 v.44 in Ghosh 2007:168–69)

Interspersed with these (and six other solkāṭṭu) examples, are proscriptions, e.g.,
“strokes in the Vitasta mārga should be devoid of those for l, m and r” (ibid.:169),

and further instruction on technique: e.g., “H is produced by pressing the fingers, and
it is a free [stroke] and the fingers will have to be crossed and half-controlled for this
on the Ūrdhvaka and Āṉ[ki]ka” (ibid.). The full integration of solkāṭṭu into technical
instructions for drumming (as seen in the preceding quotes) further demonstrates the
syllable’s complete permeation of the conceptual matrix supporting Indian rhythm.

In addition to solkāṭṭu for the preliminary ceremonies, Chapter 33 contains
detailed solkāṭṭu examples of drumming for vocal and instrumental music performed
during the drama. Drumming prescribed for instrumental music associated with
various characters’ moments includes the following examples:

kho kho khaṃ khaṃ khaṃ khaṃ khaṃ is called Śuddhā, it is the Jāti [for the action]
of the middling and superior women. (v.131 in Ghosh 2007:179)

tatṭhim kaṭṭhaṃ maṃcchi and dhandrāṅ gudheṅ gu dhitaṅ […] This is to be
applied to the movements of superior male character of calm type. (v.149
ibid.:180)

duṅa duṅa duṅa kimka dhima ghoṅ fhoṭeṅ madatṭhidugakiṭi ghoṅ […],
should be applied in case of movements of Daitya kings, chiefs, Nāgas

⁵⁴ More specific phrases for the opening ceremonies, with extensive solkāṭṭu examples, are prescribed
later (see v.227 in Ghosh 2007:189–90).
During the movements of gods, the playing should include braṃ, dhramaṃ dhramaṃ dhramaṃ dhromaṃ. During that of kings it should have ghemtāṃ, and in case of middling men the playing should include dhramaṃ klaṭu gheth gheth titthi duna, kiṭi drāṃ nāṃ nāṃ dhramadrāṃ. (v.227 ibid.:191)

Further guidelines on drumming for stage movements include syllables and strokes for heavenly characters (v.154 ibid.:181), for juggling (with or without disguise) (v.157 ibid.), to play with the “movement of terrified persons and to any movement of them in the sky” (v.165–66 ibid.:181–82), for generic quick walking (v.228, 231 ibid.:191), to accompany the walking of mythological beings, sages, monks, gurus, corpulent persons, goddesses, queens, Brahmin women, courtesans, and inferior women (v.232 ibid.:192). Solkaṭṭu examples for incidental music accompanying extra-musical events, such as the end of a recitative or to cover wardrobe adjustments and malfunctions, are also prescribed (v.234–35 ibid.:193).

Aside from instrumental music accompanying movement and action on stage, theatre productions also used a large repertoire of plot-related songs, known as dhruvā.56 These songs propelled, clarified, and embellished the drama. Chapter 33 provides some guidelines for drumming with the dhruvā-s. For example, “droī ghoī donī dhoī ghegheī […] is to be used in case of songs of male singers” (v.133 in Ghosh 2007:179). The text also stipulates performance practice, such as having the

55 These are mythological beings including demon kings (daitya-s), snake gods (nāga-s), flesh eating demons (rākṣasa-s and piśāca-s), and nature spirits/deities (gāndharva-s and guhyaka-s).

56 According to Rowell, “The dhruvā-s fall into two broad categories: those included in the formal text of a play and the larger number that were to be interpolated by the producer. […] The dhruvā-s were sung by the singer(s) at the rear of the stage, not the actors, and their primary purpose was description” (1992:109).
first rendition of a song performed without musical accompaniment (v.187 ibid.:184).

This practice, presumably, allowed the text to be heard and its meaning comprehended before percussion muddied the sound (Rowell 1992:111). Bharata also provides phrases to be played at the ending of songs. These include, “ghettāṃ kikiṭi datta kettikīṃ godo ghaghe do gha te gho ghe yado,” “dhe dham dheṭa maṭadhe ghe chimaṭam kaṇṭachi maṭachi harmāka didhiṭi,” and “dhaṃ drām dham drām takitāṃ gududhe” (v.238 in Ghosh 2007:194). There are, however, far fewer solkaṭṭu examples for dhruvā playing than for the instrumental accompaniment of dramatic action. Instead, Bharata suggests, “In case of remaining Dhruvās, one should have various [manner playing drums] according to one’s liking” (ch.33 v.175 ibid.:182).57

The dhruvā-s, and particularly the prāveśikī dhruvā-s performed as a character entered the stage, were integral to the dramatic expression of emotional states, i.e., rasa (Skt. “juice,” “essence”). Rowell describes rasa as, “the single most important concept in Indian aesthetics” (1992:15). In the NŚ, each of the eight main rasa-s is directly related to a scalar degree and, according to Ghosh, to specific melodic types or jāti-s (2007:9–10).58 The connection between music and emotional state, however, is infinitely more complex. Rowell effectively makes this point through an analysis of the erotic (śṛṅgāra) rasa. Drawing out an array of imagery, words, activities, ideas,

57 This admonition is intriguingly congruent with contemporary mṛđaṅgam accompaniment; in contrast to the composed and meticulously rendered melodic lines, the drummer’s accompaniment is mostly improvised, without fixed parts or patterns. It is another reminder of both the distinct place of the drummer in Indian music and of the centrality of sampradāya in transmitting essential features of Indian music.

58 The eight rasa-s are the erotic, comic, compassionate, furious, heroic, terrible, odious, and wondrous. Abhinavagupta (c. 950–1020), author of the NŚ commentary, Abhinavabhāratī, introduced peace to the original eight, thereby completing the Navarasa (nine rasa-s) accepted in contemporary Indian arts.
ideals, conventions, and associations for śṛṅgāra, Rowell invokes a rich aesthetic landscape touching all the senses and capable of arousing deep emotion (1992:332–33). In the NŚ, śṛṅgāra is evoked through numerous theatrical cues, including: delicate gestures, facial expressions, gentle tones of speech, sensitive character types, appropriate time of day, and a moderate tempo in speech (ibid.333).

Musically, rasa is not only conjured through song text, but also by tempo, song structure, melodic type (jāti), and, by extension, through rhythmic patterns prescribed for the jāti-s. Chapter 33 contains numerous solkaṭṭu examples linked to rasa-s in this way. For example:

Mi mathi thamabhū thi kimā will be the syllables in Deśānurūpā Jāti. It is to be used in the best Erotic Sentiment of women. (v.137 in Ghosh 2007:179)

Ghedrāṅ ghedrāṅ ghe gheru are the syllables in the Deśād-apetarūpā Jāti in playing [drums]. […] It is to be used in the Pathetic Sentiment. (v.138 ibid.)

ghodāṅ ghidiṅ gudugnoū […] should be applied in the Heroic, Marvellous and Furious Sentiments. (v.140–41 ibid.:179–80)

Magathāṁ kuyu ihakim […] is to be applied in movements of Erotic and Comic sentiments. (v.148 ibid.:180)

By connecting specific rhythmic patterns to ceremonial musics, song types, rasa-s, and to the movements of various characters, the NŚ endows rhythmic patterns with heavy dramatic responsibilities. Bharata and his contemporaries, notes Rowell, “clearly believed that the language of rhythm could communicate as fully and as precisely as the language of stylized gesture” (1992:112). And here, in the multi-media context of Indian theatre described by Bharata, solkaṭṭu is that language of rhythm communicating information extending far beyond the purely “musical.”
Consequences of Solkaṭṭu in the NŚ

The array of solkaṭṭu in the NŚ allows us to make suppositions about early syllables and, thereby, discern certain foundational elements of contemporary solkaṭṭu. However, before considering the consequences of solkaṭṭu in the NŚ, I must reiterate the necessarily tentative nature of any conclusions regarding these syllables. On the purely practical side, recall that the orderliness of Sanskrit grammar along with the logic and continuity of music content helped generations of scholars reconstruct damaged passages in the saṅgītaśāstra. Because solkaṭṭu lacks lexical meaning, scribes and scholars could not fully rely on grammar or context to repair mistakes or reconstitute missing solkaṭṭu syllables, thereby leaving written solkaṭṭu more vulnerable to corruption than the surrounding text. Furthermore, the difficulty in interpreting archaic language, the consistency in terminology (which often far outlasts meaning) in the saṅgītaśāstra, and the tendency to construe meanings according to contemporary knowledge (and pressures) can lead to uncertainties in both transcription and translation. Discrepancies surrounding something as basic as the physical nature of mṛdaṅga,59 for example, are reminders of the hazards in putting meaning to ancient words.

Even if we take the solkaṭṭu in the available versions of the NŚ as representative of ancient written syllables, we are still at a loss regarding their realization. Like other aṅkṣara notation in the saṅgītaśāstra, the solkaṭṭu are a skeletal representation, meant to remind the reader of active information transmitted in concurrent oral traditions of performance and scholarship, both of which have been

59 See n.42 above.
repeatedly reinvented over the centuries. Therefore, without the benefit of a clear lineage of sampradāya stretching to this early treatise, we cannot discern the specific nature of these solkaṭṭu examples with regard to ancient performance. Are they archetypes prescribed by scholars? Are they theoretical permutations designed to exhaust all possibility? Or, are the solkaṭṭu written versions of actual practice that we can take as representative of ancient drumming?

Despite such obstacles, Chapter 33 provides an invaluable window into ancient solkaṭṭu and offers a basis from which to observe the subsequent development of syllables in South India. Four central characteristics of solkaṭṭu from the NŚ, which illuminate syllables in the other treatises, in sampradāya, and in contemporary practice, come to the fore. First, solkaṭṭu is ubiquitous in this text. From this point onwards, solkaṭṭu appears as the de facto method of notating, speaking, and transmitting information related to drumming and rhythm. Not only is it widely used, more importantly solkaṭṭu is fully integrated as the conceptual foundation of rhythm and drumming.

Second, the information conveyed by the syllables is multi-dimensional, comprising rhythmic phrases, related drum strokes (and their embodied production), instrumental indications (and orchestrations), musical cues, character information (including social status), and dramatic cues (including emotional charge). While the content changed as music became independent of drama, the practice of conveying multivalent information via solkaṭṭu remains firmly intact.
The third important feature of the syllables in the NŚ is that they are linguistically constructed by the orderly combination of consonants and vowels in a similar manner to contemporary solkaṭṭu. A richly varied canonical body of syllables emerges from this process. While we cannot firmly judge the correspondence between this textual display and solkaṭṭu in early practice, the examples are organized according to clear musical relationships. Similarly, today’s solkaṭṭu (especially in performance as konakkol or nattuvangam) has a strong aesthetic element designed to produce musical phrasing.

Finally, the relationship between syllables and drumming in the NŚ is profoundly important to our understanding of solkaṭṭu. As witnessed by the association of distinct solkaṭṭu with the different puṣkara, syllables are paired with drumming through a close consideration of instrumental sound. This is analogous to the specialized syllables matched to various contemporary karṇāṭak percussion instruments. Yet, the link between syllable and drum sounds is fluid in the NŚ. The lack of a one-to-one relationship between syllables and strokes highlights a certain level of independence in the two spheres. It also reflects a crucial viewpoint on the nature of solkaṭṭu already deeply imbedded by the time of the NŚ: solkaṭṭu is essentially human sound that can be realized in multiple forms and formats.

\[60\] Although the NŚ is originally a Sanskrit text, the process of producing the syllables is easily transferred to other syllabic Indian languages, including Tamil from which South Indian solkaṭṭu is derived. However, there are no aspirated letters in Tamil. Therefore, Rowell’s assertion that “the process of aspiration furnishes one of the most crucial distinctions in the sets of syllables that are recited or sung to represent the various drum strokes and dance steps” (1992:72), does not hold true for much of South Indian solkaṭṭu. Nevertheless, other oppositions—such as voiceless vs. voiced consonants as in [t] vs. [d] (ibid.), ta vs. tey (in bharatanatyam), and place of articulation (i.e., labial, dental, alveolar, retroflex, palatal, and velar) are similarly used to differentiate action and function.
Recall that the first differentiation of syllables in Chapter 33 was between solkaṭṭu of the human body and those of the vīṇā, puṣkara, and tāḷam instruments (see pp.53–54). When Bharata subsequently introduces syllables for the puṣkara, it is as vocal sound—the sixteen syllabic sounds—which emerge from the body as spoken akṣara. These syllables are then systematically connected to strokes of the puṣkara. Even then, solkaṭṭu are not terminally linked to drum sounds. Rather, spoken and played solkaṭṭu are realized according to distinct criteria: solkaṭṭu follows the logic of the tongue; drum strokes follow that of the hands.

**Saṅgītaratnākara**

Written by Śāṅgadeva (1210–1247)—an Āyurvedic physician, royal accountant, and scholar—the *Saṅgītaratnākara* (*SR*, “Jewel Mine of Music,” 1240) is a watershed work connecting the ancient and medieval eras. Considering its place with regard to previous and subsequent scholarship, R.K. Shringy likens it to “dehalī-pradīpa: A lamp on the threshold of a room illuminating both inside and outside” (2007:xii). Where the *NŚ* defined music categories, the *SR* illuminates, expands, and refines them. By the time of the *SR*, music was treated independently of theatre and liturgy, “its main context was now the world of princely courts and royal patrons, its main aim entertainment” (Rowell 1999:33).

According to convention, Śāṅgadeva directly incorporates sections of earlier works, such as Abhinavagupta’s commentary on the *NŚ* and Mataṅga’s *Bṛhaddeśī*, alongside his own analysis and explanation. Śāṅgadeva dramatically expands earlier descriptions of the human basis for sound by introducing a comprehensive model
describing the formation and actualization of nāda through the body.61 These elegant writings on nāda have become a cornerstone in the discourse elevating the voice (above instrumental sound) in Indian music.

The importance of the *SR* to the saṅgītāśāstra is emphasized by numerous commentaries that follow and by its continuing primacy in thinking on Indian music.62 A great part of this esteem comes from the text’s organizational scheme “whose form determined the categories of south Asian music theory from then on” (Powers 1980:77).63 In the *SR*’s seven chapters, notes Powers, “all the threads of ancient doctrine are woven into a complex but systematic pattern which, as a model, could hardly be improved upon” (ibid.:78). Having looked closely at the roles and character of solkaṭṭu in the formative *NŚ*, I limit this inquiry to three pertinent aspects of the *SR*: (1) fundamental changes in tāla marked in the text; (2) the solkaṭṭu used overall for drumming; (3) the introduction of four primary syllables for barrel drumming.

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61 Śāṅgadeva devotes 168 verses in his opening chapter to nāda. Drawing on his training as an Āyurvedic physician, and on various philosophical systems including Sāṅkya, Yoga, Vedanta (and perhaps the Kashmiri Śaivism of his ancestral region), Śāṅgadeva develops a taxonomy of sound production unmatched in the saṅgītāśāstra.

62 Shringy reports a total of seven commentaries: four in Sanskrit, one in Hindi, and two in Telugu (2007:xviii). His own reverence for the *SR* is evident in the opening of his English translation: “If one were to name a single text of the Saṅgīta-śāstra which embodies the earlier tradition (*lakṣana*, body of terms and concepts) in remarkable detail and at the same time incorporates contemporary developments, which has been constantly referred to in musical and literary texts in the subsequent centuries, which has been commented upon profusely, which has not only been looked upon with awe and reverence, but has also occasionally been the target of reproach born of frustration, which wielded great influence over later tradition, one would undoubtedly name the *Saṅgīta-ratnākara* […] of Śāṅgadeva” (ibid.:xii).

63 Powers, himself, demonstrates this by structuring the well-known *New Grove* (1980) entry this quote is taken from on the *SR* model (Groesbeck 2003:41).
Deśī Tāḷa-s

The SR chronicles a fluid moment in music’s evolution from mārga to deśī. Rowell describes deśī as a movement in which “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)” (1992:207).64 Although the incorporation of secular and local resources into the “Great Tradition” began in the second half of the first millennium, in the realm of tāḷa the category of deśī was still in flux by the time of the SR. In fact, the term “deśī-tāḷa” does not appear before this treatise (Sharma 1992b:160 n.4). Unlike the systematic theorization and overarching classification scheme governing the (by then closed) system of mārga tāḷa-s, the deśī tāḷa-s in the SR “resisted all attempts to organize and classify them” (Rowell 1992:208).

Śāṅgadeva lists 120 deśī tāḷa-s, which grew to over 200 in later treatises.65 The deśī tāḷa-s were far shorter than their predecessors. With them, the five-syllable duration for māṭrā was abandoned (Sharma 1992b:151). Laghu (“short” in the mārga system) became the standard unit of measure and shorter durations—i.e., druta (½ laghu), anudruta (¼ laghu) and virāma (an extension by ½)—were introduced.66 Relating the mārga and deśī systems, Sharma proposes:

64 Sharma emphasizes “that no dichotomy is implied between mārga and deśī in the textual or oral tradition of tāḷas. Rather there was a tendency to preserve mārga even when the deśī had become preponderant; moreover it is likely that deśī co-existed with mārga even before being formalized as a distinct corpus” (1992b:165–66 n.12).

65 This profusion reflects the overarching tendency in the saṅgītāśāstra for presenting all theoretically legitimate possibilities. It would follow that aesthetic and practical choices of tāḷa would be left up to musicians and their usage developed through sampradāya.

66 Virāma is analogous to the augmentation dot in staff notation, increasing the value it is attached to by half.
just as all units of the mārga-tālas could be doubled and quadrupled, similarly they were reduced to half and quarter in the deśī-tālas […]. This explanation for these new units is in consonance with the name kanda-tāla, which was used in pre-SR texts for what SR termed deśī-tāla. Khaṇḍa means ‘splitting’ and all the three units of tāla have been twice ‘split.’ (1992b:150)

By stretching previous theory, authors maintained the saṅgītaśāstra’s normative role in organizing an unruly tide of regional materials. Even if the deśī tāla-s could be described through an expanded theoretical framework, they were short, irregularly shaped, and lacking the deeper structures of the mārga system.

The deśī tāla-s, though, served different musical contexts than their predecessors. Being “allied with the developing practice of improvisation,” they no longer supported long, through-composed pieces (Rowell 1992:208). These tāla-s were employed cyclically, providing a repetitive metric backdrop for the improvisation styles that would become hallmarks of both hindustānī and karnāṭak music. Like the mārga tāla-s, the deśī were controlled by a series of silent and audible gestures. The gestural language of the later tāla-s, however, was less complex that that of the mārga system. The newer gestures resembled contemporary kriyā, especially with dhruvakā (an audible clap) beginning each cycle and the use of sounded gestures for the remaining tāla units.

Upāśraya

An important innovation in solkaṭṭu use was introduced along with cyclical structures and new kriyā. In the later evolution of deśī tāla-s a string of solkaṭṭu known as upāśraya (Skt. “shelter,” “support”) began indicating the internal workings

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67 See Rowell (1992:210), for a listing and description of the eight gestures used in the SR.
of tāla structures. The upāśraya differ dramatically from the mārga tāla-s’ use of syllables (comprising the tāla-s’ names) as mnemonics for the sequence of durations in the tāla. When Bharata says the mārga tāla-s “consist of long and short syllables” (ch.31 v.9–10 in Ghosh 2007:54), the syllables in question describe large-scale (expandable or contractible) markers in a linear progression. In the deśī tāla-s, solkaṭṭu syllables (that are fixed in size) articulate the length, flow, and shape of cyclical meters.

Śāṅgadeva, though, does not mention upāśraya in the SR. It is only a century later, in the Saṅgītopaniṣatsāroddhāra (SUS, 1350), that this use of solkaṭṭu appears in writing. In the SUS, Jain scholar Sudhākalaśa lists seventy-three deśī tāla-s (of which all but two were named in the SR), giving their names, mātrās, and upāśraya. Unlike Śāṅgadeva’s seemingly arbitrary presentation of the deśī tāla-s, the seventy-three in the SUS are organized by length, from shortest to longest (1 to 60 mātrās).

The second tāla listed in the SUS is āditāla, the “primordial tāla,” which is also the name of a common contemporary tāla. According to Sudhākalaśa, this tāla comprises one laghu and its upāśraya are tad dhit thou drais (v.2.45 in Miner 1994:246–47). Caṇṣaniḥsāruka, the third tāla listed, has two druta-s followed by a virāma. Its upāśraya are: tat taki tat ta dhidhik ki dhid dhi (v.2.46 in Miner

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68 According to Sharma, the earlier (though very corrupted) Abhinavabhaṭṭarati contains “the first reference to definite syllables (pāṭāksaras) for specific tālas” (1992b:163 n.10). In this commentary on the NS by Abhinavagupta (10th century), “a set of syllables is mentioned for the two gurus, one laghu and one pluta in caccatpaṭa” (ibid.).

69 A confusing abundance of names for deśī tāla-s appear throughout the saṅgītaśāstra. According to Sharma, some authors (including Śāṅgadeva) included tāla-s named after themselves or their patrons, while others were inspired by the movements of animals, or by the names of planets (1992b:150,161 n.6).
The remaining tāla-s are similarly named, described by their durational components, and articulated with their associated upāśraya. These solkaṭṭu phrases comprise a wide variety of syllables created from the same sort of consonant–vowel combinations proposed in earlier treatises.

However, as Allyn Miner recognizes in her analysis of the SUS, “the profusion of variant readings in the manuscripts and the vagueness of the material make definitive settings [of the upāśraya] impossible” (1994:246). Not only are the tāla settings of the upāśraya necessarily imprecise, the solkaṭṭu themselves are particularly vulnerable to scribal error and recensions (see above). Commenting on another solkaṭṭu example (for mṛdaṅgam), Miner notes, “this sample of sound combinations has considerable affinity to modern pakhāvaj performance, and may be from a more contemporary oral tradition than the pāṭas [drum solkaṭṭu] from the SR tradition” (ibid.:322). Given the difficulty of precise written transmissions for solkaṭṭu, the particular upāśraya syllables transcribed in the SUS are less informative than their presence, location, and function in the text.

Most scholars commenting on medieval tāla have concluded that the upāśraya are “a string of drum syllables [devised] to represent the distinctive substructure of each of the tālas,” (Rowell 1992:210). These “drum syllables” are then connected (by varying degree) to the contemporary use of thekā in hindustānī drumming. I believe reading upāśraya as “drum syllables” is, at best, incomplete and results from a

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70 In conjunction with Sharma, Allyn Miner has proposed possible rhythmic settings in which each upāśraya can be reconciled with its associated tāla setting (see Miner 1994:246–67).

deeply entrenched tendency in contemporary scholarship to limit solkaṭṭu by its association with drumming. The organization of the SUS supports a consideration of upāśraya as solkaṭṭu phrases independent from drumming. Upāśraya are not included in the chapter on drumming (ch.4) and are, instead, prominently featured in the section on tāla (ch.2).

Introducing his listing of tāla-s, Sudhākalaśa writes, “I will speak of some of the tālas that have been taught by name by previous scholars, with their names, descriptions, and vocalizations (uccāra)” (v.2.40 in Miner 1994:244). These upāśraya are uccāra (Skt. “utterances”) of the tāla-s produced by the voice. Nowhere are they related to drum solkaṭṭu. In fact, they are clearly distinguished (in location and terminology) from phrases of drum solkaṭṭu (pāṭa-s) listed in the drumming chapter. “In Sudhākalaśa’s usage,” writes Miner, “pāṭa, mnemonics for the drum stroke, is different from upāśraya, the set of sounds that support each tāla” (1994:319). If we leave aside the overarching imperative to color all solkaṭṭu as drum syllables, the upāśraya listed in the SUS can be more easily understood as mnemonics and performance aids for tāla, derived from the large and active repertoire of rhythm syllables—i.e., solkaṭṭu—firmly established in Indian music.

**Drums and Solkaṭṭu of the SR**

The three puśkara (with associated solkaṭṭu) in the NS were mṛdaṅga, paṇava, and dardura. The SR describes two main drums with solkaṭṭu patterns: the paṭaha.\(^\text{72}\)

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\(^{72}\) Bonnie C. Wade connects pakhāvaj barrel drumming depicted in 16th century Mughal paintings to the medieval paṭaha (1998:90-91).
and mardala, the latter being the same as mṛdaṅgam (Powers 1980:134). Two types of paṭaha are described—the larger mārgi paṭaha and smaller deśi paṭaha—with four variations on the smaller drum (Ayyangar 1978:282–83). A set of sixteen consonant sounds, basically identical to those in the NŚ, are combined with vowels to produce solkaṭṭu for the paṭaha, thereby perpetuating the original solkaṭṭu cannon.

As with the drums of the NŚ, certain unique syllables were associated with varieties of paṭaha. For example: “‘Jheng’ was a syllable that emerged from the left side of a type of Desi Pataha known as Uddali. ‘Dheng’ rolled out of the right side of a Margi Pataha known as Kevala” (Ayyangar 1978:283). Such variations, like those of the NŚ and of contemporary karṇāṭak percussion, presumably accord with the timbre of each instrument. The SR lists 88 solkaṭṭu phrases in various groupings for paṭaha (and other drums) along with four groups of phrases designed for paṭaha played with sticks. According to Ayyangar, “most of the phrases […] are current even today” (ibid.).

The SR focuses somewhat less on the mardala/mṛdaṅgam. In fifty-seven verses (v.1017–74), Śāṅgadeva tells of its origins (as seen in the NŚ), along with the drum’s measurements, construction, playing techniques, and the qualities of its players. Unique sets of syllables are associated with each of the drum’s heads: viz., ta,
dhi, tho, tengh, hengh, nam, and doum for the pitched side, tatalha and dadhala for the bass side (Ayyangar 1978:292). These syllables, along with the sixteen for paṭa, form the basis of the mṛdaṅgam repertoire (ibid.). Śāṅgadeva divides mṛdaṅgam syllables into five groups of pāṭa-s (solkaṭu for drumming), each with seven varieties (Miner 1994:323).

Śāṅgadeva, though, does not provide examples of the pāṭa-s, “saying details are to be learned through oral tradition” (Miner 1994:325). Later we will consider sampradāya. For now it is again instructive to turn to the SUS, where Sudhākalaśa presents mṛdaṅgam pāṭa-s nearly identical to those found in commentaries on the SR. Following Śāṅgadeva’s organizational scheme, Sudhākalaśa notates 35 pāṭa phrases. As an example, consider svastika, the second group listed in the SUS (and SR):

svastika: thoṃ gi
balikohala: dhom hanta
phullavikṣepa: thoṃ gīṇi thoṃ thoṃ gi
cāra: thundi gana
vinīṣaqṭaka: kiṭa thoṃ
khaṇṇanāga: thoṃ gi kheṃ kheṃ
viśvāsa: thirakāṭa thoṃ (v.4.78–79 in Miner 1994:324)

Many of these phrases, along with other pāṭa-s listed in the SR and described in the SUS are, as Powers notes, “still so much in evidence in the modern mṛdaṅga traditions” (1980:134).

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75 Similarities between mṛdaṅgam pāṭa-s in the SUS and those found in two commentaries on the SR prompt Miner to question “whether Sudhākalaśa got his information from the commentaries or from oral tradition” (1994:326).
Śrama-Vāhanī

From an historical perspective, perhaps the most interesting set of strokes and syllables introduced in the SR is the śrama-vāhanī (Skt. “carrying the load”). Because Śāṅgadeva organized vast amounts of established knowledge and practice in the SR, it is almost certain that the procedures he describes for the śrama-vāhanī were firmly established prior to the 13th century. These four syllables/strokes—ta, di, tom, and num—and their implementation, are a strikingly specific example of long-term continuity in Indian drumming. According to Brown: “They appear in recognizable form in all the diverse styles of barrel drumming, ancient and modern, all over India” (1965:105).

As the first sounds (and strokes) taught to students of the high-status family of barrel drums, ta, di, tom, and num are heavily invested with meaning. Through various representations in the saṅgītaśāstra, the śrama-vāhanī have gathered mythological and religious connections. And over the course of more than eight centuries of continuous musical transmission via sampradāya, they have become cornerstones of pedagogy and playing technique. Both written and oral histories have made them highly visible in the discourse on Indian drumming. As will be seen below, the deep historical resonances produced by these syllables can be heard far and wide.

Mythologies of the śrama-vāhanī’s origins shed light on the cultural location of these and other solkaṭṭu, which (within that mythology) are believed to have developed from the four. They also add a few twists to Indian concepts of sound production. In its most conventional representation, the śrama-vāhanī are “said to

76 Variants such as ta, dhi, thom, and ţem (SR) or tā, dhī, thōṃ, and draim (SUS) are also found.
have issued from the four faces of Brahma, or from the five faces of Skanda (Śiva) along with the mystic syllable ‘OM’” (Brown 1965:105). In at least one manuscript they are linked to the Veda-s and associated with the traditional castes and major deities. Their correct usage, according to the same text, has similar repercussions as correct (or incorrect) recitation of Vedic formula (ibid.:106). Such links situate (or at least attempt to locate) the śrama-vāhanī in the center of Brahmanic Hindu culture.

At the same time, their enunciation (by deities) and connection to divinely uttered syllables (śruti in the Veda-s) underscore the importance of the syllables’ orality. The four śrama-vāhanī are sometimes referred to as adi śābda, which Sankaran translates as “original or primordial sounds” (1994:98). Śābda, though, also implies “voice,” “utterance,” and “vocal,” further prioritizing the spoken quality of these syllables.

In the Tamil Mattalaviyal (“The Art of Drumming,” 10th c.), another dimension of the śrama-vāhanī is emphasized. The syllables are intimately tied to Śiva as Nataraja, the divine dancer (see ex.4).

Example 4: Mattalaviyal excerpt
Of the cosmic dance (of Civaṉ) came Tha the first tonal,
Flowing in succession there to were Thi and Thom,
Following then in order was ‘Num’
The drum’s rhythm measure well-wrought was thus born.

(The leg) striking the earth Tha is born,
Its rebounding produces Thi (Thai)
Born of this tāṇṭavam the dance at the Beginning and the End
Are Tha Thi Thom and Nam. (v.8, v.10 in Sundaram 1988:11, 27)

77 See Brown (1965:105–06) for a translation of this Telugu manuscript enumerating the divine qualities and characteristics of the śrama-vāhanī.
78 I encountered an especially pious mṛdaṅgam vidvan (expert) who claims ta di tom num are syllables derived from the sacred Gāyatṛi Mantra. “Every time you play ta di tom num,” he told me, “you are offering your namaskaram [placing palms together in greeting] to Om” (pers. comm. 02/22/09).
Throughout this poetic treatise devoted to mṛdaṅgam, the śrama-vāhanī are produced by Nataraja’s footfalls in his dance of bliss: ānanda tāṇḍava (ibid.:12). The syllables intimately connect the divine dancer, his dance, and the sounds and processes of playing mṛdaṅgam.

Sudhākalaśa presents another story of Śiva creating the syllables. In it, the god slays a demon named Muraja and leaves the corpse headless and limbless. Later, after some gruesome events, the body ends up in a treetop as a hollowed-out vessel with skin stretched across both ends, bound by its own dried intestines. When the wind hit the body, it sounded.

4.61 Hearing the sound produced, which was pleasing to the ears, Lord Śiva went out of curiosity, and saw (something) hanging there.

4.62 Seeing the shape and thinking “what is this?,” Śiva remembered, and pondering that he himself had killed it earlier, touched it with his left hand.

4.63 On that body, which was full of sound, a special sound “tā” was produced. So, out of curiosity, he struck it with his right hand as well.

4.64 The sound “dhī” was produced. Śiva beat it again with the left hand, and the great sound “thoṃ” burst forth distinctly.

4.65 When muraja was struck again by the right hand, the sound “draīṃ” came forth. Then Śiva returned to his dwelling. (SUS in Miner 1994:320–21)

In this dramatic rendering, the four sounds issue forth from Śiva striking the drum/corpse, rather than from his dance (or speech). Only later, when Śiva is asked to make an instrument to please his wife, does he recall the sounds he produced on Muraja’s body and apply them to mṛdaṅgam (ibid.:v.4.70–71 in Miner 1994:322). In doing so, Śiva relies on solkaṭṭu to conceptualize sounds and transfer them among instruments.
Sudhākalaśa’s version provides both the syllables and hand-strokes (in terms of left and right) typical for playing the śrama-vāhanī. Throughout the series of lessons in which the śrama-vāhanī are developed (in contemporary practice) the four syllables and strokes are locked into a one-to-one correspondence. The SR also gives the syllables in pairs, groups of threes, and groups of fours, as is typical for the first lessons in contemporary mṛdaṅgam training: i.e., ta ta di di to m num num; ta ta ta di di di to m to m num num num, etc. That the strokes match modern performance practice may result from recensions of later copyists, or it could well be a vital demonstration of the efficacy of sampradāya. The direct relationship between the four śrama-vāhanī and their strokes on mṛdaṅgam—which is distinct from that of other strokes and syllables in the treatises and in contemporary practice—along with their widespread dispersion across Indian drumming traditions, add support to the latter.

The second type of syllables/strokes introduced in the SR is called eka-sara-ṭākanī (Skt. “single flowing ṭākanī”). These are inserted between the śrama-vāhanī and “are meant to ‘break’ the sequences of ta dhi thom ṭem and provide a ‘flow’” (Powers 1980:135). Eka-sara-ṭākanī include phrases such as ta ka and dhi ka ṭa. Many examples can be found in the SUS chapters on tāla and drumming. The creation of phrases comprised of śrama-vāhanī and various insertions of eka-sara-ṭākanī (as seen in the treatises) is comparable to preliminary mṛdaṅgam training (see p.177). Like today’s solkaṭṭu, the eka-sara-ṭākanī syllables do not maintain a one-to-one correspondence with the filler strokes, but rather flow according to the aesthetics of
vocal production. The continuous use of the śrama-vāhanī, as described in śāstra, clearly demonstrates the power of the oral and written to convey a united musical tradition.

**Sampradāya**

The intertwining of written and oral ensures that sampradāya was not entirely silent during the foregoing discussion of the saṅgītaśāstra. Sometimes śāstra adjusted in response to practice: the downward expansion of theoretical time units in medieval texts (to include druta, anudruta, and virāma), for example, accommodated the growing inclusion of deśī tāla-s being drawn from regional performance traditions. Or consider that two very different durations (the first lasting five syllables, the second, one) were ascribed to a single term—mātrā—in different historical periods. Such conservation of terminology, which is found throughout Indian music, allows for theoretical continuity even as performance practice shifts.

Other strategies seen in the saṅgītaśāstra also respond to variability in sampradāya. In one, as Katz postulates, a “‘permutational calculus’, borrowed from mathematics perhaps via the science of metrics,” creates an umbrella of theory “so that what is found in practice […] can be properly located, classified, and shown to be covered in the śāstra” (1992:6). Bharata’s exhaustive presentation of consonant–vowel permutations for solkāṭṭu, and Śāṅgadeva’s 88 paṭha phrases and 120 tāla-s, seems inspired by such calculus. Moreover, as noted above, the treatise authors

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79 This practice, known as prastāra (Skt. “extension,” “permutation”), is used to explore and exhaust the inherent possibilities of a particular group of syllables. Prastāra is the final element listed in the tāla-duśa-prāṇa (ten vital elements of tāla).
regularly pointed practitioners to sampradāya to learn what cannot be conveyed through writing.

At this point we also turn to sampradāya, the oral tradition of prayoga (application or practice). In sampradāya, accurate transmission of materials and processes, through face-to-face interaction, is paramount. Earlier, I introduced the idea that in the oral tradition, solkaṭṭu and tāla are combined in a multi-modal communication (comprising auditory, kinesthetic, and visual components) capable of conveying a range of information (see pp.4–6). In this communication, strategies analogous to literary methods—including the use of precise geometric design in rhythmic composition, the use of oral permutation and mathematics, and the universal adoption of the syllable as the basic musical time unit—are central to the preservation and accumulation of rhythmic knowledge. Performance practices, compositions (as performance pieces rather than notated texts or syllable sequences), practical theory, pedagogy, playing techniques, and aesthetics are some of the information sampradāya transmits.

The extent to which the saṅgītaśāstra defines and conserves theory, categories, musical constructs, and the discourse on music has been clearly demonstrated. Here, I focus on how sampradāya maintains (and transforms) these elements via practice. In the ensuing chapters, communication of practice—prayoga conveyed (mostly) via sampradāya—takes center stage. In many instances I highlight the action of sampradāya by connecting contemporary prayoga to the descriptions (and
prescriptions) detailed in the treatises. Making these connections locates solkaṭṭu (in all its iterations) in a cohesive framework drawn from this Indian model.

However, contemporary sampradāya is not necessarily (or even likely to be) confined to the traditional guru-śiṣya relationship. Therefore, my consideration of sampradāya goes beyond these boundaries to highlight the vibrant orality of solkaṭṭu—which is key to its effectiveness in musical transmission. Sampradāya has already been well situated in the earlier discussions of orality in Indian culture and music. And because specific examples of sampradāya will be unpacked and examined throughout the remaining chapters, here I need only focus on two aspects of the oral tradition in relation to the saṅgītaśāstra: (1) the parameters of sampradāya, (2) the nature of rhythmic materials conveyed through the oral tradition.

**Parameters of Sampradāya**

The traditional sampradāya relationship, between guru and śiṣya, is predicated on direct oral transmission with an historical reach determined by the current generation’s knowledge. It would follow that certain elements carried in the oral tradition are prone to corruptions. For example, when it comes to determining the age or province of musical materials, or when confusion regarding the correct rendering of an item arises, cultural norms such as not questioning one’s guru can become obstacles.

On a local scale, this can mean the difference between one syllable and another. For example, as a student of the great mṛdaṅgam artist, Palani Subramania Pillai (1908-1962), Sankaran was tempted to ask, “Sir you are starting with ki now, before you said ti?” As a traditional student, however, Sankaran remained silent.
“You cannot ask these questions” (pers. comm. 02/24/09). Stephen M. Slawek, a disciple of Dr. Lalmani Misra and Pandit Ravi Shankar, summarizes the relationship:

In the ideal sense, a guru is musically omniscient, a student would commit a grievous error by displaying any doubt of the guru’s knowledge. Because of this, there is a tendency to discourage questioning by students. (1994:13)

On a broader scale, socio-cultural factors, including the movement of musicians and centers of music, shifting caste dominance in music and dance, changing tastes, venues, and technologies have all transformed sampradāya, while variously threatening or supporting its continuity. For certain musical elements, their disappearance from sampradāya is irrevocable. We saw a close call in the loss—and revival—of the Tiruppugazh songs (see pp.39–41). The tale of this repertoire suggests that a total loss would (and does) occur with any musical element that falls completely out of sampradāya without being recorded in material form.

Despite such obstacles, contemporary karnāṭak musicians are stewards of a centuries-old oral lineage. A strong cultural preference for orality, grounded in long periods of practice, upholds the primacy of sampradāya. Powers and Katz assert:

timeline while fully supporting his premise. This piece, passed to Viswanathan over a long family lineage, is one among several very old songs learned, performed, and propagated through sampradāya. Preservation on this temporal scale demonstrates that sampradāya comfortably accommodates individual teacher’s deviations, withholdings, and innovations.

**Sampradāya and Rhythm**

Whereas compositions such as *Naninne Dhyana* survived upwards of five centuries in sampradāya, other areas of South Indian music—and especially its rhythmic practice—reflect even deeper historical layers. In his study of the 13th century *SR*, Ayyangar observes that “the eighty-eight Hasta Patas” (the solkaṭṭu phrases Śāṅgadeva associates with paṭaḥa) were “transmitted faithfully from generation to generation by the Gurukula system” (1978:290). The process is so efficient that these solkaṭṭu “can be easily identified in the Carnatic Tavil, Mridangam and Konakol and in the Hindustani Tabla and Pakwaj” (ibid.). Ayyangar highlights a pāṭa called “Ashtha Kala Khaṇḍa Takinee Vada,” which comprises the phrases:

Ta Ka Dhi Ka Ta—Di Ka Ta Kee Ta—Ta Ka Di Ka Ta—Ta Ka Ta Ka Dhi—Ka Ta Dhi Ka Ta—Ka Ta Dhi Ka Ta—Dhi Dhi Ta Ki Ta (1978:293).

Like Sudhākalaśa’s upāśraya, modern musicians can easily recognize this solkaṭṭu. And yet, neither Śāṅgadeva’s pāṭa-s nor other medieval and ancient solkaṭṭu—with the conspicuous exception of the śrama-vāhanī (which we will return to presently)—are heard (as notated) in the current southern repertoire. This is not particularly surprising given the variability of musical aesthetics and changing musical circumstances over the centuries. Furthermore, the distinct languages of the two
syllable systems—i.e., Sanskrit in the treatises and Tamil as the basis of South Indian solkaṭṭu\textsuperscript{80}—add further complications, not the least of which is Tamil’s lack of aspirated syllables, which are abundantly used in Sanskrit solkaṭṭu.

Beyond changes in music and language, however, solkaṭṭu in the saṅgītaśāstra differs from that of sampradāya for more fundamental reasons stemming from the roles of written and oral in Indian music. As already noted, the treatises present a normative model of how music should be. Written solkaṭṭu are meant as guidelines and ideals of practice; they are paradigmatic rather than practical. Like all akṣara notations in the saṅgītaśāstra, written solkaṭṭu are intended as an addendum to practice. “Such notations,” as Widdess notes, “are never intended to replace or precede demonstration and oral instruction, only to reinforce it” (1996:392–93).

Furthermore, solkaṭṭu notated in the saṅgītaśāstra is basically pedagogical. The sampradāya of pedagogy hinges on the freedom and flexibility to expand, contract, or otherwise manipulate material to suit infinite expressive possibilities. As written artifacts, solkaṭṭu in the treatises lack this multi-dimensionality.

Nevertheless, the didactic purpose of solkaṭṭu in the texts helps explain the long-standing concordance of written and oral in the śrama-vāhanī. As the first set of strokes and syllables taught to students, the śrama-vāhanī are valued as the epitome of the pedagogical tradition. They are generally not subject to innovation or expansion.

Rather, the śrama-vāhanī are typically administered as a closed series. The cultural

\textsuperscript{80} Sankaran has noted that variable pronunciations of consonants (such as [t] or [k]) makes Tamil a problematic idiom for precise transmission of solkaṭṭu (pers. comm. 02/24/09). Nevertheless, Tamil easily accommodates (the procedures and structures of) solkaṭṭu described in Sanskrit treatises. Furthermore, multiple translations of the saṅgītaśāstra in regional languages demonstrate how well solkaṭṭu crosses linguistic barriers.
importance they have accrued, as witnessed in the mythology surrounding their formation and long-standing use, further cements their status.

Although in actual training newer materials soon eclipse the primordial syllables, they are far from ceremonial. Rather, the śrama-vāhanī are essential in forming every drummer’s basic orientations: to their teacher, in pedagogy, with their instrument, and to rhythmic practice (including the use of solkaṭṭu). Being offset from modern syllables, strokes, and combinations further insulates the śrama-vāhanī from change. As an effective and fixed introduction to barrel drumming, there is little impetus to modify the series and every reason to preserve it.

Most solkaṭṭu in the saṅgītaśāstra, however, have not been preserved with the same exactitude as the śrama-vāhanī. And yet, comparing solkaṭṭu in the treatises to modern practice reveals long-term trends transmitted through sampradāya. In Śāṅgadeva’s khaṇḍa pāṭa noted above, for example, the syllables (if not their ordering) are akin to modern ones. Like syllables throughout the saṅgītaśāstra, they are “based in large part on [the same] guttural, retroflex, flap and dental consonants” as today’s solkaṭṭu (Powers 1980:134). While it is difficult to confirm the historical accuracy of these syllables (for reasons already noted), Śāṅgadeva’s five-syllable groupings continue to indicate khaṇḍa and remain aesthetically coherent to the modern observer. Many possible renderings and developments—on percussion instruments, as svaras for melodic instruments or voice, or as choreography—are suggested by Śāṅgadeva’s example. That this material is relatable is, in itself, a clear sign of sampradāya.
**Conclusions**

This chapter’s wide-ranging historical exploration presents solkaṭṭu as a particularly Indian model of oral–literate transmission, informed by culture, context, and use. In the art and science of music, sampradāya maintains prayoga while the saṅgītaśāstra describes and prescribes practice. Solkaṭṭu easily traverses the two interrelated spheres, fulfilling a range of functions in both. Though drumming is closely associated with solkaṭṭu throughout these histories, solkaṭṭu is not at all limited to drum syllables. As we begin examining solkaṭṭu in contemporary practice, nuances of prayoga will fill out the basic elements described in the texts, allowing for an expanded view of both. The multifaceted historical vision of solkaṭṭu presented here will serve as a backdrop connecting the many aspects of contemporary solkaṭṭu to a common source.
Orientalist critique is a weapon that points in any direction.
– Gregory D. Booth

Chapter 2
Solkaṭṭu in India’s New Pasts

Introduction
Indian music is widely recognized as one of the world’s oldest artistic traditions. As the preceding chapter emphasized, documentation stretching back over two millennia shows marked consistencies in terminology, theory, instrument design, and practice. “Indian musical traditions,” explains Rowell,

have not suffered the disruptions and stylistic upheavals that have marked the history of music in Europe and the rest of the Western world. Indian musicians today can thus rightly claim the support of a continuous tradition extending back more than two thousand years. (1999:37)

The recognition of the long-developing nature of India’s musical landscape—and its underlying continuity—is critical to understanding the multiple dimensions of solkaṭṭu propelled into the present.

However, before considering contemporary solkaṭṭu it is important to recognize that the history of the Indian arts is neither monolithic nor without controversy. Its ancient pedigree is often imprecisely used (and abused) within a narrative arc that has been bent and redirected. Distortions and reframing by recent events left out of the telling have impacted contemporary discourses on the arts in general—and on solkaṭṭu in particular. In this chapter I consider some of the major movements and ideologies contributing to modern interpretations of music and dance. By pointing out the development of obfuscating narratives on the Indian arts, I hope

Booth (2007:320)
to explain the dominance of limited views on solkaṭṭu and, thereby, connect the deep
domain already discussed to the dynamism of solkaṭṭu’s present incarnations.

**Orientalism, Nationalism, and Colonial Knowledge**

Early European observers, from Sir William Jones (1746–1794) onwards, set
in motion Orientalist themes that would shape contemporary visions/versions of
Indian music history. These include: (1) The sanctification of ancient Brahmanic
Hindu texts as authoritative documents for the arts; (2) The elevation of the “Great
Tradition” described in those texts;¹ (3) The pollution and decline of the indigenous
system due, in part, to Muslim invasions; (4) The South’s relative purity achieved
through isolation from Muslim influences; (5) The implicit value of European
language and concepts for understanding and describing Indian arts. Diverse
groups—including generations of travelers and missionaries, the East India Company
and British Imperialists, scholars and artists, and social reformers, nationalists, and
regionalists—would shape the resulting visions to suit their particular purposes.

When folded into the political and social discourses of the late nineteenth century
onwards, Orientalist approaches became fundamental to concepts of modern India.
Consequently, categorizations of the antiquity of the arts in general, and solkaṭṭu in
particular, have been deeply influenced by Orientalist and Orientalist-inspired
discourses.

“Orientalism,” according to dance scholar Janet O’Shea, “legitimized imperial
rule by characterizing India as in a state of decline” (2008:168). Colonial knowledge,
predicated in large part on Orientalist visions of India, produced what Pollock calls

¹ See p.9 n.6.
“new Indian pasts with real-life social consequences” (2003a:13). Though newly
determined, these histories are deeply rooted. Speaking from an Indian viewpoint
Sharma laments, “our conscious thoughts or minds are colonized.” “I would say,” she
continues, “we have not even tried sincerely to evolve a real Indian viewpoint of
framework of history” (2002:5,9).

One of the most obvious, and deleterious residues of colonial knowledge is
the caste system, which, as Nicholas B. Dirks puts it, “has become a central symbol
for India, indexing it as fundamentally different from other places as well as
expressing its essence” (2001:3). In his groundbreaking study, Castes of Mind (2001),
Dirks argues that
caste (again, as we know it today) is a modern phenomenon, that it is,
specifically, the product of an historical encounter between India and Western
colonial rule. […] [I]t was under the British that “caste” became a single term
capable of expressing, organizing, and above all “systematizing” India’s
diverse forms of social identity, community, and organization. This was
achieved through an identifiable (if contested) ideological canon as the result
of a concrete encounter with colonial modernity during the two hundred years
of British domination. In short, colonialism made caste what it is today.2
(2001:5)

The colonial shaping of caste was based, in large part on the Manusmṛti (Skt. “Laws
of Manu,” c. 200BCE–200CE), an ancient Hindu text that Orientalists took as the
classic statement of the structure and authority of the caste system (Dirks 2001:34–

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2 And yet, in previous incarnations caste may have been similarly divisive. For example, in her detailed
history of the devadāṣī tradition, Saskia C. Kersenboom-Story describes how fears of Muslim
aggressors led to the emergence of a self-conscious southern Hindu culture during the Vijayanagara
Empire (1336–1646). Because of an increased focus on caste distinctions and caste-consciousness
within that setting “social groups and communities, occupational groups and communities, and
religious sects were often seriously disputing among themselves particular social rights and privileges”
(2002:34). This contrasts with the preceding medieval Chola dynasty (850–1300). During that period,
according to Leslie C. Orr, “caste is not the organizing principle. The social boundary between vellala
and nonvellala, as between Brahman and non-Brahman, may have been considerably more porous than
it is today” (2000:30–31).
According to Dirks, the *Manu Smṛti* “took on unprecedented status as an ‘applied’ legal document only under early British rule” (ibid.:34). Furthermore, because *Manu* was a Brahmanic text, the British intervention helped promote a firmly Brahmin concept of caste, and by extension, Hinduism (ibid.:34–35). Caste, as it emerged under colonial rule and the influence of Orientalist models, would affect the entire landscape of Indian politics, economics, religion, social policy, and international relations. Generations of lives, into the present, would be irrevocably altered by this intervention.³

In parallel (and at times, in conjunction) with caste, Orientalist influences affected the contemporary form, concept, and discourse on the performing arts. Because modern India reconstituted its “golden age” of arts and culture on Orientalist readings of ancient Sanskrit music texts, the earliest of which appears around the time of the *Manu Smṛti*, India’s new musical pasts (to expand on Pollock’s phrase) would have a distinctly Brahmanic flavor. As Peterson and Davesh Soneji point out, “A major outcome of the reinvention of a classical tradition would be the displacement of the hereditary performers and the dispersal of their communities and knowledge bases.” As opposed to the “oral, caste-based, and practice-centered processes” of hereditary communities, performers of the “new classical arts […] would be modern professionals, untainted by caste associations and non-scientific methods” (2008:7).

These so-called “untainted professionals” were, for the most part, drawn from a

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³ A recent op-ed in the New York Times, by Amana Fontanella-Khan, focuses on the role of caste in rape. This grim reminder underscores the extent to which caste can cause individual and social devastation. As Fontanella-Kahn notes, “An analysis of Uttar Pradesh’s crime statistics for 2007 by the People’s Union for Civil Liberties showed that 90 percent of rape victims in 2007 were Dalit women” (2014).
Brahmin middle class empowered through colonial rule. Their aspirations display the unique mix of scientific modernism, nationalism, classism, and Orientalism fueling the 19th to 20th century “revival” of Indian arts.4

The remaking of the arts gained momentum in the lead up to independence. Nationalists, responding to colonial critiques of Indian culture as degraded, inferior, and barbaric, promoted an Orientalist-inspired vision of Indian music and dance (Peterson and Soneji 2008:6). This vision idealized a southern artistic purity based on appropriately ancient models and stripped of accumulated centuries of degradation.5

According to Lakshmi Subramanian:

The Orientalist discourse was taken as implicitly true and the cumulative effect of their pronouncements was the emergence of a self-conscious agenda for redefining the tradition of music and laboriously situating it within the parameters of textual authenticity and a new moral sensibility that was deemed properly Hindu and adequately spiritual. (2006:13)

The impact of this agenda on the trajectory of South Indian performing arts has been discussed and analyzed in numerous recent studies.6 These works reveal the constructed nature of the new classical tradition in response to colonial and

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4 In “Rewriting the Script for South Indian Dance,” Matthew H. Allen suggests an alternative list of (charged) adjectives to replace the term “revival”: i.e., “a re-population,” “a re-construction,” “a renaming,” “a re-situation,” and “a re-storation” (1997:63).
5 The lack of outside influence from foreign invaders in the South, when compared to the North, and the southern migration of culture bearers in the wake of such invasions are often cited as root causes for South India’s conservative nature. R. Sathyarayana suggests that the South reacted to the perceived threat of invaders with a “hardening of stances and fortifying its native resources—in other words, by preservation and perpetuation.” He goes on to conclude, “this is why Karnataka music reveals traces of archaic theories and practices of ancient Indian music even today” (2004:148).
Nevertheless, throughout recorded history southern India has suffered from perpetual political change as leadership, boundaries, kingdoms, and dynasties rose and fell (Khilnani 1998:20). As these processes unfolded, music and musicians were often on the move, leading to a mixing of styles and influences that is often overlooked when discussing the “purity” of southern arts.
postcolonial pressures, detail various social and political forces at play in the revival of Indian arts, look at the movements of music and musicians involved in (and excluded from) these arts, and study the consequences for contemporary performance practice and practitioners.

Revisiting the entirety of this multifaceted history is outside my purview. Instead, I focus on the ways Orientalist thought influenced the trajectory and landscape of drumming and rhythmic practice in music and dance. More specifically, I trace the initial devaluation of the percussive arts in the modernization discourse; the subsequent appreciation for solkaṭṭu and drumming sparked, in large part, through foreign scholarship; and the recent incorporation of drumming and solkaṭṭu as central facets of the sanctioned vision of the South Indian classical tradition. This is followed by an overview of the concurrent and interrelated discourses taking place in the dance revival. This relatively small moment in India’s long history of rhythmic arts has had a profound impact on the present discourse on solkaṭṭu. Furthermore, the main part of this story—of drumming and solkaṭṭu within the reformation of South Indian music—has been little discussed in Indian music scholarship.

**Notational Agenda**

Notation, a major issue in late 19th and early 20th century debates about modernizing Indian music, is a useful point of departure for considering contemporary representations of solkaṭṭu and drumming. The first concern in these

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7 This was not, however, the first time notation had been a central concern. Rulers of the Maratha Court, and especially its last, Serfoji II (1777–1832), actively supported the arts and, according to Lakshmi Subramanian, “were interested in establishing cultural standards for performance. This priority can be seen both as a traditional status resource and as a new and keen sensibility oriented towards classification and preservation of knowledge for some sort of subsequent scanning and
debates was whether Indian music should, or even could, be notated. One line of thought held that this system was irreducible to writing. “A sense of pride in Indian music,” notes Weidman, “followed from the fact that it could not be written in notation; this recalcitrance, in fact, was precisely what made it Indian and kept other music from influencing it” (2001:179). Pride, however, was soon overwhelmed by fears that Indian music would further deteriorate if it were not written down. And, perhaps more importantly, “the idea that memory was no longer equal to the task of perpetuating a ‘classical’ tradition” (ibid.:197). “By 1916,” writes Weidman, “the need for notation was taken completely for granted. The debate was now centered around the question of which notation, the staff or the Indian, was best suited to representing Karnatic music” (ibid.:192–93). While indigenous vs. imperial representation of the “classical” (itself an imperialist category) is an important issue, more interesting here is what was left out of both musical representations.

The first major initiative to notate karṇāṭak music in staff notation was undertaken in the late 19th century by A.M. Chinnaswami Mudaliyar (AMC). Though his music journal failed, AMC’s efforts still resonate loudly in both academic and popular discourses on notation. The journal, compiled as the book, *Oriental* scrutiny. It is in this connection that the idea of notation, however basic, became relevant. The idea of notation was not just a personal fetish with Serfoji. It appears in a simple way to have had an impact on contemporary singers and composers like Tyagaraja, who, it is suggested, also came up with a rudimentary notation” (2006:10–11). The drive towards conservation and classification of musical materials would remain central in later debates. Now, however, it was folded into modernizing discourses and a comparative framework for European and Indian musics heralded by Indian reformers (ibid.:93–94).

The Hindustani Airs, comprising six published collections (and one unpublished collection) of European interpretations of Indian song, predate AMC’s work by more than a century. However, their modest scope and rather vague connections to Indian music place these compositions at the far periphery of the ensuing notational debates. See also, Farrell (1997) and Woodfield (1994).
Music in European Notation (1893), comprises notation for approximately sixty karṇāṭak songs, dozens of miscellaneous melodies, a series of vocal exercises along with a detailed essay on his guiding aesthetics. AMC saw his notations as an effort to uncover original compositions, obscured by generations of additions and excessive ornamentation, which would form the basis of a classical genre (Weidman 2001:185–86).

Accordingly, AMC discouraged applying harmony to Indian music, noting, “European Harmony mars all the beauty and intrinsic grace of Oriental Melody” (1893:xi). He held no such qualms about European concepts of rhythm. AMC writes:

In Europe greater attention is paid to simplicity and symmetry in the arrangement of Music; the duration and values of notes are more or less uniform; the subdivisions of time are easily counted; and the accents are clearly established. (ibid.:11)

He contrasts this with Indian rhythm, in which “efforts are perversely made to complicate every one of these essential elements by all possible means” (ibid.). After listing some of the more devious Indian rhythmic devices, AMC concludes, “in short, nothing is left undone which may be conductive to puzzle the hearer, confound the imitator, and render the acquisition of the art as difficult as possible” (ibid.).

Not surprisingly, AMC’s notations are rhythmically bland and bereft of the rhythmic intricacies for which karṇāṭak music is known. Melodic rhythms are simplified to accord with both the (aesthetic and practical) limitations of 19th century staff notation and, more importantly, with AMC’s views on simplicity and symmetry.

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9 While impressive, this effort fell short of AMC’s stated goals of producing “a complete record in staff notation of the whole of the Musical productions of the East, from the most classical styles to the commonest descriptions of popular reels and jigs” (1893:iv).
in music. Furthermore, instead of a cyclical, embodied, and dynamic performance of meter, musical time is reduced to time signatures, measures, repeat signs, and the linear flow of notes across the page—left to right, top to bottom—thus distorting and effectively destroying many key features of tāla. Any indication of drumming (in staff notation or solkaṭṭu), including the ubiquitous rhythmic cadences typically used to end sections (i.e., the mōrā), is noticeably absent.

AMC’s choice not to notate rhythmic accompaniment may have been driven by more than his demonstrated aversion to Indian rhythmic practice. One could legitimately argue that the intrinsic flexibility of rhythmic accompaniment (and rhythmic compositional practice) in South Indian music made AMC’s choice to avoid notating drumming altogether the most faithful to actual musicking. In karṇāṭak performance, musicians (and informed audience members) share timekeeping responsibility by visibly marking, or “keeping,” tāla. Drummers are thereby freed to comment on, highlight, contrast, or otherwise embellish the melodic line. Such dynamic rhythmic engagement is antithetical to the fixed classical tradition that AMC was attempting to notate/create. Furthermore, the freedom from prescribed materials, and the flexibility in accompaniment and performance, place South Indian rhythmic activity firmly in that recalcitrant space that defies notation.

With this in mind, AMC’s choices, to reduce tāla to western meter and mostly ignore other dimensions of Indian rhythmic practice, are understandable. It is

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10 In reference to the Hindustani Airs, Ian Woodfield notes a similar reductionism with regard to rhythm. “European auditors,” he observes, “could perceive some elements of Indian music such as melodic contour, melodic mode, styles of ornamentation, and the use of drones, but rhythmic systems defeated them entirely. Hindostannie airs were thus provided with European time signatures, usually 2/4, 3/4 or 6/8” (1994:77).
doubtful that AMC considered Indian rhythm’s un-notateable nature a point of pride, as earlier commentators had for Indian music as a whole. Nevertheless, his focus on text, melody, and compositions—and lack of enthusiasm for drumming and the rhythmic complexity it embodies—foreshadowed central aspects of the blossoming revival movement.

**Madras Music Academy: The Fall (and Rise) of Rhythm**

Whereas AMC’s efforts were undertaken with little organizational support, and indeed collapsed for lack of financial backing, his sentiments (if not his notation) would resonate within the principal agency promoting music reform in the 20th century. Beginning with its founding in 1928, and the publication of its first journal in 1930, the Madras Music Academy would assume its role “not merely as a platform for cultural events but as an institution for the revival and restoration of the nation’s pride in its rich and ancient cultural heritage” (Rangaswami 2008:1). The Academy followed a number of tracks in pursuing a nationalist-inspired agenda. These included: (1) preserving and demarcating the boundaries of karṇāṭak music; (2) restructuring the concert format and repertoire to suit new venues (i.e., stage rather than court or temple) and patronage (the rising Brahmin middle class); (3) constructing a new aesthetic to meet the self-image of the new patrons; (4) introducing systematized, scientifically-based music education; and (5) presenting the newly re-made arts.¹¹ No other organization would approach the level of influence that the Music Academy had (and continues to have) on shaping the content of, and discourse about, contemporary South Indian art music.

A major concern voiced in early editions of the Journal of the Music Academy of Madras was the public’s “obsessive fascination for rhythm that had no time for the introspective treatment of melody that was after all the essence of Indian music” (Subramanian 2006:102). The affinity for rhythm—seen in “the excessive use of the percussion instruments and the tendency to execute complicated combinations of notes”—was, according to Journal editorialists, a result of public taste degraded by the influence of theatre and cinema (ibid.:101). It is likely they were also concerned that “the rhythmic intricacies of Karnatic music [were] strongly associated with the non-Brahmin periya melam and cinna melam traditions” (Weidman 2001:29); musical forms the Academy was actively distancing from karṇāṭak music.

To counteract public affinity for rhythmic complexity, the Academy promoted a “refinement of existing performance practices, […] that would by its interpretation of melodies and the authentic rendering of compositions bring out the transformative potential of music in its spiritual and sacral dimensions” (Subramanian 2006:102). This sought-after aesthetic featured a solo vocalist and downplayed percussion. Multiple percussionists were discouraged because “having four or five percussion artists renders the (Carnatic) performance less than classical” (Weidman 2001:29). As Subramanian notes,

The foregrounding of the solo performer and the relative sidelining of the pakkavadyam\(^{12}\) was an important shift in the aesthetic conception, which was quickly internalized as the standard presentation practice and remains so to this day. (2006:102)

\(^{12}\) Typical pakkavadyam include kanjira, ghāṭam, and morsing, all playing a supportive role to mṛdaṅgam (see ch.5, “Solkaṭṭu and Other Percussion” for more on these instrumental traditions).
The melody-over-percussion/rhythm hierarchy is reflected in the history of the most prestigious honor bestowed by the Academy: i.e., the Sangita Kalanidhi (Skt. “Treasure House of Music”) award. In addition to receiving a cash prize and the prestige of the title, the named Sangita Kalanidhi presides over the Academy’s December music (and conference) season. The Academy began giving this most coveted award in 1929. For the next 36 years it went to vocalists, violinists, flautists, composers, and musicologists. Only in 1966 did the great mṛdaṅgam virtuoso, Palghat Mani Iyer, receive the award.\footnote{Interestingly, the other leading mṛdaṅgam virtuoso of the 20th century, Palani Subramania Pillai, never received the award. Perhaps one mṛdaṅgam award was enough for the Academy at that stage. An altogether less palatable influence may have been caste/community affiliation: while Mani Iyer was Brahmin, Pillai was from the hereditary arts community sometimes known as isai vellala.} It would be 28 years before another mṛdaṅgam vidvan, T.K. Murthy, would be named. Until today no kanjira, ghaṭam, or morsing artist has been honored.

Since 2001, however, five more mṛdaṅgam players have received the award.\footnote{They are: Umayalpuram K. Sivaraman, 2001; Vellore G. Ramabhadran, 2004; Palghat R. Raghu, 2007; Trichy Sankaran, 2011; and T.V. Gopalakrishnan, 2014.} Moreover, tavil vidvan, Valayapatti A.R. Subramanyam, was Sangita Kalanidhi for the 2009–10 season. This recent distribution pattern, in which a percussionist is awarded every third year or so, follows the proportions of the typical karnāṭak ensemble: two melodic players (soloist and accompanist) and a mṛdaṅgam player. More than being equitable, however, it seems indicative of a new and growing recognition of the value of mṛdaṅgam artists by the Academy.

The recent institutional valuation of rhythm in karnāṭak music can also be seen in the newly established two-year master’s program in “Rhythmology” at the
University of Madras. With the breakdown of the gurukula system, rhythm studies had mainly been relegated to fee-for-lesson arrangements. Unlike other aspects of kārṇāṭak music, drumming had never been part of the revival’s push for a systematized, institutionalized music education. Rather, drumming has often been positioned as something other than music and was, therefore, left out of the University curriculum (Ramanathan pers. comm. 02/18/08). The very limited number of theses and dissertations on percussion (and/or rhythmic studies) produced at the University of Madras, one of the top Indian institutions with a graduate program in Indian music, reflects the field’s low status. As such, the advent of the “Rhythmology” program represents a major institutional legitimation.

**Foreign Exchange**

Indian musicology’s recent turn towards the study of rhythm contrasts sharply with long-standing interests of foreign scholars and institutions. Wesleyan University, for example, has employed kārṇāṭak rhythm experts as faculty since 1961. There, artists and scholars have trained generations of students in mṛdaṅgam and solkaṭṭu and guided graduate students in producing over a dozen theses and dissertations on rhythmic aspects of South Indian music. Likewise, Sankaran has held the position of Professor of Music at York University in Toronto since 1971. His writings on Indian rhythm, and efforts at making it intelligible and useful to non-Indian musicians, have been a highly visible part of the scholarship emerging from North America. Interactions among scholars, musicians, and students under the auspices of American institutions have resulted in distinctive approaches to South Indian rhythm scholarship and pedagogy. Significantly, this discourse has not remained isolated
from the Indian dialogue. North American writings are accessed and discussed by Indian musicians and scholars; researchers from American institutions have presented their works on rhythm at important venues such as the University of Madras and Madras Music Academy; and experts in Indian music teaching at (or visiting) American institutions continually add to, and help shape, the discourse.

While the North American emphasis on rhythm distinguishes it from the thrust of India-based scholarship, both share traits that impact contemporary understandings of solkattu. Discourses on Indian music have consistently, and unquestioningly, highlighted its connection to ancient practice as a legitimizing agent. This trend can be traced back through the body of English-language literature on the subject. “The earliest generations of writers in English,” according to Powers, did not know Indian music, and were interested in it primarily as a putative survival from the ancient world; they approached it more or less as we still have to approach ancient Greek music, as a dead thing preserved in writings, though perhaps with some degenerate survivals. This set the tone for intermediate generations of writers who, having accepted the notion of survival from antiquity, tried to correlate the written remnants with the flourishing living art, using the acoustic ethnomusicology of the early twentieth century. Thus was established a scholarly tradition which most later theoreticians seem to have accepted quite uncritically. (1965:7)

In this quotation, Powers pinpoints three key aspects of the Orientalist paradigm woven into the basic fabric of English-language scholarship on music: (1) the (often awkward) imposition of the English language and conceptual frameworks; (2) the decline from the golden age narrative; (3) the value assigned to ancient-ness. In his influential New Grove article, Powers himself emphasizes survivals, suggesting “the most probable area for survival of ancient musical practice is drumming” (1980:132).
As the above Literature Review made clear, scholarship on rhythm (in concordance with Orientalist narratives) tends to be highly technical in nature with a focus on systemization and a scientific orientation. Additionally, the preponderance solely focuses on Karnāṭak music to the exclusion of all other genres. This scholarship, in turn, acts as another layer of textual authority for Karnāṭak rhythm. It reinforces the “modernized textual and theoretical canons” remade in the revival (Peterson and Soneji 2008:7), thereby deepening the classical rubric surrounding Karnāṭak music and further legitimizing it as the inheritor of the “Great Tradition.” For all of its value, this body of work demonstrates a profound reflexive quiescence regarding its focus and framing.

Bharatanatyam

Dance and music (and more specifically, drumming) are intimately linked in the South Indian context. And while both artistic areas were dramatically transformed in the revival period, distinct discourses evolved around each. At the forefront of the dance discourse is bharatanatyam, which, like Karnāṭak music, was positioned as the “classical.” Today, bharatanatyam is not only studied and performed in India and many other parts of South Asia, it is firmly established in the Indian diaspora as well as in academic and cultural institutions around the globe. For most Indians, non-resident Indians, and persons of Indian origin involved in bharatanatyam, “the dance serves as a social accomplishment, and as a means of learning about and expressing traditional Hindu social and artistic values” (Gaston 1991:154). As such, bharatanatyam has become an elevated social practice, embraced by middle and upper classes where it is positioned as a “pan-Indian or even pan-South Asian symbol of
cultural identity” (O’Shea 2008:183). Its widespread presence in academia—as a subject of research and practice—reinforces this prestige and contributes to its manifestation as “a world form” (Meduri 2004:11).

The high status given bharatanatyam today is in sharp contrast to its position only a century ago. From the late 19th to the mid 20th century—as India moved towards, and into, nationhood—this dance form underwent profound transformations. Performers and audiences shifted dramatically as did artists’ training, performance venues and contexts, staging, the repertoire, and even the name. Through a heated and contentious process of public discourses, political maneuvering, government action, and social engineering, the dance of the devadāsī-s—commonly referred to as sadir15—became bharatanatyam, or (as the name translates) “India’s dance.”16 Although solkaṭṭu continued to serve the same basic roles throughout this process, changes to the dance fundamentally altered the syllables’ form and presentation.

The Devadāśī

To understand the context of solkaṭṭu in dance, I begin with a brief consideration of the hereditary dancer, the devadāśī (Skt. “servant of god”), who was the embodiment of the dance tradition coming into the 20th century.17 Defining who the devadāśī was, however, is no simple task. As Knight reports, “in the census

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15 This Tamil term is now popularly associated with the art of the hereditary dancers. Douglas M. Knight, however, speculates that the traditional community did not use the term “sadir” as the name of their dance form. Rather, its use fit the need of those reconstructing the dance to differentiate it (and lower its status) from the newly named dance, bharatanatyam (2010:5).
16 Or, as Peterson and Soneji more precisely translate it: “dance based on the ancient Sanskrit treatise of Bharata” (2008:4–5).
17 According to Kersenboom-Story, “in Tamil Nadu, the devadāśīs themselves, refer to their own tradition as devadāśī mūrai (tēvātācī murai) or devadāśī vyṛtti” (1996:47). Both the Tamil term mūrai, and the Sanskrit vyṛtti, refer to function. As such “devadāśī meant a function, a status, a way of life” rather than a caste or predetermined station in life (ibid.:48).
published by the British Administration of the Madras Presidency in 1901, seven
differentiations of the term *devadasi* are enumerated.” Of these, only “one of them is
a descriptor of the women who danced and sang as performance practice” (2010:xx).
To further complicate matters, contemporary depictions of devadāsī history, social
roles, and artistic abilities/sensibilities are often grounded in biases promoted by
various (anti-devadāsī) factions in the late 19th and early 20th centuries. Fortunately,
recent in-depth scholarship has gone far in undermining reductive portrayals of the
devadāsī—as an ahistorical, pan-Indian, hereditary temple dancer and prostitute,
utterly lacking in agency—by deconstructing dominant dance narratives and by
focusing on the actual women involved.\(^\text{18}\)

Although the complex trajectory from the female bards, temple women, and
other artists who were antecedents to the modern devadāsī is of interest, it lies outside
my focus and has been examined in detail elsewhere.\(^\text{19}\) Suffice to note that women
artists and ritualists held varied, and often esteemed, positions in southern court and
temple cultures from the Tamil Caṅkam period (100 BCE–300 CE) onwards. The
women specified as performers in that 1901 census were at the tail end of this broad

\(^{18}\) For example, Orr’s (2000) detailed investigation of Chola period temple inscriptions challenges
popular assumptions about temple women’s history. While many cite the famous 11th century
inscription at the Tanjore temple as proof “the entire Chola country was filled with temples with
devadasis in attendance” (Shankar 1990:51), Orr disagrees. “It is ironic,” she notes, “that the case long
held to be the *locus classicus* for the medieval South Indian *devadasi* phenomenon—Rajaraja I’s
establishment of 400 temple women at his great temple in Tanjavur—turns out to be something of an
aberration” (2000:164). Based on her exhaustive research of 686 inscriptions made between 850–1300,
Orr concludes that the hereditary, temple-supported and matrifocal institution of women skilled in
dance and ritual functions (what is popularly understood as the devadāsī) emerged no earlier than the
17th or 18th centuries (ibid.:177). See also: Soneji 2012, 2004; Srinivasan 2012; Knight 2010; O’Shea

\(^{19}\) See Kersenboom-Story (2002, ch.1) for an overview of the development of the devadāsī
phenomenon through successive South Indian epochs.
tradition, which, at that time, manifest as hereditary families of musicians and dancers organized along matrilineal lines. Girls who showed aptitude were dedicated to temples and trained in music and dance while boys became ensemble musicians and nāṭṭuvanar-s. They practiced an art form most recently redefined about a century earlier, towards the end of the Tanjore Maratha kingdom (1676–1856). Certain families, such as that of the world-renowned 20th-century dancer T. Balasaraswati (1918–1984), trace a continuous lineage to the Tanjore court.

When the East India Company annexed Tanjore (in 1856), the court ceased to exist. The “Colonial annexation of Tanjore” suggests Avanthi Meduri, “must be perceived as an epochal interruption because it displaced all that was before its arrival.”

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20 Devadāsī-ś dedicated to temples benefited from “the temple institution’s sanction to the pursuit of feminine skills and the exercise of sex and child-bearing functions outside the conventional domestic (grihasta) context” (Srinivasan 1988:180). Instead of marrying in the traditional sense, the devadāsī was socially legitimized by Brahmanic Hinduism as nityasumaṅgali, e.g., an ever-auspicious woman (for more on the devadāsī-nityasumaṅgali, see Kersenboom-Story, 2002). In this role, she was sanctioned to play “an intrinsic part of the religious and social economies of landed families” (Kannabiran and Kannabiran 2003:7). Anti-dedication activists would deem temple dedication as a marker of sexual availability leading to oppression. Knight, however, found “no reliable evidence of anything resembling a socially defined sexual role of the devadāsī” (2010:27).

21 Supported by a flourishing court culture, four nāṭṭuvanar brothers—known as the Tanjore Quartet—codified existing dance practices into the currently defining forms. The brothers, Ciṉṉaiyā (born ca.1802), Poṉṉaiyā (born ca.1804), Cināṅtam (born ca.1808), and Vaṭīvēlu (born ca.1810) “were—as far as we can know at present—the third in their generation of court choreographers and dance-masters” (Kersenboom-Story 2002:43–44). According to Kersenboom-Story, in “cooperation with Muttuvāmā Diksitar, they were able to devise a basic course for dance training and to compose a balanced concert repertoire that combined the choicest dance-compositions into a harmonious concert program” (italics in original ibid.:44). Many of their extraordinarily crafted tirumāṅnum, rhythmic compositions for dance, have been passed down (as solkaṭṭu) through generations of nāṭṭuvanar-s (Hari Krishnan pers. comm. 02/27/07).

22 According to Knight, “Balasaraswati’s great-great-great-grandmother, Thanjavur Papammal, was born around 1760. Papammal was a dancer and musician in the court in Thanjavur” (2010:12). While Balasaraswati’s devadāsī ancestors practiced “a repertoire that was intended for a secular audience, and which was not performed as ritual in the temple or during processionals” (ibid.), the divide between the art in the temple and court may have been minimal. According to Kersenboom-Story, “a most striking characteristic of the development of music and dance during the Tanjore period is the integration of the performing arts practiced in the court and those practiced in the temple” (2002:41–42).
as if in the blink of an eye” (1996:xv). “With the loss of the royal patron,” notes Kersenboom-Story, “an entire universe was lost and never recaptured” (2002:48). Some hereditary artists were able to adapt to, what Subramanian describes as, “fundamental changes in terms of patronage, content, presentation, and reception,” while others “did not have the wherewithal to stake a claim in the transformed public culture of modern India” (2006:1,2). Many devadāsī families moved to the newly thriving arts scene in the economic center of Madras as they adapted to the changing contexts for their art. Soon, however, they would find their lifestyle, livelihoods, and artistic heritage fatally undermined by an unlikely alignment of forces.

A thumbnail sketch of abolitionist factions can start with British missionaries, offended by devadāsī social structures they did not fully comprehend, who began casting aspersions on these communities in the early 19th century. As colonial knowledge was internalized in the context of a growing global consciousness, Indian reformers also turned against the matriarchal and matrilineal devadāsī communities “with the goal of bringing the social order, including family structure, into line with western sensibilities” (Knight 2010:6). A highly visible manifestation was the anti-nautch campaign, which began explicitly targeting dancers and branding them as prostitutes in the last decades of the 19th century. Moreover, the pro-Tamil (anti-Brahmin) movement initiated by “Periyar” E.V. Ramaswami in the 1920s tied abolition into its self-respect program and aligned with women’s rights campaigns
against oppressive religious and social practices. Finally, because men of the devadāsī communities—traditionally trained as musicians and nāṭṭuvanar-s—were left out of the inheritance structure and subject to the “the dominance of women even at the level of formal authority within the home” (Srinivasan 1988:188), they stood to gain from a change in the system and ended up taking a visible role in the reform as well.

In 1927, Dr. Muthulakshmi Reddy (1886–1968), the daughter of a devadāsī, introduced legislation outlawing the dedication of girls to temple institutions. Initial resistance from the devadāsī community was short lived, but vociferous debate over the dance was amplified. While Reddy proposed banning the dance altogether, revivalists such as E. Krishna Iyer (1897–1968) forcefully promoted bharatanatyam. Iyer made a lasting impact lobbying for dance within the Music Academy, where he served as an executive committee member. Although a number of prominent

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23 In subsequent decades, the Dravidian movement Ramaswami popularized would come to dominate the politics of Tamil Nadu and have, through its integration in the film industry, an outsized affect on the region’s cultural discourse (see p.230 n.7).
24 See Srinivasan (1988) for an in-depth discussion of tensions created by specialized gender roles for the arts, and female controlled financial arrangements, in hereditary communities.
26 Hereditary dancers quickly formed The Association of the Devadasis of Madras Presidency in response to Reddy’s legislation. Although its members undertook grass roots activism, and submitted letters and a document of protest to the Law Member, Sir C.P. Ramaswami Ayyar, the movement did not have full support within hereditary communities and quickly faded (Meduri 1996:176–83). A subsequent amendment, introduced by Dr. Reddy the following year and made into law in 1929, banned devadāsī dancing and ritual performance in temples. According to journalist S. Muthiah, the amendment stipulated that devadāsī-s who were relieved of their temple duties “were to be given whatever land or income was theirs by virtue of their performances […] Not surprisingly,” he reports, “the implementation was one-sided; the devadasis were thrown out of the temples, but never got compensation” (2007).
27 In its Journal, the Academy self-consciously positioned itself as a savior of bharatanatyam. Reviewing the 1931 concerts, for example, the editorial staff notes, “An entirely new line was struck
devadāsī dancers continued to perform into the early 1930s (Knight 2010:76), their voices were muted in the national discourse on their art. Their dance was portrayed as a vanishing form in need of rescue and their efforts at popularizing it were co-opted into the controlling revival narrative. In 1947, following years of public debate over the devadāsī and her role in society and dance, the Madras Devadasis (Prevention of Dedication) Act was passed, effectively legislating the devadāsī out of existence.

The Dance Revival
With the notable exception of Balasaraswati, by the time the Act was passed devadāsī- s had all but ceased dancing professionally. At that point, the law, according to Amrit Srinivasan, “seemed to have been pushed through not so much to deal the death of the Tamil caste of professional temple dancers as to approve and permit the birth of a new elite class of amateur performers” (1988:197). The project of making bharatanatyam available to non-devadāsī dancers had been gaining momentum since Rukmini Devi (1904–1986), a Brahmin woman, took to the stage in 1935. As the first non-devadāsī performer, trained in the Tanjore style by the highly regarded dance master Meenakshi Sundaram Pillai (1869–1954), Devi paved the way for wider acceptance of the dance and its performance by middle-class Brahmin women.

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28 Knight, for example, relates the frustration of Balasaraswati’s family when Iyer retrospectively claimed responsibility for bringing her to the All India Music Conference at Benares Hindu University where she presented the first bharatanatyam performance in 1936. Although the family denied Iyer’s claim, “there was no medium through which someone in Bala’s family, or any traditional family, could refute the claims of E. Krishna Iyer and others of his public stature” (Knight 2010:99).
The “revival” of bharatanatyam, spearheaded by Devi, was tied into the nationalist project of remaking the Indian arts in a “classical” model. Devi’s intimate association with the Theosophical Society, an international spiritual movement that became a central force in independence politics, would deeply influence how she portrayed the dance as a performer and, more importantly, how it would be introduced at Kalakshetra, the arts institute she founded in Adyar in 1936 (which was later moved to nearby Thiruvanmiyur). Because Kalakshetra-trained artists would assume outsized roles in the trajectory of modern bharatanatyam, in India and worldwide, the (Orientalist) flavor of the narrative promoted there continues to resonate loudly.

In this view, bharatanatyam had to be cleansed of its recent defiling association with modern devadāsī communities and their degraded interpretation of the dance. Only then could the new dance reflect “the ideal literary and sculptural imagination of the dancer as she had been inscribed and engraved on the walls of the Hindu temple dating back to at least the ninth century A.D.” (Meduri 1996:xxii). In contrast to the modern devadāsī, this idealized ancient dancer represented the “pure origins of the *devadasi* institution” (Orr 2000:12). In this narrative, she was a nun-like being devoted to dance as spiritual practice (ibid.) and aligned with a tradition codified in Sanskrit texts dating back to the NŚ. The translation of the name *kalakshetra* (Skt. “holy place of arts”) reflects the tenor of the movement.

In conjunction with locating bharatanatyam in deep textual and iconographic histories, the imagery and aesthetics of performance were reinvented to support the
goals of the nationalist project. Allen, for example, notes that the playful and flirtatious Krishna and Murugan, who were central deities in the devadāsī repertoire, were replaced with Nataraja who “would serve as the perfect nayaka (lord) of the revived dance” (1997:64). “Nataraja,” as Allen describes:

was free from the kind of criticism that an earthy, sensual, often philandering Murugan or Krishna could come under from social reformers and was full of resonances suggesting spiritual detachment and masculine power, images invoked by both revivers of dance and Indian nationalist politicians. (ibid.:82)

As if to cement the association, a bronze statue of Nataraja—dancing the cosmic dance of destruction (leading to creation) in a ring of fire—became de rigueur on stages of the reconstructed form.29

As the patron deity of bharatanatyam, Nataraja also became an important subject in dance. Much of the traditional repertoire of pādam-s and javali-s extolling śṛṅgāra (erotic, human love), with Krishna or Murugan as divine/human protagonist, were sanitized or jettisoned in favor of songs with more austere “spiritual” associations.30 Some of the new songs were drawn from the concert repertoire. Kṛti-s,

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29 See Anne-Marie Gaston (1991:156–61) for a discussion of the history of the Nataraja icon on stage, including Devi’s claim of initiating the practice as well as Balasaraswati’s resistance.

30 Pādam-s, such as those composed in the 17th century by Kṣetrayya, expressed śṛṅgāra through interactions between the courtesan and her customer (who was depicted as both mortal and divine). Elements deemed too erotic, from the Victorian view of morality promoted by the reformers, came under fire. Themes and poetry that were not excised were reinterpreted “by assigning exalted spiritual meanings to them. […] The apparent eroticism was only an allegory for the union of jīva and iśvara, the yearning human soul and god” (Ramanujan et al. 1994:29). That the language of the pādam poetry “consists mostly of pure Dravidian words, with very few Sanskritized forms” (ibid.:34) further distances them from the nationalist narrative of dance being promoted through the reform. See Ramanujan et al. (1994) for a contextualization of Kṣetrayya’s pādam-s within South Indian poetic traditions.
for example, were introduced by a new class of accompanist (Knight 2010:119). Artists from the hereditary community resisted the introduction of these new compositions, which they saw as upsetting the overall balance of the traditional format as well as being unsuited to the flow of the gestural abhinaya (ibid.:118–19).

Along with the devadāsī-śīsā they played for, many traditional musical accompanists were pushed aside in the reformation and its associated institutionalization. The same held true for traditional dance masters. The relationship between Devi and her own teacher, Meenakshi Sundaram Pillai, is indicative of the incompatibility between the hereditary community and the revivalists. Pillai was one of the foremost nāṭṭuvanar-śīsā of his time, hailing from a dance lineage with roots in the Tanjore court. His training of Devi, while providing her a legitimate link to the Tanjore tradition, was brief and their sharp public split contrasted with the typical guru–śiśya relationship. Hereditary nāṭṭuvanar-śīsā also taught at Kalakshetra in the early years because, as Knight notes, “leaders of the reconstruction effort tried to project the idea that the knowledge and practice of the nattuvanars from traditional families were being absorbed into the pedagogy at institutions in Almora and Adyar”

31 “As traditional professional musicians were replaced as accompanists for dance in the 1940s,” writes Knight, “musicians with a different repertoire took their place, and these new musicians introduced the song form krtī (and the virtually identical kirtana) into bharata natyam concerts” (2010:119).
32 Although now standard, the inclusion of krtīs (and other elements from the karnāṭak repertoire) continues to rankle some senior artists. Sankaran, for example, feels it “to be regrettable that dancers involve themselves […] in the karnāṭak music forms—mostly the krti-s; it’s a cause for concern” (pers. comm. 02/04/09).
33 According to Knight, Devi’s study with Pillai lasted only a year leading up to her debut performance, or arangetram. Her decision to perform publicly after such a brief training—against the wishes of her guru—led to the end of their relationship (2010:106). Meduri offers a more sympathetic view from Devi’s perspective (based on a Kalakshetra publication). “In her narration of the event,” notes Meduri, “she explains how ‘she was deserted [italics mine] by my teachers, including, I am sorry to say my own first teacher Meenakshi Sundaram Pillai’ (Ramani 2003, 56)” (2004:18).
Nevertheless, from 1943 onwards Kalakshetra stopped employing naṭṭuvanar-s from the hereditary community. Dance training, choreography, and conducting then became the domain of non-hereditary teachers. Allen suggests:

By dispensing with traditional teachers and using her own students as nattuvanars, Rukmini Devi dramatically altered the modalities of communication in performance. In the new situation, the student-nattuvanar was in no way able to direct the dance in the manner of the traditional teacher but simply was to try to follow it. (1997:66)

Hereditary naṭṭuvanar-s, however, were not legislated out of existence as were the devadāsī-s. Some continued their art outside Kalakshetra and were able to directly convey their Tanjore inheritance to contemporary generations of dancers (Allen 1997:67).

The careers of traditional teachers were bolstered in the 1950s when the newly independent Indian government began prioritizing their knowledge as “the cherished symbols and signs of the modern nation” (Meduri 1996:431).

34 International dance star, Uday Shankar (1900–1977)—a supporter of Balasaraswati who played a role in launching her international career—began a performing arts academy in Almora, Uttarkhand in 1938. Though it was short lived there (and would later relocate to Kolkata), the Uday Shankar India Culture Center was a visible part of the institutional reimagining of Indian traditional dance.

35 Gaston relates how Devi, Radha Bernier, and S. Sarada first performed naṭṭuvangam out of necessity in 1943 when a naṭṭuvanar from the isai vellala community “withdrew his services for an important Bharata Natyam recital” at Kalakshetra. “The trauma of being beholden to the whims of the male nattuvanars from the isai vellala community, together with the newly attained confidence that they too could perform this function, meant that from 1942 onwards, Kalakshetra […] never again employed a nattuvanar from the isai vellala community” (1996:125,125). Devi’s foray into the traditionally male realm of naṭṭuvangam was, as Gaston notes, “a revolutionary innovation” that began dismantling restrictive gender barriers (ibid.:124).

36 Nevertheless, with the rise of institutionally trained naṭṭuvanar-s opportunities for traditional practitioners declined. Unlike most of the earlier hereditary professionals, who often added the word “naṭṭuvanar” to their name as a sign of their profession, “‘modern’ dance teachers either add the prefix vadiyar (teacher), the Tamil equivalent for ustad (Neuman 1980; Kippen 1988), or guru, which has connotations of a spiritual guide. Another title is the Sanskrit term natyacharya (senior dance teacher), clearly a form of sanskritization” (Gaston 1996:112). Such titular differentiation reflects identity politics rooted in caste (ibid.).

37 Meduri recounts how this wave of valorization led to a gross power imbalance. “In order to deserve
dance in this era furthered the previous project of purifying bharatanatyam, only instead of doing away with the devadāsī the dance was re-inscribed as “traditional” following a model determined by the state. Sanskrit textualization continued to be promoted while innovations, including Devi’s experimental choreography of the 1940s, were “glossed over in favor of the timeless tradition” (ibid.:432).

Balasaraswati’s presentation of bharatanatyam gained local, national, and then international recognition in the decades following independence. From the 1950s onwards, she was aided by the same unifying impulse, at the national level, that prioritized traditional teachers.38 As a teacher herself, in India and very significantly in universities in the United States, she was able to pass on her lineage to students spread around the world. In the wake of her local and international fame, as “the real and authentic traditional practitioner, belonging herself to the vernacular traditions of Tanjore civilization” (Meduri 1996:457–58), Balasaraswati’s vision continues to deeply influence bharatanatyam.39

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38 Balasaraswati was awarded the first national arts award in dance by the prestigious Sangeet Natak Akademy (in 1955) and the Presidential award (in 1958). Meduri suggests that that in their process of creating a great and unified Indian tradition “Nation-state officials thus returned select traditional ancestral and or ‘civilizational’ people such as Balasaraswati, to the center, the place of sovereignty” (1996:454).

39 This vision, though traditional, was not static. Early in her career Balasaraswati’s guru and naṭṭuvanar, Kandappa Pillai, made innovative changes to her presentation of bharatanatyam. For example, he lowered the concert pitch as bharatanatyam moved to more acoustically friendly spaces. Not only could male singers perform in a more comfortable register, “this change also allowed
Conclusions
Although the dance promoted by Balasaraswati and her disciples is often contrasted with that of Kalakshetra, they both (along with the many other styles of bharatanatyam proliferating worldwide) operate in spaces opened, cleared, and remodeled by the artistic revival. Art music has been similarly shaped by 19th and 20th century imperatives. The place of percussion in music, the character of dance (and the dancer), and the role of the natṭuvanar have all been profoundly influenced by relatively recent movements on local, regional, national, and international stages. The contemporary discourse on solkaṭṭu emerges from within these movements, and from the renewed attention given mṛdaṅgam. While connected to the ancient past, the modern view of solkaṭṭu has been shaped by the contours of this complex narrative. Paying attention to this formation creates a richer version of solkaṭṭu’s originating contexts that can more fully support the upcoming analysis of contemporary practice.

Kandappa’s performance of natṭuvangam to be heard over the music of the ensemble” (Knight 2010:71). In addition, Kandappa cut out various drumming sections that he viewed as less appealing in the concert format and composed complex sequences of nṛttā based on his highly developed rhythmic sensibilities—which were influenced by konakkol vidvan Mannargudi Pakkiri Pillai (ibid.:73).
Chapter 3
Thinking Time: Solkaṭṭu in Rhythmic and Temporal Cognition

Introduction
The foregoing historical investigation firmly positioned solkaṭṭu—as humanly voiced syllables—within broad swaths of musical thought and practice going back to ancient times. Although recent re-imaginings of music and dance, described in the last chapter, have had an impact on rhythmic practice, solkaṭṭu continues to express and model this long lineage. As a pivot into my analysis of contemporary practice I expand on the earlier description of solkaṭṭu—as a multimodal system of temporal modeling (see pp.4–6)—by delving into the ways artists engage time and rhythm in the South Indian arts. The resulting embodied-cognitive model is consistent with, and in many ways derived from, indigenous discourses on rhythm.

The present chapter builds on previous karnāṭak music scholarship dealing with process, especially Nelson’s description of the “solkaṭṭu method” (1991 vol.1:2–3). Here, I expand the focus by analyzing how solkaṭṭu, situated within the broad cultural models described earlier, is internalized via analogic thinking.1 Locating solkaṭṭu practice in a theory of cognition not only takes up the implicit concept of Nelson’s title, “Mrdaṅgam Mind” (1991), it also relates this work to the ever widening stream of literature dealing with, what Benjamin Brinner early on dubbed, “cognitive musicology” (1995:320). It is my hope that this model serves as a

1 Although analogic thinking is often contrasted with analytical thinking, the latter being associated with non-typical cultural contexts such as testing or communicating knowledge to outsiders (Shore 1996:337–38, 365), I believe both models are highly integrated in karnāṭak rhythmic practice. Because of its complexity, musicians often resort to analytical thinking when engaging South Indian rhythm. However, as discussed below, even highly analytical approaches are most often realized through analogies based in solkaṭṭu.
comprehensive container accounting for the heterogeneous application of solkaṭṭu in the South Indian arts (discussed in the following chapters) as well as a platform for considering its widespread use in other contexts (such as those considered in the epilogue).

**Analogy**

In recent years music scholars have been incorporating approaches developed in the cognitive sciences, and especially in cognitive linguistics, to describe how musicians conceptualize their art. Although diverse processes underlie musicians’ thinking, conceptual metaphors, or analogies have been central. This positioning aligns with Hofstadter’s take on cognition:

> If analogy were merely a special variety of something that in itself lies way out on the peripheries, then it would be but an itty-bitty blip in the broad blue sky of cognition. To me, however, analogy is anything but a bitty blip—rather, it’s the very blue that fills the whole sky of cognition—analogy is *everything*, or very nearly so, in my view. (2001:499)

Conceptual analogies differ from their literary counterparts in that they are mental mappings from one area of thought onto another rather than literary expressions of those mappings. As Lawrence M. Zbikowski observes, “such mappings are not about the *imposition* of the structure of the source domain on the target domain, but are instead about the establishment of correspondences between the two” (1998:5).

Source domains are typically more concrete and experiential while their targets tend towards the abstract and conceptual. Understanding time, and especially temporal

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2 According to pioneering cognitive science researcher Douglas R. Hofstadter, “metaphor and analogy are the same phenomenon” (2001:526). Because distinctions between the two (see Gentner et al. 2001) are peripheral to this discussion, I align myself with Hofstadter’s view on the matter.

3 In their groundbreaking work on conceptual metaphor, George Lakoff and Mark Johnson suggest, “a metaphor can serve as a vehicle for understanding a concept only by virtue of its experiential basis” (1980:18). As such, a relatively small body of more experiential concepts (such as spatial relations,
order, in terms of space, and often in conjunction with events and motion, is a prime example of mapping correspondences between domains. Language and orientation from the more concrete domain of space clarifies the slippery concept of time.\(^4\)

From the start, cognitive linguists recognized the central role of culture (and subculture) in metaphor construction (Lakoff and Johnson 1980). Therefore, while understanding time according to spatial metaphor may be widespread, analogies drawn from this relationship can vary dramatically. For example, the horizontal orientation ascribed to past and future common in English (where we “look forward to a new day” or are “running behind schedule”) is reversed in the Andean Aymara language, in which you see what you have just done in front to you (ibid. 1999:141).

And the relationship can be vertical among Mandarin speakers where up, “shāng 上,” also translates as “previous” or earlier in time, and down, “xià 下,” also means “next” or later in time (Boroditsky 2001). Or consider the Australian Aboriginal Pormpuraawans who “arrange time according to cardinal directions: east to west” (Boroditsky and Gaby 2010:1635). This is in accord with their (linguistic) structuring ontological categorizations, and basic actions) provides structures for understanding more abstract domains like emotion, complex social interaction, or temporal relations. The experiential basis, however, need not be directly invoked in each instance of analogic mapping. “Rather,” as Lera Boroditsky and Michael Ramscar conclude from their study of people’s thinking about time in relation to travel, “it appears that abstract thinking is built on representations of more experience-based domains, and not necessarily on the physical experience itself” (2002:185). Furthermore, Boroditsky has shown that “with frequent use, mappings between space and time come to be stored in the domain of time and so thinking about time does not necessarily require access to spatial schemas” (2000:1). Though drawn from (and drawing linguistically on) spatial metaphors, temporal schemas eventually come to take on a (metaphorical) life of their own.

\(^4\) Space is generally mapped onto time according to three pervasive metaphors. The first, known as The Time Orientation Metaphor, places the observer in the present facing forwards towards the future with the past behind. This metaphor is often used in combination with two additional metaphors: The Moving Time Metaphor, in which time moves past the observer and The Moving Observer Metaphor, in which the observer moves through time. For a thorough examination of these and other aspects of temporal cognition, see Lakoff and Johnson (1999, ch.5).
of spatial relations, which relies on absolute directions—i.e., north, south, east, and west—rather than relative terms such as right and left or front and back (ibid.).

Such divergent time orientations may reflect deep-rooted cultural differences. Bradd Shore (1996), in his pioneering work integrating cultural anthropology and cognitive science, offers the general category of foundational schema to account for this variation. These schemas, according to Shore, “work across empirically heterogeneous domains of experience and underlie a community’s worldview” (1996:366). Foundational schemas, such as those governing cultural orientations to time, “are usually only tacitly known and not explicitly cognized by members of a community” (ibid.). That is why they tend to escape notice under normal circumstances.

Although foundational schema may lie below the surface, they deeply inform more specific ways of understanding; what Shore calls cultural models (1996:10). These models comprise “prepackaged forms of knowledge that coordinate groups of individuals and are the property of communities” (ibid.). Musical notations, such as linear staff notation or certain vertical East Asian notations, are examples of instituted cultural models. Community members access cultural models via analogic thinking to make sense of particular experiences.

In the following sections, I consider three central analogies with which musicians understand (conceptualize, internalize, convey, and perform) karṇāṭak rhythm and similar models found in related music and dance. The first two are inter-domain spatial analogies linking gestural sequences and geometric shapes to musical
time and rhythm. The third considers solkaṭṭu as both an inter-domain analogy (i.e., as an analogue of drumming, dance, or melodic rhythm) and intra-domain analogy (when clarifying other solkaṭṭu). All of these analogies are located within a series of cultural models, beginning with the general cognitive spaces of Indian (musical) time and then moving to the specifics of tāḷa and phrase. In addition, I point out relevant foundational schema tying solkaṭṭu to the larger context of Indian musical practice.

**Temporal Models**

“Temporal models,” in Shore’s accounting, “orchestrate culturally specific time frames” (1996:62). South Indian musical time is conceptualized according to two distinct (yet fully integrated) temporal models: tāḷa, performed as a cyclical series of hand gestures known as kriyā; and phrase, understood through voiced solkaṭṭu, or its realization on percussive or melodic instruments (or as dance steps). Below, I examine tāḷa as both a cyclic and syllabic model of time, and phrase as a syllabic and, often, graphic time model.

Recall that the cognitive separation of rhythmic phrasing from timekeeping is a defining characteristic of South Indian rhythm enshrined from the earliest treatises onwards (see p. 51). In this landscape, drummers and others experimenting with rhythmic complexity are relieved from the responsibility of marking the basic time structure of a composition; that is left to tāḷa. As a result, artists have been “uniquely free to develop traditions of independence and virtuosity” in rhythm (Powers 1980:72). Conversely, tāḷa design has been (with rare exception) unencumbered by poetic meters. Nor has tāḷa influenced metric stress or accenting of the phrasing occurring with it. In this open cognitive space, myriad metric structures have
developed, ranging from short and simple (e.g., three-beat *tiśra ēka tālā*) to highly complex (such as the 128-beat *simhanandana tālā*). Though cyclical and syllabic models of time will be taken up in order in this analysis, in practice they are deeply interactive, simultaneous, and, in fact, inseparable.

**Numeric Time**

Before considering the specifics of cyclical and syllabic time cognition, one characteristic, common to both, deserves mention: namely, their lack of numeric references. This absence is in marked contrast to rhythm and meter in western art and popular musics, for example, where notes, beats, measures, and rhythmic phrases are commonly counted through a number-based system. Rowell has suggested that a bias towards thinking of rhythm in numbers can be traced back to the Middle Ages when Latin authors committed at least one serious mistranslation, equating *numerus* ("number") with *rhythmós*, unaware of the careful distinction between *rhythmós* and *arithmós* drawn by the Greek rhythmicists. Thus the idea of mechanical division by number was substituted for that of proper proportion. (1979:106)

Even among earlier Greek thinkers, there was a propensity towards numeric thinking about rhythm. Pythagorean philosophy, for example, promoted a worldview in which number was seen as the essential element in cognition. “Whatever can be grasped by the mind,” wrote Pythagorean Philolaus, “must be characterized by number; for it is impossible to grasp anything by the mind or to recognize it without number” (frag. 4 in Lakoff and Johnson 1999:361). A prime analogy underlying Pythagorean philosophy, which Lakoff and Johnson articulate as, “The Essence Of Specific Categories Are Particular Numbers,” was directly applied to music (ibid.:361–62). Aspects of Pythagorean thinking continue in contemporary arts and
sciences (ibid.:362). The reliance on numeric thinking is particularly evident in western orientations to rhythm and meter.

South Indian musical time departs dramatically from number-based systems. In India, akṣara, the syllable, has been elevated as a central cognitive structure in language, religion, and philosophy. In music, past and present, syllables are the basis for understanding meter, for counting, and for rhythmic design. It is a rare occasion when artists resort to numeric thinking (for tāḷa or phrase).\(^5\) Moreover, orality in Indian music emerges from a schema elevating the human voice and its ability to transcend the mundane. And while solkaṭṭu has easily flowed between syllabic Indian dialects and their written scripts, its realization through the voice has traditionally been considered primary.

**Cyclical Time Model**

Unlike the ancient marga tāḷa-s, which were linear models of time, the current system (like the deśī tāḷa-s preceding it) is cyclic.\(^6\) Cyclical tāḷa-s have analogues across a range of heterogeneous cultural areas stemming from the same schema. This foundational schema, of emergence–dissolution–reemergence, is made explicit in the traditional model of creation. Rowell’s description is as follows:

> The process of creation in traditional Indian thought is a continuous one, proceeding through cycle after cycle: in the initial phase, primal matter is split

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\(^5\) Nevertheless, one of my collaborators showed a strong predilection for using numbers in a particular context of his professional life as a dance drummer. Implications of his reliance on numbers for recording and recalling vast amounts of complex choreography will be explored below (see p.220).

\(^6\) The progression from a limited number of linear mārga tāḷa-s to a vast array of cyclical deśī tāḷa-s and then to the current system(s) of cyclical tāḷa-s reflects changing emphases, most notably in the growing importance of improvisation (Rowell 1992:192). While tāḷa structures (as well as melodic structures, musical forms, contexts, and purposes) have changed dramatically over the two millennia of Indian music history, it is noteworthy that solkaṭṭu has remained astoundingly consistent in both form and function.
and differentiated into all the individual atoms and life forms; when these have been distributed and arranged, they are maintained in ordered time; finally they are melted and dissolve back into primal matter, completing the cycle. (1979:101)

Interestingly, tāla took some time (over a millennium) to shift into a cyclical model reflecting this narrative.7 The change was, according to Rowell, “the consequence of a long-standing cultural preference for circularity” (1992:223). This preference can be considered a central foundational schema governing musical time—not only in terms of cyclic tāla, but also in recurring phrase designs, and with open-ended musical forms.

Scholars have effectively used the analogy of a circle to depict the cyclic nature, beat organization, and internal energy and flow of tāla. The circle analogy does, however, have limitations. For one thing, the circle becomes awkward with non-isochronous tāla-s. Moreover, many tāla-s with evenly spaced beats have geometric imperatives other than a circle. Three-beat tiśra ēka tāla, for example, gravitates more towards a trilateral representation, both through structure and in its relation to the ancient category of tryaśra: meaning “three-sided.”8 Most importantly, the circle can be left behind in lieu of the more effective, practical, and indigenous analogy for tāla: the kriyā themselves.

Kriyā

Tāla is realized as this recurring series of hand gestures. According to Lakoff and Johnson, “we define time by metonymy: successive iterations of a type of event

7 Cyclic tāla-s, however, may have been used in incidental music and songs of ancient theatre where improvisation played a part (Rowell 1992:246).
8 The visual analogies to triangular and quadrangular (from caturaśra, or “four-sided”) are carried into the contemporary categories of tiśra and catusra. Nelson insightfully proposes that these “geometric” references be considered part of each tāla’s gestalt (1991 vol.1:16).
stand for intervals of ‘time’” (1999:138). Kriyā are discreet motion events (in space) mapping the flow of (musical) time. This conceptual analogy, between gestures and time, appears from the earliest music texts where laya (now a general reference for musical time) was defined as the duration between gestures (Rowell 1992:202). The roots of kriyā, however, can be traced even further back—to the mudrā-s used to control timing (and melody) and facilitate accurate performance in Vedic chant (see p.32). Ramanathan offers the useful term tāḷa-laya to describe time production through iterations of kriyā (2003:14).

According to Rowell, “the single most distinctive feature of the Indian rhythmic tradition is the way temporal structure of music is manifested and controlled by means of hand motions—the claps, finger counts, and silent waves that accompany every performance of Indian music” (1992:193). In contemporary practice, this unique system of marking, controlling, and (in practice) creating musical time through hand gestures underlies the stunning complexity of South Indian rhythm.

There are three types of tāḷa in contemporary use: the sūlādi saptā tāḷa-s, cāpu tāḷa-s, and Tiruppugazh tāḷa-s.9 Kriyā for the sūlādi saptā tāḷa-s consist of three aṅga-s:10

- anudrutam, a clap that is one akṣara in duration; 
- drutam, a clap plus a wave that is two akṣara-s long; 
- and laghu, a clap plus finger counts with five possible durations.

The cāpu tāḷa-s comprise simpler kriyā: claps of various durations performed with the palm up or down. Performance practice accommodates some flexibility in their realization. Tāḷa-s for Tiruppugazh compositions are likewise less regimented than

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9 See Nelson (1999), for an in depth account of these three tāḷa categories.
10 Here, the term aṅga refers to gestures indicating tāḷa structure.
the sūlādi sapta system. Because the tāla-s for these compositions are unique in being
drawn from the song texts, their kriyā are appropriated (from the sūlādi sapta and
cāpu tāla systems) to fit the wide variety of resulting metric structures.11

Kriyā is a cultural model realized through kinesthetic, visual, and aural
pathways. Kinesthetically, kriyā are highly regulated, embodied (and inter-bodied
when done with others) markers of tāla-laya. Performing a clap or finger count is
physically and experientially mapping time, thereby temporally locating oneself in
(and at the same time positioning oneself as) the tāla cycle. For an observer, the
gestures are also visual models of the tāla progression. In other words, kriyā are
discrete visual analogies mapped onto the movement of musical time. Moreover, they
have an audible component. The clap is explicitly sounded (ṭṭu), adding aural
reinforcement to its location in the cycle. And in practice, finger counts and other
unsounded (niḥśabda) gestures are often heard in performance.

Syllabic Time Model
Kriyā gestures, however, do not fully account for musical time. Tāla is also a
syllabic time model—the syllable being the fundamental temporal unit of Indian
music. The prevailing gati,12 or note rate, defines each beat marked by kriyā because,
as Nelson notes, “karnatak musicians think of beats as syllabic groups” rather than

---

11 Although the sūlādi sapta system is often projected onto the Tiruppuñzh tāla-s (see Parthasarathy
1985:145), the latter’s basis in the song texts distinguishes them on a fundamental level. Even when a
structure is borrowed directly from the sūlādi sapta tāla-s for a Tiruppuñzh composition, its
connection to the text induces a distinct metric orientation.

12 In addition to “gait,” gati can be translated from Sanskrit as “movement” or “way of flowing,” all
clear motion analogies for the flow of time. In contemporary practice, gati refers to the internal
organization of beats in a tāla. Gati-s mirror the five jāti classes and are traditionally listed in the same
order: catuṣra, tiṣra, miśra, khaṇḍa, and śaṅkīrṇa. The Tamil term naṭai is often used interchangeably
with gati. Nevertheless, some scholars and performers differentiate the two by using naṭai to indicate
groupings of syllables within a gati (Ramanathan 2003:21).
empty durations (1999:142). From this perspective, time can be seen as the successive iteration of syllables organized into beats. This view of Indian musical time is related to a foundational schema that Rowell refers to as “continuity-through-reticulation” (1979:98). It is, in his estimation,

one of the most cherished features of Indian art: [prominent in] the reticulated patterns that appear in window lattices, temple carvings, elephant painting, the poses of Indian dance, the sharply-articulated miniature scenes of the ancient theatre, and the ornament-encrusted singing styles of both North and South India. (ibid.:98–99)

Rowell contrasts this image of time, as a web of individual units, with the concept of continuous cyclical time represented by the turning wheel or circle of flame (ibid.:99). To me, however, the metaphor of the flame compliments the “continuity-through-reticulation” schema in that in each instant, the torch making the circle exists at a fixed point (in time and space). Its continuity, like that of the flowing syllables, depends on the motion connecting these points.\(^\text{13}\) Ramanathan offers the category of pada- (Skt. “word”) laya to describe musical time emerging from the duration between syllable points (2003:14).\(^\text{14}\)

In sarvalaghulu, i.e., time-flow patterns, rhythmic phrasing reflects and reinforces both the tāḷa-laya represented by kriyā and the pada-laya of the gati. In kanakku, or calculation, the situation becomes more complex. Here, solkaṭṭu phrases depart from, and may contrast wildly with the tāḷa structure. Gati is used to great effect in phrasing, and can, at times, diverge from the tāḷa-laya. Because karnāṭak

\(^\text{13}\) Nelson’s series of mandala-like drawings illustrating tāḷa and gati structure offer a particularly clear representation of continuity-through-reticulation in the context of cyclical tāḷa (1991:figures 1–7).

\(^\text{14}\) Although Ramanathan introduces pada-laya in the context of melodic phrasing, here I extend his term to cover time produced from the flow of solkaṭṭu syllables.
rhythmic designs are far from arbitrary, and in fact, follow strict structural imperatives, they carry significant metric weight. This is reinforced through performance practice in which kaṇakku is often introduced gradually and compositions are regularly stated thrice. In my opinion, the compelling structures of certain solkaṭṭu designs, resulting from their particular pada-laya, create an alternate time in contrast to that of the tāḷa-laya.15

**Phrase Shapes: Yati**

Having established tāḷa as both cyclic and syllabic, I now focus on the musical phrasing that takes place within. A prime example is the use of yati: shape designs for organizing rhythm.16 Resonating with the type of spatial conception of language Goody notes in Vedic memorization (2000:43, see p.32), the use of yati-s calls on a special type of thinking. Cognitive psychologists Merideth Gattis and Keith J. Holyoak call cognition based on graphic image models *visual reasoning*, which they define as: “the use of spatial relations to highlight conceptual relations, to represent meaning, and to chunk information for computational efficiency” (1996:231).

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15 In such instances, the kaṇakku structures can be said to impose an alternate “meter,” temporarily producing an embodied type of poly-meter. Because of limited space, a detailed investigation of this proposition (which contrasts Justin London’s perspective on poly-meter (2004:58)) must be taken up elsewhere.

16 Ramanathan (2003) contests the description of yati being formed through manipulation of phrase lengths. Instead, he suggests yati-s arise from changes in the duration of the syllables (ibid.:14–15). He also notes that yati shapes have been applied to tāḷa structures (ibid.:8–9). Though this usage lies outside contemporary norms, Ramanathan’s observation accords with the longer trajectory of Indian music history.
Yati-s, featured throughout rhythmic design in kaṇakku, are building blocks for more complex forms like mōrā-s and kōrvai-s. The following six are in current use:\(^\text{17}\)

**Example 5: analogic shapes of the six yati-s**

<table>
<thead>
<tr>
<th>sama yati</th>
<th>gopucca yati</th>
<th>srotovaha yati</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Shape 1" /></td>
<td><img src="image2.png" alt="Shape 2" /></td>
<td><img src="image3.png" alt="Shape 3" /></td>
</tr>
<tr>
<td>mṛdaṅga yati</td>
<td>damaru yati</td>
<td>visama yati</td>
</tr>
<tr>
<td><img src="image4.png" alt="Shape 4" /></td>
<td><img src="image5.png" alt="Shape 5" /></td>
<td><img src="image6.png" alt="Shape 6" /></td>
</tr>
</tbody>
</table>

*Sama* can be translated from Sanskrit as “same,” “even,” or “regular” and refers to a composition with parts of equal length. In contrast, *visama* yati is an arrangement with no definite order. Some of its Sanskrit translations—“uneven, rude, bad, unequal”—reflect common receptions of a “visama” yati performance. Gopucca yati translates as “cow’s tail” and describes a reduction in phrase lengths. Its funnel shape is an analogy of the caudal appendage. Srotovaha, meaning “river’s mouth,” is the

\(^{17}\) Of the six, three (sama, gopucca, and srotovaha) are listed in the *NŚ* (Ghosh 2007:489–90). The other three (*mṛdaṅga*, *damaru*, and *visama*) only appear after the *SR* (Ramanathan 2003:9).
inverse of gopucca. In it, the expansion of phrases opens up like a river emptying into the sea. Mrdaṅga and damaru yati-s consist of combinations of gopucca, srotovaha, and sometimes sama yati groupings. These combination yati-s owe their organization to the shapes of their analogic references, the mṛdaṅgam and damaru drums.\footnote{Although ancient textual analogies of the yati-s are common, visual representations of rhythm also have early precedence. Two 4th century inscriptions found in Arachalur, Tamil Nadu, for example, arrange solkaṭṭu syllables in grid-like shapes (see app.II). These quadrilateral depictions appear to represent one of four graphic forms Aṭiyārkkunallār mentions in his 13th century commentary on the Cilappatikāram (Mahadevan 2003:618).}

Analogies, such as the one between the cow’s tail and its funnel shape, give artists structural references for composition, performance, and interpretation. Musicians and choreographers regularly order and reorder musical materials (in their ubiquitous syllabic form) according to the spatial arrangements of the yati-s. This action relies on a further analogy: that between the conceptual shapes and their syllable realizations. Nelson, for example, often uses the following 24-pulse mōrā:

\begin{verbatim}
Example 6: 24-pulse mōrā
(ta ta kṭ tom tom ta)
[tam • •]
(ta ta kṭ tom tom ta)
[tam • •]
(ta ta kṭ tom tom ta)
\end{verbatim}

It is considered as sama yati because the three statements are of the same length. The mōrā can also be played in srotovaha yati (see ex.7):
Example 7: srotovaha yati

\[
\begin{align*}
\text{(ta)} \\
[tam •] \\
\text{(tom ta)} \\
[tam •] \\
\text{(tom tom ta)} \\
[tam •] \\
(kṭ tom tom ta) \\
[tam •] \\
\text{(ta ta kṭ tom tom ta)}
\end{align*}
\]

In this case, the expansion of each subsequent statement is arranged as a graphic image model in accord with a river’s mouth or the reverse funnel shape. As gopucca yati the image model is inverted, following the shape of the cow’s tail (see ex.8).

Example 8: gopucca yati

\[
\begin{align*}
\text{(ta ta kṭ tom tom ta)} \\
[tam •] \\
(kṭ tom tom ta) \\
[tam •] \\
\text{(tom tom ta)} \\
[tam •] \\
\text{(tom ta)} \\
[tam •] \\
\text{(ta)}
\end{align*}
\]

Furthermore, these three yati-s can be combined into more complex structures according to mṛdaṅga or damaru shapes.

**Intra-Domain Solkaṭṭu Analogies**

To perform syllabic compositions—conceived as yati-s or according to other formulas and processes—artists rely on a final round of analogies. If the preceding sequence (source-to-shape-to-solkaṭṭu) is considered inter-domain, this next step

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19 Interestingly, the structure of this mōrā—comprising five statements reduced according to non-arithmetic proportions—is structurally different from the sama yati version (shown in ex.6). And yet, because it is developed from the same phrase material, is the same length, and can serve the same function in a piece, it is considered a variation of the original.
qualifies as with-, or intra-domain. Marc Perlman highlights this type of analogy in the development among Gamelan artists of, what he calls and titles his book, *Unplayed Melodies* (2004). Unlike inter-domain analogies, in which insight comes from mapping across diverse (and at times, unexpected) realms, intra-domain analogies are, according to Perlman, “less spectacular and hence easily overlooked” (ibid.:33).

Because syllables are integral to South Indian music production, intra-domain analogies with which syllabically conceived structures are realized as syllable-based gestures are deeply intimate. According to Sankaran, melodic musicians “know a fair amount of solkattu repertory. Before they express their ideas—especially some of the cadences—in musical form (using the Indian solfege syllables), they conceive them rhythmically in solkattu” (1994:45). Balasubrahmaniyani confirms this in his own singing practice. “I’ll calculate the kōrvai using solkaṭṭu,” he says, “then I’ll fix the svaras” (pers. comm. 11/02/04). Likewise, among dancers and choreographers the analogy between syllables and rhythmic movement is deeply seated. From the first steps, they think of choreography through specific solkaṭṭu known as adavu-s (for more on dance solkaṭṭu, see “Bharatanatyam” in chapter five).

The depth of the conceptual analogy between solkaṭṭu and rhythmic performance is often most notable among drummers. As Ramanathan suggests, with drummers “the thinking is purely syllabic, the syllables are running in the head” (pers. comm. 11/02/04).

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20 Not only does Perlman uncover and analyze the cognitive processes of his Javanese teachers using tools from the cognitive sciences, in a liberating twist he extends the findings to an analysis of western art music.
Therefore, when drummers speak of their art, language about spoken solkaṭṭu syllables and drummed phrases is habitually conflated. Consider, for example, how mṛṇḍaṅgam vidvan T.K. Murthy describes his choices for solo material in an interview with Nelson: “It all depends on ‘how the hand speaks’ (kai peserade). Today one pattern might come (oru sol peserade); tomorrow that pattern might not work” (1991 vol.2:38–39). In response, Nelson observes:

There’s an interesting thing in the way you’re using the language there. You’re using words like ‘sol’, or syllable, and ‘peserade’, or ‘speaks’, and you’re using them to describe movements you’re making with the fingers. You say ‘a syllable speaks’, or ‘a syllable doesn’t speak’—you’re talking about fingers, but you’re using words that describe speech. (1991 vol.2:39)

In noting this use of language, Nelson highlights deeply rooted analogic connections, which result in percussionists consistently cognizing the sounds of drumming as solkaṭṭu. As percussionist Pete Lockett, who has extensive training in both North and South Indian percussion, told me, when listening to Indian drummers “I can’t *not* hear [the solkaṭṭu] anymore” (pers. comm. 02/24/08).

**Solkaṭṭu-to-Solkaṭṭu: Analogy as Analysis**

An even more intimate intra-domain analogy takes place when solkaṭṭu is performed on stage. Reciting solkaṭṭu with aesthetically appropriate syllables and intonations is at once performance and a revelation of the music’s rhythmic structuring. In this, performed solkaṭṭu is qualitatively distinct from other performed rhythmic materials. K.S. Mahadevan describes this difference from a listener’s perspective:

When the ordinary rasika [music aficionado] listens to mridangam, for instance, he is seldom aware of the constituent solfa syllables that make up a Theermanam or Kuriappu such as tat, dhin, do, man, jhanu, taka etc., The
Konnakol artist spells out these by syllables and shows how they all fit into a pattern. (1994:28)

As Mahadevan points out, konakkol reveals how the rhythmic pieces fit together. Therefore, while solkaṭṭu may (at times) fulfill a similar function to drumming, it consistently acts as the conceptual medium of rhythmic performance.

In contrast to the conceptual leap to an idea of inner melody made by the select few gamelan artists Perlman collaborated with, the process of clarifying structure and phrasing through solkaṭṭu is widespread in South India. Musicians, dancers, and choreographers generally discuss solkaṭṭu and rhythm using solkaṭṭu and tāḷa. This often takes place by substituting (what I refer to as) “counting” syllables for those heard in performance. Suresh, for example easily clarified the structure of a 16-pulse groove—ta • din • ta din • ta • din • ta • din •— by reciting: ta ka di mi ta ki ṭa ta ka di mi ta ka ta ki ṭa (pers. comm. 02/05/09). The solkaṭṭu of the latter phrase is conventionally understood as a seven-syllable grouping (ta ka di mi ta ki ṭa) plus a nine-syllable grouping (ta ka di mi ta ka ta ki ṭa). By simply reciting that phrase, Suresh easily conveyed to me (in the context of a lesson) the construction of the more spacious groove. Although rhythmic materials are almost exclusively “explained,” or analyzed through solkaṭṭu, this model (based on an intra-domain analogy between solkaṭṭu types) goes unremarked. Suresh simply switched to counting solkaṭṭu to clarify the performed version. Unsurprisingly, this common practice is similarly overlooked in literature on karnāṭak rhythm.

Because the use of solkaṭṭu as an analogy clarifying the structure of other solkaṭṭu is so crucial to understanding the understanding of solkaṭṭu (and because a
within-domain analogy is best explained within the domain) I will provide a more detailed illustration. Below are two versions of the opening line of a composition favored by Ranganathan and Nelson.²¹

Example 9: original version
\[ta \cdot tr \ gg \ tr \ gḍ \ dk \ tk \ tr \ gḍ \ tr \ gḍ \ ta \cdot \ tom \cdot \ ta \cdot \ tam \cdot \cdot\]

Example 10: simplified version
\[ta \ ki \ ūa \ to \ m \cdot \ ta \ din \ gi \ ūa \ to \ m \ jō \ ūu \ to \ m \cdot \ ta \cdot \ tam \cdot \cdot\]

Both span twenty-one pulses and end with the same seven-pulse phrase. The opening fourteen pulses, however, are dramatically different. In the first version, the initial “ta •” stands out against the subsequent double-time unit (which, because of the unarticulated syllable after ta, seems to move at four times its speed). This dense syllable stream is punctuated with another ta • at its end, which effectively bookends a cohesive opening to the line. With two subsequent repetitions of the line, the distinction between ta • tr gg tr gḍ dk tk tr gḍ tr gḍ ta • and tom • ta • tam • • becomes unmistakable.

In contrast, example 10 begins with the idiomatically common ten-pulse phrase, \(ta \ ki \ ūa \ to \ m \cdot \ ta \ din \ gi \ ūa \ to \ m\), followed by jō nu jō nu. Both are flowing, self-contained groupings clearly delineated from each other through their solkaṭṭu. These units also reveal the progression of the composition. After three times through the line, the first ten syllables are dropped. Then, after the truncated phrase is played three times (the first time being embedded in the longer line) jō nu jō nu is dropped, leaving the mōrā: \((\text{tom} \cdot \text{ta} \cdot \cdot)[\text{tam} \cdot \cdot \cdot](\text{tom} \cdot \text{ta} \cdot \cdot)[\text{tam} \cdot \cdot \cdot](\text{tom} \cdot \text{ta} \cdot \cdot)\).

²¹ See p.163 for a transcription of the entire simplified version with variations and analysis.
The dense version (ex.9) is the “original,” transmitted by Palani to Ranganathan and then to Nelson. The obfuscated structure, here achieved through double-time syllables bonding structurally separate units, is a hallmark of what Nelson lightly refers to as Palani’s “sleight of hand thing” (pers. comm. 04/22/13). According to Nelson, the second version was composed by Ranganathan for a kanjira student who wanted to play the composition but could not manage the speed with one hand (pers. comm.). Ranganathan’s version not only slows things down by removing the double-time section, but it makes the form of the piece transparent. In essence, Ranganathan explains the structure of the composition through his solkaṭṭu.22

The intra-domain analogy, in which the simplified version clarified the dense solkaṭṭu, allowed Nelson to penetrate the structure of this composition. Although Nelson had been performing the filled-out version of this composition for many years, upon hearing Ranganathan’s simplification he immediately understood its inner-workings (pers. comm.). Hearing, reciting, or playing ta ki ṭa tom • ta din gi ṇa tom jo nu jo nu, is already an analysis of structure and a clarification of the prior version’s solkaṭṭu. The same type of analogic relationship is found throughout South Indian rhythmic practice. Syllable groupings—as complex rhythmic passages, melodic phrases, or even Tiruppugazh chandam23—are translated into solkaṭṭu to clarify their rhythmic structuring. This type of knowledge is neither “explicit” (verbal instruction) nor “implicit” (tacit, learned by osmosis) as Perlman uses the terms

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22 This interpretation, however, is not uncontested. One artist I spoke with suggested that the divergence between the two was too great to consider them as the same composition. For him, altering the phrasing to this extent disassociated the two compositions (pers. comm. 01/21/09).

23 See pp.144–45.
(2004:21–22). Rather, it is an embodied, fully musical, analogic knowledge that
affords the musician a deep and analytical insight into the material.

**Conclusions**

At this point, I reiterate the notion of solkaṭṭu as humanly produced sound (nāda) in the form of the basic building block of language and music (akṣara). Only now, it should be clear that this combination elevates solkaṭṭu as the cognitive engine of South Indian rhythm. Shore describes rhythm as “supermodal”; not only can we feel rhythm throughout our bodies, we also have “the ability to perceive analogous rhythm in physical motion, in sound, and in visual representations” (1996:320). The facility of rhythm to cross modalities in this system is contained by its consistent mental organization via solkaṭṭu. Mapping solkaṭṭu to various South Indian rhythmic structures (whether on percussion, voice, melodic instrument, or dance) relies on the primacy of voice and syllable as guiding models. It is through the analogic connection between solkaṭṭu and rhythmic production that shared community structures, and their meanings, are internalized and become personal knowledge. These analogic processes, by which solkaṭṭu gives meaning to South Indian rhythmic action, permeate the forthcoming descriptions of the form and function of solkaṭṭu and its applications in contemporary practice and discourse.
When you speak of layam, or rhythm, the first thing is the syllables; without the syllables, as without the seven notes of karnāṭak music, you cannot make music.

–B.M. Sundaram

Chapter 4
Form and Function

Form
The view of South Indian rhythmic cognition developed in the last chapter derives from, depends on, and is activated through solkaṭṭu. In the present chapter I define the basic elements of solkaṭṭu in light of this analysis. In line with Sundaram’s proposition in the above epigraph, I begin with the syllables. My discussion of syllable construction, pronunciation, intonation, and syntax—the form—locates solkaṭṭu within wide-ranging (as well as local) linguistic discourses and current thinking on the nature of musical vocables. The latter part of the chapter turns to the formal structures of South Indian rhythmic practice. Because South Indian rhythmic processes and complex forms have been well analyzed by Nelson (1991) and others, I can avoid detailed compositional analysis. Rather than the forms themselves, my analysis centers on how solkaṭṭu operates within those forms.

Counting Solkaṭṭu
To make sense of the variety of solkaṭṭu types and functions, I begin by considering basic characteristics of the central group of syllables widely used for counting. Brown (1965) has addressed many critical concerns regarding the phonetic construction and organization of solkaṭṭu and I will not repeat his investigation here. Instead, I suggest the following observations be viewed, in tandem with Brown’s

Personal communication (12/12/08)
work, as a guide to key phonetic attributes of solkaṭṭu. Although these counting syllables are a fraction of the solkaṭṭu used in the South Indian arts, their commonality and transparency makes them optimum for analysis of the larger body.

Counting in syllables, rather than numbers, is a significant aspect of karṇāṭak rhythmic practice (see pp.118–19). The following is a list of typical solkaṭṭu phrases (and some common alternatives) corresponding to numeric values one through nine:

**Example 11: counting solkaṭṭu**

1 = ta
2 = ta ka
3 = ta ki ṭa
4 = ta ka di mi
   Alternates: ta ka di na, ta ka jo Ṇu
5 = ta ka ta ki ṭa
   Alternate: ta din gi Ṇa tom
6 = ta ri ki ṭa ta ka
   Alternates: ta ki ṭa ta ki ṭa, ta din • gi Ṇa tom
7 = ta ka di mi ta ki ṭa
   Alternates: ta ki ṭa ta ka di mi, ta ka ta di gi Ṇa tom, ta • din • gi Ṇa tom
8 = ta ka di mi ta ka jo Ṇu
   Alternate: ta din • gi • Ṇa • tom
9 = ta ka di mi ta ka ta ki ṭa
   Alternates: ta ka di ku ta din gi Ṇa tom, ta • din • gi • Ṇa • tom

Artists and educators use these syllables (rather than numbers) in situations ranging from simple reckoning to the creation, communication, and preservation of highly complex rhythmic designs and processes. Counting solkaṭṭu typically display clear structures, are easy to enunciate, and have a predictable coherency enabling their rapid application.

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1 The special nature of this solkaṭṭu unit will be dealt with in detail below (pp.168–74).
The Components: Consonants and Vowels

As was the case in the treatises, contemporary solkaṭṭu comprises consonants and vowels. However, unlike those ancient Sanskrit syllables, the current body of solkaṭṭu is Tamil-based.\(^2\) Dental consonants play a major role in clarifying the structures of counting solkaṭṭu. All the above counting units, for example, begin with dental [t]. While other consonants are heard in the initial position of many solkaṭṭu units, for example, the plosive “stop” [k] in ki ṭa ta ka, dental [t] is the most common in this body of syllables. This sharp consonant provides a distinct and precise sound easily clarifying the beginning of each unit.\(^3\) Subsequent dental [t]s, and to a lesser extent dental [d]s, further demonstrate the contour and structure of more complex units. The phrase ta ka ta ki ṭa, for example, is heard as 2 + 3 precisely because of the positioning of the dental consonants. Similarly, the 4 + 3 (or 2 + 2 + 3) shape of ta ka di mi ta ki ṭa is heard, in large part, through the dentals.

Vowels play as important a role in shaping solkaṭṭu as the consonants with which they are paired. The [a] in ta adds a (relatively) midrange intonation to the initial attack of the dental consonant. The intonation of [a] conforms to what phoneticians call Intrinsic Pitch (IP): a characteristic of a vowel’s fundamental pitch

\(^2\) Exception, however, are found—especially in dance-related solkaṭṭu. For example, the consonants [j] “ஜ” and [h] “ஹ” are used in Tamil for Indo-Aryan and other borrowed words. Their presence in dance-related syllables, such as jem and ha, along with non-indigenous aspirated sounds, contrast with the Tamil-centric solkaṭṭu heard outside dance contexts (for more on dance syllables, see pp.209–20).

\(^3\) As noted earlier (see p.8), this usage is consistent with many acoustic-iconic mnemonic systems in which syllables are tied to musical phenomena (Hughes 2000:97). However, the dental [t] in solkaṭṭu, unlike syllables describing the attack of a drum stroke or plucked string, is located in the initial position because of the internal logic of the solkaṭṭu rather than its relation to specific instrumental applications or techniques. It is in this relative independence that solkaṭṭu, and particularly counting solkaṭṭu, departs from most other musical syllable systems.
and overtones determined by its production in the vocal tract. In his groundbreaking article, “No Nonsense: The Logic and Power of Acoustic-Iconic Mnemonic Systems” (2000), Hughes details how solmization systems (from various cultures and for both rhythm and melody) overwhelmingly reveal a consistent ordering of vowel pitches in accord with their IP. The relative ordering of IP for vowels, from highest to lowest frequency is [i], [e], [a], [o], [u] (ibid.:101).

The force of [a] in ta, can be attributed to two other phonetic characteristics outlined by Hughes (2000): Intrinsic Duration (ID) and Intrinsic Intensity (II). The vowel [a] is typically the longest and loudest vowel sound (Hughes 2000:105). It, along with [o] and [e], has a longer ID and louder II than [i] or [u]. “This is why,” notes Hughes, “[i] and [u] are often favored for short notes or those in weak metric positions in oral mnemonic systems, while [a] tends towards the opposite” (ibid.:105–06). These phonetic parameters further clarify the shape of ta ka di mi ta ki ṭa noted above. Of the three dentals syllables (ta, di, and ta) defining the structure, the second is made shorter and weaker by its vowel. As such, the phrase is most often considered as 4 + 3 rather than 2 + 2 + 3. The tendency to put [a] in a primary metric position, and conversely to place [i] or [u] in weaker positions due to their low ID and II, is consistent through the units of counting solkaṭṭu.

**Syllable Units**

In these solkaṭṭu, ta is (with two exceptions) followed by the consonant [k]. The consonants [t] and [k], as Brown notes, “are produced at the extreme front and

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4 Not surprisingly, IP is also highly consistent across language groups. For more on Intrinsic Pitch in language, see Connell 2002; Mobius 2003; and Whalen and Levitt 1995.
rear of the oral cavity, respectively, by a simple back and forth movement of the tongue” (1965:100). The addition of [a], to create ka, maintains the same intonation as ta. The ease of pronunciation between [t] and [k], combined with the sustained vowel (which avoids additional changes to the oral cavity), results in the possibility of extremely rapid enunciations of ta ka.

Adding di mi, to create ta ka di mi, relies on similar physiological efficiencies. After ka, pronunciation returns to the dental position with [d] and then moves smoothly forward to bilabial [m]. di divides the unit with a second dental consonant and by introducing a new vowel sound. Here, [i] realizes its tendency towards a high IP, raising the intonation upwards through the second half of the unit. This rise however, is somewhat offset by the tendency of [d] (a voiced consonant) to “represent a deeper, more resonant sound than [t]” (Hughes 2000:97). Recall that [i] also has a low ID and II. With less duration and volume it is more quickly articulated, especially in contexts such as di mi, in which the mouth is comparatively closed (ibid.:105). As in ta ka, maintaining a single vowel across two consonants increases speed in enunciation. All told, the phrase ta ka di mi is especially apt for, what Brown terms, “lingual dexterity in rapid repetition” (1965:101). Or as percussionist Randy Crafton succinctly put it, “solkaṭṭu is built for speed” (pers. comm.).

Brochet’s analysis of typical intonations for key konakkol phrases further supports the premises that IP influences the intonation of solkaṭṭu and that dentals help define their structure. In the four-syllable unit ki ṭa ta ka, for example, Brochet observes, “the pitch starts up and flows down” (2010:61). This descending profile can
be read as a response to the initial vowel [i] being followed by three syllables containing [a]. Brochet notes that in this phrase “the first syllable, ki, is not stressed” (2010:61). Her observation accords with the absence of an initial dental [t] and the vowel [i]’s weaker II. This is countered by the stress created by the dental in ta, which clearly indicates the halfway point in the unit. When a four-syllable prefix is added to form a common eight-syllable phrase, ta ka ta ri ṭa ta ka, the intonation contour continues to follow Hughes’ predictions: “takata are chanted on the medium register with a plain intonation, and ri is chanted in a higher register” (ibid.).

**Retroflex**

According to Tamil language specialist, Elenor Keane, “retroflex consonants do not appear in word initial position in the native non-onomatopoeic lexicon” (2004:112). (The same holds true for solkaṭṭu, which could be indicative of solkaṭṭu’s position vis-à-vis onomatopoeia.) In solkaṭṭu, retroflex consonants do not appear at the beginning of (two- or three-syllable) units, but tend towards terminal positions. This is especially prevalent among the counting solkaṭṭu.

The basic counting phrases for five, seven, and nine all end with the three-syllable unit ta ki ṭa. The final consonant, a clearly differentiated, plosive retroflex stop, is produced with a curved tongue against the roof of the mouth.⁵ Its use adds aural distinction and identity to the three-syllable unit. The articulation of this retroflex in the oral cavity, between [k] and dental [t], allows for rapid enunciation.

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⁵ For details of Tamil sound production (including retroflex), see Keane (2004) and Narayanan and Kaun (1999).
And because counting units are typically strung together into complex units and phrases, the retroflex often serves as a fluid bridge to a subsequent dental.

Earlier, I noted that the vowel [i] has a raised IP in comparison to [a]. Therefore, one would expect the intonation of ta ki ṭa to rise with the second syllable before returning to the original pitch with the final [a]. As Nelson’s trikāla (Skt. “three speeds”) performance with the phrase shows, this tonal contour holds true—at the slower tempos of the first and second speeds (DVD 01–002:2008, see ex.12).

**Example 12: trikāla (tiśra jāti ēka tāla)**

<table>
<thead>
<tr>
<th>Tāla</th>
<th>[X]</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slow:</td>
<td>ta • • •</td>
<td>ki • • •</td>
<td>ṭa • • •</td>
</tr>
<tr>
<td>Medium:</td>
<td>ta • ki •</td>
<td>ṭa • ta •</td>
<td>ki • ṭa •</td>
</tr>
<tr>
<td>Fast:</td>
<td>ta ki ṭa ta</td>
<td>ki ṭa ta ki</td>
<td>ṭa ta ki ṭa</td>
</tr>
</tbody>
</table>

Listening to him perform the same exercise “with pulses,” (i.e., articulating the pulses between the syllables using the vowel sound of the solkaṭu just recited) confirms that the vowels adhere to their IP at the two slow tempos (DVD 01–003:2008, see ex.13).  

**Example 13: trikāla—with articulated pulses**

<table>
<thead>
<tr>
<th>Tāla</th>
<th>[X]</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slow:</td>
<td>ta a a a a</td>
<td>ki i i i i</td>
<td>ṭa a a a a</td>
</tr>
<tr>
<td>Medium:</td>
<td>ta a ki i</td>
<td>ṭa a ta a</td>
<td>ki i ṭa a</td>
</tr>
<tr>
<td>Fast:</td>
<td>ta ki ṭa ta</td>
<td>ki ṭa ta ki</td>
<td>ṭa ta ki ṭa</td>
</tr>
</tbody>
</table>

**Changes in Pronunciation**

Recited at the two slower speeds of the trikāla, the phrase intonation conforms to the vowels’ IP. At the fastest speed, however, the intonation of ta ki ṭa changes; the contour now *descends* from the initial syllable while the [i] flattens out. At speed, three competing tendencies mitigate the unit’s IP. First, the demands of clarity require

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6 Percussionists refer to articulated pauses recited in this fashion—i.e., by extending the vowel from the previous syllable—as akaram (Skt. “vowel sound [a]”) (Suresh pers. comm. 02/16/09).
extra emphasis on the initial [a], which already has the highest ID and II, resulting in the ta having a slightly raised intonation and volume.7 Second, as Keane notes, in Tamil “some coarticularatory centralization of vowels occurs immediately preceding a retroflex consonant” (2004:114). In this case, changes in the oral cavity needed to produce the retroflex result in the [i] becoming more open and receiving a lower intonation. Third, when the vowels [i] and [a] (and [u]) are part of non-initial syllables—in the rapid context of spoken Tamil—they tend to decrease in duration (ibid.). This tendency reinforces the shorter ID and softer II of the second and third vowels of ta ki ṭa.

Not surprisingly, tempo affects articulation of consonants along with the vowels. Brown, for example, notes “the two-syllable combination KIṬA, as used in a gradually more rapid context, will become KIḌA, then KIDU, then GIḌU” (1965:97). Though the change from [k] to [g] and [ṭ] to [ḍ] is not particularly evident in the final two syllables of ta ki ṭa, it is obvious when ta ri ki ṭa becomes ta ri gi ḍu at tempo. These and other consonant changes, such as [m] becoming nasal [n] (when faster tempos eliminate the possibility of closing the lips to produce the final bilabial) and dental [d] being sounded as [t], are frequently heard in instrument- or genre-specific solkaṭṭu (discussed in chapter five).

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7 Another example of II and ID overriding IP can be heard in the typical opening phrase of a tani āvartanam or vilamba kāla (Skt. “slow speed”) accompaniment: ta • • • din • • • din • • • na • • •. When recited, the initial ta not only has a higher intensity (and is often given a longer duration), it also has higher pitch than the subsequent syllables containing [i]—a vowel with a typically higher IP. Rather than a response to tempo, this disruption of IP occurs because ta (as the initial syllable in an opening phrase) requires absolute clarity and authority. The raised pitch and volume (and possibly duration) of the recited vowel meet the aesthetic demands of its usage.
The variability in pronunciation affording rapid and/or alternate enunciations of phrases is possible, in large part, because of solkaṭṭu’s linguistic context. In Tamil, the orthographic symbol “ஃ” can sound as either [k] or [g], “ṭṭ” is dental [t] or dental [d], and “كسرة” can be retroflex [ṭ] or [ḍ]. In aural contexts, pronunciation choices for heteronyms such as these are made according to a range of linguistic and contextual demands, including a formal system of elision and fusion known as sandhi (Skt. “joining” or “connecting”). For solkaṭṭu, additional musical and historical factors (including production on an instrument, lineage, and aesthetics) affect pronunciation.

**Syllable Ordering: Syntax**

In addition to serving as a template for pronunciation, counting solkaṭṭu also afford a window into the arrangement of syllables into units. The first two-syllable group considered above, ta ka, for example, is never conceived of in reverse. Though it may appear when units are juxtaposed, “ka ta” is not a recognized structure. The two-syllable units di mi, jo ṇu, and ki ṭa are similarly fixed, as are many of their combinations. Solkaṭṭu syntax, however, goes well beyond individual unit construction. It also revolves around larger-order groupings, sometimes referred to as “families.” Basic counting solkaṭṭu, for example, can be contrasted with the family of alternatives comprising ta din gi ṇa tom. Related solkaṭṭu drawn from a family can define compositions, sections of compositions, or progressions. To illustrate the importance of consistency, Suresh offers a faulty mōrā, “(ta ka di na)[tam •](ta din • gi ṇa tom)[tam •](ta tom • ta din gi ṇa tom),” in which the statements “are not related to each other that through the number progression” (pers. comm. 02/27/08). Instead of this weak rendering, Suresh proposes: (ta ka di na)[tam • ](ta ka • di na
•)\[tam •](ta ka • di na • •) (ibid.). Not only is this version cohesively drawn from a single family of syllables, it also follows an elegant structural design in which the statements expand according to the \((2 + 2)\) shape of \(ta ka di na\).

**Function**

**Tāla**

Musicians apply counting syllables in numerous ways. At a foundational level, tāla structures are regularly taught, understood, and internalized using this body of solkaṭṭu. For example, khaṇḍa cāpu tāla is typically recited as \(ta ka ta ki ta\), and seven beat miśra cāpu tāla, \(ta ki ta ka di mi\). As vocal articulations of tāla-s these solkaṭṭu units correspond to each cycle’s kriyā configuration. Khaṇḍa cāpu consists of a clap and pause lasting two beats (\(ta ka\)) followed by two claps and a pause lasting three beats (\(ta ki ta\)). The following diagram visually aligns the solkaṭṭu and kriyā in miśra cāpu:

**Example 14: solkaṭṭu and kriyā alignment in miśra cāpu tāla**

<table>
<thead>
<tr>
<th>Kriyā</th>
<th>O</th>
<th>O</th>
<th>•</th>
<th>X</th>
<th>•</th>
<th>X</th>
<th>•</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solkaṭṭu</td>
<td>ta</td>
<td>ki</td>
<td>tā</td>
<td>ta</td>
<td>ka</td>
<td>di</td>
<td>mi</td>
</tr>
</tbody>
</table>

The construction of the phrase conveys the three (\(ta ki tā\)) and four (or two plus two, i.e., \(ta ka di mi\)) shape described by the kriyā.⁸

Other complex tāla structures, including all variations of the sūlādi sapta tāla-s, śaṅkīrṇa cāpu tāla, and the metric structures of the Tiruppugazh hymns can be similarly conveyed through solkaṭṭu. In the case of the Tiruppugazh, however, the

⁸ Along with khaṇḍa cāpu, and the less common śaṅkīrṇa cāpu tāla, there is greater flexibility in the kriyā-s for miśra cāpu when compared to the more formal sūlādi sapta tāla-s. Many artists, for example, use one clapping gesture (or one wave) for the first three beats, especially in faster tempos. Interestingly, the miśra cāpu tāla syllables (and structure they describe) contrasts with the typical 4+3 configuration used in seven-pulse counting solkaṭṭu.
relationship between counting solkaṭṭu, kriyā, and tāḷa is unique. In the rest of the repertoire, lyrics conform to the overall length of their designated tāḷa while maintaining a distinct rhythm from the tāḷa’s structural features. In contrast, Tiruppugazh tāḷa-s derive directly from the poetic meters of the song texts. More specifically, the kriyā comprising each Tiruppugazh tāḷa mark syllabic structures reflecting the poetic meter of each hymn.

The syllables used to describe Tiruppugazh meters are known as chandam. Chandam are simple solkaṭṭu consisting of ta, na, and their derivatives. As Sankaran explains, chandam create “a rigidly set pattern of rhythm based on syllabic quantity” (1989:92). The chandam pattern is clearly set out in the first stanza of each hymn and maintained throughout. To illustrate, consider the twenty-one beat structure of text of “Kadimodi” (see ex.15).

<table>
<thead>
<tr>
<th>Sāhityam</th>
<th>Chandam9</th>
</tr>
</thead>
<tbody>
<tr>
<td>ka • di • mo • di • va • da • du • nu • kat • tri du • vo • rum •</td>
<td>ta • na • ta • na • na • ta • na • ta • na • ta • na •</td>
</tr>
</tbody>
</table>

The sharp attack of the chandam ta-s clearly define a 3, 3, 5, 4, 6 structure. In practice, the final ten syllables are often performed as a half-speed five. It is from this structure that kriyā and counting solkaṭṭu are derived (see ex.16).

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9 Balasubrahmanian (pers. comm. 03/06/05)
10 I am aware of two approaches for putting kriyā to the final ten pulses of this cycle. In the first, they are perceived as five beats, divided as 2+3, and performed with kriyā as in khanḍa cāpu tāḷa. In the second, they are considered a single five-beat unit and performed as khanḍa ēka tāḷa. Though both are equally valid, for consistency in my examples I follow the latter approach.
Example 16: kriyā and counting solkaṭṭu for “Kadimodi”

Kriyā
[X  X  •  |X  X  •  |X  •  X  X  •  |X  •  2  •  3  •  4  •  5  •

Counting solkaṭṭu
[ta  ki  ṭa  |ta  ki  ṭa  |ta  ka  ta  ki  ṭa  |ta  •  din  •  gi  •  ṭa  •  tom  •

The relationship between kriyā and sāhityam—by way of the chandam syllables—fundamentally distinguishes Tiruppugazh meters from other tāla-s in the karnāṭak repertoire. Ramanathan goes as far as suggesting, “it’s the arrangement of long/shorts which characterize a Tiruppugazh, so you don’t have to have a tālam to it” (pers. comm. 01/12/08). In karnāṭak performance, however, Tiruppugazh are indeed set to their own tāla-s. While the Tiruppugazh tāla-s are formulated in a distinct manner—using the intermediate syllabic structure—they are then transmitted and understood through the same combination of kriyā and counting solkaṭṭu used in other tāla-s.

Articulating contemporary karnāṭak tālas through solkaṭṭu follows longstanding trends of vocally representing and understanding rhythmic structures through syllables. More specifically, it is consistent with syllabic descriptions of tāla structure seen in the ancient mārga tāla-s (see pp.48-49), and is particularly close to the use of upāśraya: the strings of solkaṭṭu demarcating the internal structuring of the

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11 These kriyā are transcribed from Sankaran’s recordings of “Kadimodi” (2002) and “Catch 21” (2002, 1993), which use the Tiruppugazh tāla. The counting solkaṭṭu are borrowed from Sankaran’s transcription of the tāla in “Rhythmic Analysis of Some Selected Tiruppugazh Songs” (1989:96).

12 Although these structures are often quite distinct, the functional difference between Tiruppugazh meters and other tāla-s can be mitigated through performance practice. Melodic musicians, for example, may change the relationship between the song text (sāhityam) and the kriyā (established according to the original chandam). Typically, this occurs by doubling the sāhityam or through gati changes. Under such circumstances the sāhityam no longer defines the meter and a more conventional text–tāla relationship prevails. The same occurs when drummers create structures (especially in solo material) that dramatically depart from the chandam. Some lament that Tiruppugazh “lose their original identity” through such metric manipulations (Ramanathan pers. comm. 01/12/08).
deśī tāḷas (see pp.68-71). Recall that many scholars posit a link between upāśraya and hindustānī thekā-s.13 While North Indian thekā may have descended from the upāśraya, there is no reason to preclude a similarly important southern practice with the same roots. It is entirely conceivable that upāśraya would evolve into thekā in the northern context (where the stroke/syllable relationship between tablā and bols is much closer to one-to-one) and into the practice of describing tāḷa structure using solkaṭṭu in the South (where a conceptual and practical distinction between drumming and counting solkaṭṭu is plainly evident).

**Phrase**

In chapter one I considered how musical practice was informed by the broader traditions of Sanskrit literature and Vedic practice. In tandem with the elevation and maintenance of received knowledge (in both the written and oral traditions), an extremely precise orality emerged in the realm of rhythm. In contemporary practice, akṣara (as syllable) remains the basic foundational unit. It unites the syllabic-time model of tāḷa with syllable-based phrasing. The embodied coordination of tāḷa and phrase is the central realization of musical time in South Indian rhythmic practice.

There are two fundamental modes for rhythmic phrasing in contemporary karṇāṭak music: kaṇakku (Tamil “calculation”) and sarvalaghu (time-flow patterns). Both are conceived of, rhythmically articulated as, or (at the very least) are expressible through, solkaṭṭu. These two categories, like many others in South Indian music, are not mutually exclusive. The overlap and interaction between kaṇakku and sarvalaghu are areas of immense musical creativity.

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13 Though no textual link between thekā and upāśraya has yet been discovered (Miner 1994:245).
Kaṇakku

According to Nelson, kaṇakku is musical activity in which “musicians work out patterns and designs that generate great tension with the tala” (1999:148). The simple process of doubling seen in the trikāla (see above) is a basic example of kaṇakku. Beyond doublings, kaṇakku includes a wide range of generative principles and formulas: some are quite simple while others involve startling complexity. Before discussing solkaṭṭu within kaṇakku processes, I will briefly explore interactions between calculation and pronunciation.

In addition to the linguistic parameters and influences of tempo discussed above, the way kaṇakku settings place phrase in relation to tāḷa can also influence solkaṭṭu enunciation. In the third speed of the trikāla for ta ki ṭa, for example, there are four iterations of the phrase per cycle. Each beat coincides with a different syllable in the phrase (see ex.17):

Example 17: trikāla, third speed (tiśra jāti ēka tāḷa)

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta</td>
<td>ki</td>
<td>ta</td>
</tr>
</tbody>
</table>

If there is a discrepancy detected between tāḷa and phrase at these intersections, the performance is clearly inaccurate. “If you want to check if the stretch is perfect,” advises Suresh, “whatever letter is on the beat, you give a special accent” (pers. comm. 02/29/08). In this case, ta of the first unit, ki of the second unit, and ṭa of the third unit would receive an accent. This pedagogical process, what Suresh calls “fixing the checkpoints” (ibid.), helps a student gain confidence. Once a composition
is fixed (and thereby understood on an embodied level, both on and between beats), superfluous accents can be eliminated.

Some performers deliberately accent tāḷa beats in kaṇakku performance, though this is more common in pedagogy. Suresh suggests that “wherever you have the confidence of giving an extra accent or a flash, do that. […] This helps you to be on rhythm, and also […] if you [recite or play] for the other guy’s tāḷam, even if he drags or goes fast, you can put him right” (pers. comm. 12/12/08). This practice is, of course, tempered by other aesthetic considerations. “You don’t do it with such a force that you lose the beauty” (ibid. 01/21/09). Nelson goes further. He totally resists accenting the coincidence of tāḷa beats and phrasing. “The phrase is the phrase,” he says, “I absolutely don’t want to hear the tāḷa pull the phrase like that, […] the whole point is that the phrases maintain their identity” (pers. comm. 05/22/13).

Sarvalaghu: “The Rhythm of Life”

Nelson defines sarvalaghu as “the range of time-shaping patterns that carry the tāḷa- and akṣara-structures” (1991:xvi). He also notes that when playing sarvalaghu, musicians “let their notes flow with the pulse of the tala” (1999:148).

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14 Suresh goes so far as to criticize recitations (or drumming) that strictly adhere to the intonation of phrase shapes while purposefully ignoring tāḷa structures. “There are some mṛdāṅgam players who will always concentrate on (ta din gi na tom)(ta din gi na tom)(ta din gi na tom),” overly emphasizing the initial syllable of each group of five without any indication (through intonation or intensity contour) of the tāḷa context. “It is too much, because you lose the aesthetics there” (pers. comm. 12/12/08).

15 Divergent approaches like these reflect aesthetic priorities rooted in sampradāya. Nelson, for example, comes from the Palani lineage in which phrases are often set in complex (and at times, purposefully deceptive) relations to the tāḷa. Accenting tāḷa beats in these designs undermines the desired rhythmic effect. Suresh, in contrast, follows sampradāya to a wholly different conclusion. “It has come by tradition,” he says, “that we come to give a special punch” where phrase and tāḷa intersect (pers. comm. 02/29/08).

16 When Vellore Ramabhadran was asked in an interview why he was given the nickname “Sarvalaghu Ramabhadran,” he replied, “‘Sarvalaghu’ is the rhythm of life. You see it in every activity - the way
ka di mi ta ka jo ṇu, recited at four-pulses per beat in a four-beat beat cycle, is a very basic example of catuśra gati sarvalaghu (see ex.18).

Example 18: eight-syllable sarvalaghu phrase (catuśra jāti eka tāla, catuṣra gati)

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta ka di mi</td>
<td>ta ka jo ṇu</td>
<td>ta ka di mi</td>
<td>ta ka jo ṇu</td>
</tr>
</tbody>
</table>

The concordance between tāla and phrase, heard here and evident (though not quite so blatantly) in most sarvalaghu patterns, can mask a central characteristic of solkaṭṭu; although sarvalaghu designs often emphasize tāla structures, they are not those structures themselves. Unlike North Indian thekā patterns, which are determined by (and determine) specific tāl-s (North Indian time cycles), sarvalaghu are not prescribed by tāla. Nor are sarvalaghu patterns intrinsically linked to the metric constructs of tāla, as are most rhythm solmization systems used in western music pedagogy.

we walk, talk, dress and hold ourselves. I'm sought after because I play without disturbing the main artiste. And that is because I maintain the sarvalaghu rhythm, without indulging in too many calculations” (kucheribuzz.com 11/15/12, accessed 10/11/13). Trichy Sankaran offers another (similarly esoteric) view on sarvalaghu, noting, “Ultimately there is a deeper sense of sarvalaghu and that is the real time sense, even in the most complex mathematics that you do. This is called sarvalaghu jñānam [Skt. “pure consciousness,” “knowledge”]. The sarvalaghu jñānam is the one that makes you the best musician, which you have to reflect in all you do” (pers. comm. 04/17/04). See Van Hulzen (2008:10-11) for further consideration of the variety of viewpoints on sarvalaghu.

17 Nevertheless, there are characteristic approaches to sarvalaghu (and even paradigmatic patterns) that musicians often resort to for the three main speeds of karṇāṭak performance (vilamba, madhyama, and druta).

18 Like the typical “|1 e & a |2 e & a” style of counting, Gordon, Kodály, and other rhythmic solfege used in western music pedagogy generally affix syllables to specific locations in the meter. For example, the notated phrase, ˌdɨn ˌta ka ta ka dɨn, is recited as “|1 • & a |2 e & a ,” “|du • de ta |du ta de •” or “|Ti • ti ri |Ti ri ti •” in the aforementioned systems. Whereas a solkaṭṭu rendition of the phrase, such as din • ta ka ta ka din •, could be recited in any relation to tāla, the integrity of the spoken phrase is secondary to the metric location in the western systems. Offset by a sixteenth note, for example, the same pattern is recited as “|• e • a |2 e & a •,” “|• ta • |du ta de ta •,” or “|• ri • ri |Ti ri ti ri •”; all clear reflections of the staff notation, ˌdɨn ˌta ka ta ka dɨn.
Kaṇakku Processes
Permutation

As noted above, sarvalaghu and kaṇakku often overlap as compositions incorporate elements of the time-flow patterns from which they emerge. Or sarvalaghu may be put through processes that create tense metric relations between it and tāḷa, pushing sarvalaghu into the realm of calculation. As an example of the latter, consider a basic pedagogical formulation Sankaran calls the “ādi tāḷa displacement exercise” (1994:49). In this four-cycle construction (in oru kalai ādi tāḷa,19 catuṣra gati), the eight-syllable sarvalaghu phrase—ta ka di mi ta ka jo ṇu—is performed in varying relation to the tāḷa kriyā-s. The ta-s land on the beat in the first tāḷa cycle; in the second, they fall one pulse after each beat; in the third, two after; and in the fourth, the ta-s are three pulses after the beat. This exercise, which is commonly used among musicians and dancers, relies on a basic (and long-standing) process known as prastāra (“permutation”).20 In the present example, the use of prastāra pushes the original sarvalaghu pattern towards the realm of kaṇakku.

The impetus for the displacement is the addition of ta ka ta ki ṭa, a five-pulse unit, where the final ta ka jo ṇu of each cycle would have occurred. This results in a 33-syllable phrase21 played over three cycles of ādi tāḷa at 32 pulses per cycle. In the fourth cycle, the last ta ka di mi is omitted to account for the four additional syllables accrued with the four ta ka ta ki ṭa-s (see app.III for a full transcription). The

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19 In oru kalai, each tāḷa count is one māṭrā long. One cycle of eight beat oru kalai ādi tāḷa comprises eight māṭrā-s. In reṇḍu kalai, tāḷa counts are are two māṭrā-s duration. Therefore, reṇḍu kalai ādi tāḷa is double the length of the oru kalai version: i.e., eight counts totaling sixteen māṭrā-s.
20 According to Rowell, the practice of prastāra “for which there is clear evidence since ancient times, insured that the authorized patterns, whatever they were, would sooner or later appear in all possible variants and contexts” (1992:196).
21 Three and a half times through ta ka di mi ta ka jo ṇu plus one ta ka ta ki ṭa.
following example provides a glimpse of the changing phrase to tāla relationship by notating the eight-pulse sarvalaghu in relation to the first two beats (and into the third) of each tāla cycle.

Example 19: ādi tāla displacement exercise excerpt

\[
\begin{array}{c|c|c|c}
|X| & 2 & 3 \\
|\text{ta ka di mi}| & \text{ta ka jo \ṣu } & \ldots \\
\end{array}
\]

\[
\begin{array}{c|c|c|c}
|X| & 2 & 3 \\
|\text{ta ta ka di}| & \text{mi ta ka jo } & \text{\ṣu } \ldots \\
\end{array}
\]

\[
\begin{array}{c|c|c|c}
|X| & 2 & 3 \\
|\text{ki ta ta ka}| & \text{di mi ta ka jo } & \text{\ṣu } \ldots \\
\end{array}
\]

\[
\begin{array}{c|c|c|c}
|X| & 2 & 3 \\
|\text{ta ki \ṣa ta ka}| & \text{ka di mi ta ka jo } & \text{\ṣu } \ldots \\
\end{array}
\]

This foundational exercise hones crucial rhythmic skills, the most prominent being the ability to manipulate and perform phrases in various orientations to tāla.

Harish Narayan, an instructor at the University of Madras, reports that this exercise is central to the MA music and dance students’ “laya training” (pers. comm. 02/16/08).

After the above version, Narayan adds pauses and syllable substitutions, such as ta dim • • ta dim • • instead of ta ka di mi ta ka jo \ṣu and then expands the concept to work in the other gati-s. 23 Because these students will be applying their rhythmic training to voice, melodic instruments, or dance steps, Narayan does not stress

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22 The lighter font solkaṭṭu represents spillover from the previous cycle.
23 In khaṇḍa gati, for example, seven five-syllable phrases are recited followed by ta ki ṭa ta ki ṭa, thereby displacing the original phrase by one pulse in every cycle of ādi tāla (Narayan pers. comm. 02/16/08).
syllable choice or pronunciation. For him, “how they are maintaining it with the tāḷam is the main thing” (ibid.).

Like the trikāla phrases considered above, the articulation of sarvalaghu patterns is also affected by tāḷa. When this eight-pulse sarvalaghu lines up with tāḷa beats, its internal intonation and stresses are supported: the tas receive a high II and ID; the di has the strength of a dental, depth of [d], and raised IP of [i]; and jo, with its affricate and high II/ID vowel, is emphasized over its neighbors. The binary structure of the phrase fits easily into the quadruple divisions of this particular tāḷa and gati, leading to an easy sarvalaghu flow.

However, when sarvalaghu and tāḷa are offset, emphasis can shift in a number of gross or subtle ways, depending on the performer’s intentions. For example, a performer may emphasize the coincidence of tāḷa beats with sarvalaghu syllables in order to clarify those beats for a listener/tāḷa keeper. Alternatively, the phrase shape may take the foreground to create tension or a heightened sense of rhythmic interest in relation to the tāḷa.

Another version of the ādi tāḷa displacement focuses on a related skill set by using three different speeds of ta ka di mi ta ka jo ṇu (see app.IV for a full transcription). The first stage comprises the four cycles of the original exercise. In the second stage, the eight-pulse phrase is recited at half speed, madhyama kāla, while a druta kāla ta ka ta ki ṭa (at the original speed of one syllable per pulse) is substituted

---

24 The affricate [j], though not as intense, is produced similarly (in location and with a stop) as the dentals. In combination with the high II and ID vowel, [o], jo is often used in (secondarily) strong structural locations in solkaṭṭu units and phrases.
for the final two syllables/four pulses of the phrase: jo • ṇu •. This substitution creates a similar displacement, in the same tāḷa location, as the original. The following excerpt of the first two beats of each cycle highlights the displacements taking place at the beginning of each phrase.

Example 20: ādi tāḷa displacement exercise excerpt (version 2, stage 2)

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta • ka •</td>
<td>di • mi •</td>
<td>...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ūta ta • ka •</td>
<td>di • mi •</td>
<td>...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ki ūta ta •</td>
<td>ka • di •</td>
<td>mi • ...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta ki ūta ta •</td>
<td>ka • di •</td>
<td>mi • ...</td>
</tr>
</tbody>
</table>

In this version, the musician is confronted with the added difficulty of navigating unarticulated spaces falling on the beat, as well as executing speed changes between the half-speed eight-syllable phrase and ta ka ta ki ūta.

In the next stage the speed is again halved to vilamba kāla (one syllable=four pulses), thereby amplifying the previous challenges. For accuracy, especially in the initial stages of working with this material, musicians may recite those spaces using akaram (see ex.21).
Example 21: ādi tāla displacement exercise excerpt (version 2, stage 3)

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>X</th>
</tr>
</thead>
</table>
|ta • • •| ka • • •| di • • •| mi • • •| ...

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>X</th>
</tr>
</thead>
</table>
|ṭa ta • •| ka • •| di • •| mi • •| ...

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>X</th>
</tr>
</thead>
</table>
|ki ōta ta •| • ka •| • di •| • • mi •| • • ...

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>X</th>
</tr>
</thead>
</table>
|ta ki ōta ta •| • ka •| • di •| • • mi •| • • ...

Kuchipudi dancer, Chitra Kalyandurg, introduced me to yet another variation of the displacement based on the trikāla concept. In it, all three speeds are incorporated into each tāla cycle (see app. V for a full transcription). The phrase that replaces the three and one half ta ka di mi ta ka jo ṇu-s in the original can be transcribed as follows:

Example 22: ādi tāla displacement exercise excerpt (version 3)

|ta • • •| ka • • •| di • • •| mi • • •|

|ta •| ka •| di •| mi •|

|ta ka di mi|

This twenty-eight pulse phrase is followed by the same druta kāla ta ka ta ki ōta to produce the displacement sequence. In addition to the changing relation to tāla, the phrase undergoes two speed changes via a gopucca yati design.

These adaptations of a basic sarvalaghu exercise present a range of related challenges. The trikāla structure in the last version, for example, follows a basic concept of kaṇakku: three speeds of any phrase (created through doubling) fit into seven beats. Also in evidence in these exercises is the predilection for active suffix constructions and the smooth melding of sarvalaghu and kaṇakku. Numerous other versions (in different gati-s and tāla-s, or using alternate syllables and constructions)
are in circulation. Such flexible application of concepts underscore the creative freedom—within defined parameters—inherent in this oral/aural-based system. It also serves to highlight the importance of akṣara for the performance, understanding, and transmission of rhythmic materials and ideas.

**Gati Bhēda**

Altering the density of rhythmic phrasing through doubling or halving, as seen in the preceding two examples, changes the pace and tenor of the time-flow. This is a standard gambit in many contexts. Dancers, for example, often double the timing of their steps as a precursor to, and within, complex rhythmic designs. Melodic musicians regularly increase the momentum of syllable-based improvisation by doubling the rate of sung syllables. Likewise, percussionists often double, and sometimes quadruple, the initial note rate of their accompaniment or sarvalaghu patterns within a tani āvartanam.

In addition to doubling (or halving) artists also vary note rates using gati changes, or gati bhēda. Instead of remaining within a gati, as the doublings do, gati bhēda moves from one to another of the five traditional note rates: catuṣra, tiṣra, miśra, khaṇḍa, and śaṅkīrṇa.25 Adapting the previous eight-syllable sarvalaghu phrase to tiṣra gati, for example, introduces a more complex metric relation between phrase and tāla than in the original catuṣra setting (see ex.23).

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25 According to Sankaran (pers. comm. 02/24/09), Pudukkottai Mamundia Pillai (1859–1922) introduced the practice of catuṣra to tiṣra gati bhēda in the tani āvartanam (also corroborated by Viswanathan in Cormack 1992:382). By the early 20th century, singers were using gati bhēda in svara kalpana as well (ibid.:122). For a detailed examination of speed changes, cadential design, and other aspects of rhythm in melodic improvisation, see Josepha A. Cormack (1992).
Example 23: eight-syllable sarvalaghu at six-pulses per beat (tiṣra gati)

\[
\begin{array}{cccc}
|X| & 2 & 3 & 4 \\
|ta ka di mi| & ta & ka & jo ṇu \\
\end{array}
\]

Instead of two iterations of \textit{ta ka di mi ta ka jo ṇu} in four tāḷa beats at catuśra gati, here we have three iterations of the phrase over 24 pulses in tiṣra gati. When Suresh uses this concept in performance, he disguises the gati change by first playing only a few syllables of the pattern separated by wide gaps before systematically filling it in over subsequent cycles. Commenting on his approach, Suresh notes, “You don’t want to tell the public, ‘Yes, I am playing tiṣram!’” (pers. comm. 12/20/08).26

There are many other ways to implement gati bhēda.27 Adding or subtracting syllables from a sarvalaghu pattern to fit it to another gati is one. Nelson uses this approach to transition from the eight-pulse catuśra gati sarvalaghu pattern:

\[
\textit{din • tam tr gḍ ta jo ṇu | jo ṇu tam tr gḍ ta jo ṇu},
\]

to a ten-pulse, khaṇḍa gati version:

\[
\textit{din • tam tr gḍ ta jo ṇu ta na | jo ṇu tam tr gḍ ta jo ṇu ta na}.
\]

In performance, Nelson may switch between the two patterns before settling into khaṇḍa gati. “This approach to subdivision shifting,” notes Nelson, “was a trademark of Palani’s style” (1991b:459). Others in Palani’s lineage, and those who admire his innovations, continue to use this approach.28

---

26 Suresh applies the same approach in transitions to other gati-s. Moving from catuśra to khaṇḍa gati, for example, he fills in the same eight-note sarvalaghu pattern. Only instead of twelve iterations over one cycle of reṇdu kaḷai ādi tāḷa, in khaṇḍa gati he plays the pattern ten times over the eighty-pulses comprising one cycle (pers. comm. 12/20/08).

27 See Nelson (1991 vol.2) for numerous gati bhēda performed in solos by five top mṛdaṅgam artists.

28 Sankaran, for example, uses the same sarvalaghu phrase to transition from catuśra to khaṇḍa gati in his mṛdaṅgam solo on \textit{Layas vinyās} (track 1 (4:47–5:08) 1990).
A related approach to gati bhēda, also credited to Palani, involves adapting the spaces between solkaṭṭu syllables in a sarvalaghu pattern. For example, consider the following eight-syllable catuṣra pattern used by Nelson (pers. comm. 10/19/09):

\[\text{tom ta ka tom } | \text{ta din • ta}.\]

By adding four pauses, for a total of twelve, the following tiṣra gati pattern emerges:

\[\text{tom • ta ka tom • } | \text{ta • din • ta •}.\]

The artistry of this gati bhēda, however, lies in the transition process. In performance, Nelson “stretches” and “compresses” the timing of the eight articulated syllables in the pattern, creating a continuous movement between (and in-between) catuṣra and tiṣra. Following the aesthetics of his lineage, training, and experience, Nelson plays with the micro-rhythmic contours of the phrase and most often is neither playing an exact eight- nor an exact twelve-pulse pattern. Here, the syllables hold the sarvalaghu together while the gati is in flux.\(^{29}\)

Gati bhēda can also take place in compositions. Kōrvai-s, for example, are often used as transition points from one gati to another. A common change from catuṣra to tiṣra gati is achieved by playing a kōrvai once in catuṣra gati, once in slow tiṣra at three pulses per beat, and once in fast tiṣra at six pulses per beat, producing a 4:3:6 ratio among the three iterations of the kōrvai.\(^{30}\) In reṇḍu kalai ādi tāla a catuṣra version of a 64-pulse kōrvai will take one cycle. Playing the second iteration of the

\(^{29}\) The performance of this particular gati bhēda underscores the difficulty of fully transcribing karnāṭak materials. This sort of micro-rhythmic play—which cannot be transmitted via writing—is crucial to aesthetically correct performance and is only supported through the oral tradition of sampradāya.

\(^{30}\) The same gati bhēda ratios can be applied to other note rates. Nelson, for example, performs a khaṇḍa gati kōrvai using this scheme. Though mathematically correct, this practice is not without controversy because the second and third speeds fall outside the five traditional gati-s.
kōrvai in slow tiśra, at three pulses per beat, will stretch the composition over one and one-third cycles. Then playing it in fast tiśra, at six pulses per beat, fills the final two-thirds of the third cycle. While the three versions fill the same musical space as three times through the composition in catuśra gati (or one version in catuśra and three more in fast tiśra) the gati changes create a feeling of temporal elasticity.

Alternatively, the same gati ratios can be applied to a single rendition of the kōrvai, dividing it into sections of catuśra and slow and fast tiśra.³¹ After the third iteration, the performer continues in tiśra gati.

**Pauses (Kārvai) and Unarticulated Pulses**

Pauses are essential to phrasing. Since rhythmic action is based on syllabic time (realized within a cyclical time model), pauses—as silences, spaces, or held syllables—follow the same quantification as articulated solkaṭṭu. That is to say, pauses can be understood as unarticulated syllables of equal temporal value to recited (or played) syllables. Aesthetically, pauses and spaces are crucial. As Suresh remarks, “the silences have more meanings than the [solkaṭṭu]” (pers. comm. 02/16/09).

In the preceding analysis of the ādi tāla displacement exercise, I noted that musicians might use akaram when working with the larger spaces between the syllables of the vilamba kāla sections. The addition of a syllable-length vowel in between each solkaṭṭu allows for far greater accuracy in coordinating phrase and tāla. Though these syllables may start out voiced in the initial stages of learning a composition, they must eventually be internalized. “Otherwise,” notes Suresh, “it

---

³¹ In this scenario, the first 16 pulses of a 64-pulse kōrvai are recited in catuśra gati, the next 24 in slow tiśram, and the final 24 in fast tiśram. Because of the ratios, the kōrvai again covers the same temporal space as if it were recited once through in catuśra gati.
shows you are weak in silent counts” (pers. comm. 02/16/09). Returning to the vilamba kāla stage of the displacement exercise, the following transcription shows how the addition of a subsequent vowel (in grey) can serve as an aid in the more rhythmically challenging sections:

**Example 24: cycle two of the ādi tāla displacement exercise (version 2, stage 3)**

<table>
<thead>
<tr>
<th>X</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ta]</td>
<td>[ta • a]</td>
<td>[ka • a]</td>
<td>[di • i]</td>
<td>[mi • i]</td>
</tr>
</tbody>
</table>

The akaram doubles the phrase speed in relation to tāla. Though each syllable is followed by a pause, under most circumstances a pause of one pulse is heard as part of the previous syllable. Therefore, the movement effectively becomes madhyama kāla.

To demonstrate how this plays out on a larger scale, consider the following mōrā: *(ta ka di na)[tam •]*(ta ka di na)[tam •]*(ta ka di na).* In this version, the two-pulse gaps are easily performed as a single, long-sounding tam. When the gaps are expanded to three to create an eighteen-pulse mōrā, however, they are often recited as *tan • gu* rather than tam and a two-pulse gap. Changing from [m] to [n] reflects the shift from a closed bilabial to the open nasal leading to the third syllable. Although the subsequent gu may be softly voiced, or merely felt, its presence assures an accurate performance of the gap. The resulting mōrā can be transcribed as:

*(ta ka di na)[tan • gu](ta ka di na)[tan • gu](ta ka di na).*

---

32 Mrdangist Anilkumar calls this mōrā a “government arudi” because it is so basic and common. According to him, when you play a “government arudi, the people understand” (pers. comm. 12/06/08).
Longer and (especially) more complex pauses are routinely reckoned as solkaṭṭu. “Gaps especially,” notes Nelson, “I count in solkaṭṭu” (pers. comm. 11/02/04). In a composition taught to me by Nelson, the above mōrā becomes the statement of a compound mōrā with two, seven-pulse gaps (see ex.25).

Example 25: 68-pulse compound mōrā

\[
((ta \ ka \ di \ na)\tan \ • \ gu)(ta \ ka \ di \ na)(ta \ ka \ di \ na)\\
[tam \ • \ • \ • \ • \ •]\\
((ta \ ka \ di \ na)\tan \ • \ gu)(ta \ ka \ di \ na)(ta \ ka \ di \ na)\\
[tam \ • \ • \ • \ • \ •]\\
((ta \ ka \ di \ na)\tan \ • \ gu)(ta \ ka \ di \ na)(ta \ ka \ di \ na))(\text{||})
\]

When performed in ādi tāḷa, each statement and gap in this mōrā has a distinct orientation to the beat. Along with the addition of the gu-s to keep the three-pulse internal gaps correctly sized, Nelson recommends reckoning the seven-pulse tam-s as solkaṭṭu: i.e., tam • di mi ta ka ṭa or tam • tam • tan • gu. The first counts the gap as four plus three with tam • standing for the first two pulses. The second is a typical extension for odd duration gaps following tam. In it, the first tam • and subsequent two-pulse groupings are articulated as long (two-pulse) tam-s while the final three pulses become tan • gu.\(^{33}\) In both cases the initial tam is a syllable plus a pulse in duration, making possible its articulation as an extended solkaṭṭu with a terminal consonant, even when the subsequent syllables are reckoned internally.

Substitutions

Because the syllable is the elemental constituent of rhythm, substituting alternative syllables (including other solkaṭṭu, svaras, or dance steps) is one of the most basic, and pervasive, practices in the South Indian arts. The reckoning of seven-

\(^{33}\) In my experience, common voicings for odd-length gaps such as these tend to employ full syllables, such as tam, whereas even length gaps often use akaram.
pulse gaps in the previous example not only showed solkaṭṭu being used to count unarticulated spaces; it also demonstrated how unarticulated pulses can be transformed into syllables (tam plus six pulses becomes either, tam • di mi ta ki ṭa, or tam • tam • tan • gu). Because these durations are internalized rather than articulated, both units can be considered alternate (conceptual) solkaṭṭu for seven-pulse gaps.

This same mōrā also provides options for actual solkaṭṭu substitutions. Above, I transcribed the statements within each sub-mōrā as ta ka di na. Although this is how the mōrā was initially presented to me, Nelson immediately provided alternate possibilities. For example, ta • • • and ta • di • can be substituted for ta ka di na in the first and second sub-mōrā-s, resulting in the following:

**Example 26: 68-pulse compound mōrā with alternate solkaṭṭu**

((ta • • •)[tan • gu](ta • • •)[tan • gu](ta • • •))
[tam • • • • • • ]
((ta • di • )[tan • gu](ta • di • )[tan • gu](ta • di • ))
[tam • • • • • ]
((ta ka di na)[tan • gu](ta ka di na)[tan • gu](ta ka di na))

Although structurally identical to the original, the alternate solkaṭṭu units create a dramatically different feeling. The mōrā evolves from spacious to dense with each statement. Moreover, the unarticulated syllables create rhythmic tension with the tāla in the first two iterations, which also contrast the density of the third statement. At the same time, the momentum towards resolution is prolonged as the third statement unfolds. It is not-quite the “government arudi” (see n.32 above) and therefore thwarts that predictable motion.
Far from being *the* performance version of the original mōrā, this alternate solkaṭṭu is merely one realization. A musician could just as easily increase the solkaṭṭu density, for example, by changing the statements from *ta ka di na* to *di na tr kṭ* and then to *dk tk tr kṭ*. Or, the gaps could be filled in with syllables at the original gati or at one or two times the prevailing note rate. Because compositions are typically heard three times in performance, Suresh suggests “each time you want to improvise on a phrase, […] have a difference, or some variety in some particular solkaṭṭu” (pers. comm. 03/24/08).\(^{34}\)

**Expansion and Contraction**

Nelson has aptly described karnāṭak rhythmic structuring as “almost infinitely expandable or contractible” (pers. comm. 09/29/04). In addition to the above-mentioned processes of prastāra, gati bhēda, and syllable substitutions, musicians often expand and/or contract phrases within compositions as a means of creating variety. For example, consider the entire Palani enfolded mōrā, the first line of which was analyzed earlier (see p.131). Here, the composition is transcribed to show both Nelson’s sectional analysis and its overall gopucca yati shape:

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\(^{34}\) Triple renditions, along with tripartite structures and a host of musical elements that are grouped into threes, reflect a broader cultural preference for three-ness (Rowell 1992:218–19). This foundational schema permeates rhythmic composition, performance, and perception. Nelson notes a particularly interesting example of the latter when questioning performers about playing a kōrvai two times in different speeds. Rather than categorizing such a performance as playing the kōrvai twice, both Karaikudi R. Mani and Palghat Raghu consider it as being played once and once (Nelson 1991 vol.2:200–01, 243–44).
Example 27: Palani 96-pulse enfolded mōrā (Ranganathan version; Nelson analysis)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta ki ṭa tom • ta din gi ṇa tom</td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td>ta ki ṭa tom • ta din gi ṇa tom</td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td>ta ki ṭa tom • ta din gi ṇa tom</td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td></td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td></td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td></td>
<td>tom • ta</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notice that the seven C sections are all four pulses long. If expansions and contractions are applied to the first and last three Cs, the following version is created:

Example 28: Palani 96-pulse mōrā (expansion)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta ki ṭa tom • ta din gi ṇa tom</td>
<td>jo ṇu jo ṇu</td>
<td>tom ta</td>
<td>tam • •</td>
</tr>
<tr>
<td>ta ki ṭa tom • ta din gi ṇa tom</td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td>ta ki ṭa tom • ta din gi ṇa tom</td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td></td>
<td>jo ṇu jo ṇu</td>
<td>tom ta</td>
<td>tam • •</td>
</tr>
<tr>
<td></td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td></td>
<td>tom • ta</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This organization can also be reversed (see ex.29):

Example 29: Palani 96-pulse mōrā (contraction)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta ki ṭa tom • ta din gi ṇa tom</td>
<td>jo ṇu jo ṇu</td>
<td>tom • • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td>ta ki ṭa tom • ta din gi ṇa tom</td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta</td>
<td>tam • •</td>
</tr>
<tr>
<td>ta ki ṭa tom • ta din gi ṇa tom</td>
<td>jo ṇu jo ṇu</td>
<td>tom ta</td>
<td>tam • •</td>
</tr>
<tr>
<td></td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td></td>
<td>jo ṇu jo ṇu</td>
<td>tom • ta •</td>
<td>tam • •</td>
</tr>
<tr>
<td></td>
<td>tom ta</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Once the first C section is altered subsequent phrases align in a different orientation to tāḷa, thereby changing the feeling and momentum of the piece. In
performance, these (or other) options can add rhythmic excitement to second and third iterations of the composition. Because the solkaṭṭu remains consistent—only the spacing is altered according to orderly ratios within the aesthetics of kaṇakku—such changes are heard as variations rather than different compositions. The solkaṭṭu and structuring defines the piece while also providing the context for variations.

**Obfuscation**

Solkaṭṭu phrasing often highlights kaṇakku structures. In some instances, however, the reverse is true: solkaṭṭu can hide those structures. Recall how the phrase construction in the original version of the Palani enfolded mōrā obscured the structural separation between the A and B sections so clearly delineated in the preceding examples (see p.131). A compound mōrā, introduced to me by Nelson, takes this type of structural obfuscation even further by juxtaposing the design expectations created in the phrasing with the underlying kaṇakku. Although dense, the following analysis is useful in demonstrating the subtlety of solkaṭṭu in conveying complex rhythmic design as well as its use in deconstructing the same.

Considered by pulse-groupings, the main mōrā in question comprises three, 24-pulse statements separated by two, six-pulse gaps. The resulting total is 84 pulses. The syllables in each of the three statements, however, move at double the gati speed: eight instead of four pulses per beat. Therefore, each statement in the mōrā actually contains 48 pulses. The 48-pulse statements are, themselves, also mōrā-s (or sub-mōrā-s) with 14-pulse statements separated by three-pulse gaps. Demonstrating what Nelson has dubbed the “fractal” nature of South Indian rhythmic design, the 14-pulse statements in each of these sub-mōrā-s are (at least on the surface) arranged as micro-
level mōrā-s. These 14-pulse statements also conform to a variety of yati configurations.

In the following analysis, I follow Nelson in using two varieties of solkaṭṭu—counting syllables and konakkol (solkaṭṭu used in performance)—to uncover the discrepancy between the sounded design and its functioning. To begin, consider the konakkol for the third statement of the mōrā, a 48-pulse sub-mōrā in gopucca yati. To demonstrate the heard phrase-shape indicated by the syllables, I leave out analytical markers in the following transcription with the exception of the “||” marking the resolution.

```
Example 30: 48-pulse sub-mōrā

   ta • din • gi ṇa tom  ta • din • gi ṇa tom  ta • din • gi ṇa tom
        ••
   din • gi ṇa tom  din • gi ṇa tom  din • gi ṇa tom
        ••
   gi ṇa tom  gi ṇa tom  gi ṇa  ||tom
```

The mōrā seems to comprise three statements in an orderly reduction, separated by two-pulse gaps. Each of the statements also seems to be a sub-mōrā: the first with statements of seven, (ta • din • gi ṇa tom); the second, statements of five, (din • gi ṇa tom); and the final, of three, (gi ṇa tom). In this scenario, the mōrā totals forty-nine rather than my previous claim of forty-eight pulses. Moreover, the median is fifteen rather than the fourteen pulses noted above. The only clue that this analysis is incorrect comes at the end, with the resolution on the final tom.

I am starting with the final statement of the larger mōrā because the resolution most clearly reveals its inner workings. More specifically, the final nine-syllable phrase of this sub-mōrā, the gi ṇa tom gi ṇa tom gi ṇa tom, exposes its structure.
The impression of a nine-pulse grouping comprising three *giṇa tom*-s is a mirage that dissolves with its emphatic resolution on the final *tom* of the phrase. This structural point suggests viewing the phrase as an eight-syllable unit (divided as $3 + 3 + 2$) plus the resolution syllable, *tom*, which falls outside the mōrā structure.

Substituting counting solkaṭṭu, as an analogue for the konakkol, and analytical markers separating the statement and resolution clarifies the last statement’s structure:

\[
(ta \ ki \ ṭa \ | ta \ ki \ ṭa \ | ta \ ka) ||
\]

\[
\text{tom}
\]

If the functioning of the final phrase is understood in this way, which is what its resolution calls for, the previous phrases must also be reinterpreted. Instead of the 15-syllable unit suggested by three *din • giṇa tom*-s for the middle statement, the structure implies a 14-syllable unit (divided as $5 + 5 + 4$) with the last *tom* pertaining to a three-pulse gap:

\[
(ta • ta \ ki \ ṭa \ | ta • ta \ ki \ ṭa \ | ta • ta \ ka)
\]

\[
[tom • •]
\]

The first line can be similarly reimagined. Rather than a sub-mōrā with *ta • din • giṇa tom* as the statement, it is functionally two seven-syllable units, a six-syllable unit, and a gap, i.e.:

\[
(ta • di • ta \ ki \ ṭa \ | ta • di • ta \ ki \ ṭa \ | ta • di • ta \ ka)
\]

\[
[tom • •]
\]

With the resolution taken into account, the sub-mōrā can now be functionally analyzed in counting solkaṭṭu (see ex.31) and konakkol (see ex.32):
Example 31: 48-pulse mōrā (counting solkaṭṭu)
(ta • di • ta ki ṭa |ta • di • ta ki ṭa |ta • di • ta ka)
   [tom • •]
(ta • ta ki ṭa |ta • ta ki ṭa |ta • ta ka)
   [tom • •]
(ta ki ṭa |ta ki ṭa |ta ka)]
   to

Example 32: 48-pulse mōrā (konakkol)
(ta • din • gi ṇa tom |ta • din • gi ṇa tom |ta • din • gi ṇa)
   [tom • •]
(din • gi ṇa tom |din • gi ṇa tom |din • gi ṇa)
   [tom • •]
(gi ṇa tom |gi ṇa tom |gi ṇa)]
   to

There is, however, another level of obfuscation. Taking a closer look at each statement reveals an even finer design in play. We’ve already seen how the apparent nine-pulse mōrā suggested by the konakkol of the final statement is undermined by its resolution: (gi ṇa tom |gi ṇa tom |gi ṇa) || to. And yet, a tripartite structure still sounds. By considering the eight-syllable statement as the mōrā, comprising three two-pulse statements separated by single-pulse gaps, the issue is resolved: (gi ṇa) [tom] (gi ṇa) [tom] (gi ṇa) || to. As counting solkaṭṭu that clarify the structure, it can be transcribes as: (ta ka) [tom] (ta ka) [tom] (ta ka) || to.

The same process can be applied to the first and second statements, resulting in the following structural transcriptions of the 48-pulse mōrā and sub-mōrā-s contained within:
Example 33: 48-pulse mōrā w/sub-mōrā-s (counting solkaṭṭtu)
((ta • di • ta ka)[tom](ta • di • ta ka)[tom](ta • di • ta ka))
   [tom • •]
((di • ta ka)[tom](di • ta ka)[tom](di • ta ka))
   [tom • •]
((ta ka)[tom](ta ka)[tom](ta ka)) ||
tom

Applying this structural understanding to the performance version results in the following functional transcription:

Example 34: 48-pulse mōrā w/sub-mōrā-s (konakkol)
((ta • din • gi ṇa)[tom](ta • din • gi ṇa)[tom](ta • din • gi ṇa))
   [tom • •]
((din • gi ṇa)[tom](din • gi ṇa)[tom](din • gi ṇa))
   [tom • •]
((gi ṇa)[tom](gi ṇa)[tom](gi ṇa)) ||
tom

Although the first and second statements of the macro-level mōrā follow different yati formations (gopucca and mṛdaṅga respectively) they adhere to the same structural pattern in which the statements and gaps overlap on all design levels. The premise of this piece, as well as its execution and analysis, is fully dependent on solkaṭṭtu.

ta din gi ṇa tom
The deceptiveness of the preceding mōrā-s depends on the phrasal cohesiveness of the konakkol in relation to tāḷa. Specifically, the phrase ta din gi ṇa tom obscures the structural and functional divisions revealed through analysis with counting solkaṭṭtu. ta din gi ṇa tom is very likely the most distinctive, internally cohesive, and well-known solkaṭṭtu unit in South India. Its popularity is such that it even appears in the Tamil adage, “he puts ta din gi ṇa tom for his daily bread.”

Though the struggle implied by this metaphor fits nicely with the challenges of South
Indian rhythm, the saying is not associated with music or drumming. Rather, it refers to one’s hard wrought efforts to support themselves and their family (Umayalpuram Mali pers. comm. 02/03/09).35

**Pronunciation**

As with the basic counting solkaṭṭu, **ta** creates a strong opening (dental + vowel with high II and ID) with a midrange intonation typical of [a]. The natural rise in intonation expected for [i] in the second syllable is offset by the deeper sound of [d] and the addition of the final nasal consonant [n], which both softens and sustains the syllable.36 At slower tempos, intonation rises with the IP of **gi** before descending over the final two syllables. At speed, however, the retroflex of **ṇa** mitigates the IP of the [i] in **gi**. In the final syllable, [t] is closer to [d] in its resonance and pitch, and in combination with [o], with its low IP, creates the deepest intonation of the unit. Finally, depending on speed and context, the bilabial [m] can create a sense of prolongation and decay.

Unlike more general counting syllables, which are fairly stable in their pronunciation, various versions of **ta din gi ṇa tom** circulate. Raghavan, among others, sometimes used the phrase **ta di ki ṇa tom**.37 Though sounding differently
from *ta din gi ṇa tom*, the distinctions are minimal. The dropped [n] in *din* is a casualty of the change from [g] to [k] in the third syllable, the latter not being amenable to the elision. This substitution is coherent with the heteronym status of Tamil “ṅ” (“k/g”), suggesting that Raghavan’s aesthetic choice does not affect the unit’s identity.

Even within a particular style, pronunciation may vary according to context. In the Pudukkottai school, for example, *ta di ki ṭa tom* is a legitimate and interchangeable alternative to *ta din gi ṇa tom*. With its shortened second and sharper third syllables, this version is typically used in faster tempos. To accommodate even faster speeds *ta di ki ṭa tom* often undergoes further changes. These, however, appear to be more informal and idiosyncratic. Suresh, for example, sometimes recites *ta di ki ṭa ka* at tempo while Nelson says *ta di ki ṭa ton*. In their recitations, both significantly reduce vowel and retroflex enunciation in response to tempo pressures.

**Function**

Musicians, dancers, and choreographers often use *ta din gi ṇa tom* along with *ta ka ta ki ṭa* for counting. Whereas the latter is distinctly heard as two plus three, *ta din gi ṇa tom* stands as five. It is conceived of and applied as a singular unit. The versions results in *ta di ki ṇa tom*, which Raghavan sometimes recited. My impression is that Raghavan unconsciously chose between the two main units in his recitations and, at times, produced the hybrid version as well. Interestingly, some of his most well known North American students learned and transcribed the khaṇḍa unit as *ta di ki ṇa tom*, thereby giving this unit greater visibility in the growing spread of solkaṭṭu to non-karṇaṭak contexts.

38 These choices appear to be influenced as much by aesthetics as by instrumental affiliations. In fast ghaṭam playing the bass tone of *ta din gi ṇa tom* is often omitted, in mṛdaṅgam it is not. Therefore, the loss of depth on the final syllable for Ghaṭam Suresh makes sense with the acoustics of his instrument. In contrast, the change from *tom* to *ton*, or even to *to* is coherent with the mṛdaṅgam bass sound associated with the final syllable of the phrase. For more on solkaṭṭu and instruments, see pp.194–203.
counting solkaṭṭu Sankaran applies to the tāḷa of “Kadimodi” (1989:96) makes the contrast clear (see ex.35):

**Example 35: kriyā and corresponding solkaṭṭu for “Kadimodi”**

<table>
<thead>
<tr>
<th>X X •</th>
<th>X X •</th>
<th>X X •</th>
<th>X • 2 • 3 • 4 • 5 •</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta ki ṭa</td>
<td>ta ki ṭa</td>
<td>ta ka ta ki ṭa</td>
<td>ta • din • gi • ṇa • tom •</td>
</tr>
</tbody>
</table>

Disregarding the first six pulses, note that the two five-syllable solkaṭṭu units are juxtaposed over the final 15 pulses. The first of these, ta ka ta ki ṭa is paired with the same kriyā as a cycle of khaṇḍa cāpu tāḷa: a clap on the first, third, and fourth beats. Khaṇḍa cāpu is reckoned as two plus three and this structure is emphasized by Sankaran’s choice of ta ka ta ki ṭa. The second unit, a half-speed ta din gi ṇa tom, is paired with the kriyā from khaṇḍa jāti ēka tāḷa. This tāḷa’s metric shape comprises five evenly spaced gestures—clap, pinky, ring, middle, pointer finger—making ta din gi ṇa tom an apt descriptor. Though the two phrases are in a 1:2 ratio, tempo does not affect the choice of syllables. Rather, Sankaran’s solkaṭṭu correspond to, describe, and clarify the metric shape of the tāḷa.

**In Kaṇakku**

Though occasionally heard in sarvalaghu, especially in the lead up to a cadence, ta din gi ṇa tom is far more common in kaṇakku. Performing ta din gi ṇa tom as ten pulses, as in the Tiruppugazh tāḷa, is standard fare in South Indian music. Any solkaṭṭu unit can, and often is, performed in multiple doublings in a variety of gati-s. ta din gi ṇa tom, however, stands out—and is especially suited to kaṇakku—because it can be expanded across a range of consecutive numeric values while maintaining its identity. The following expansions are typical:
Example 36: *ta din gi ṇa tom* expansions

- *ta din • gi ṇa tom* = a six-pulse unit
- *ta • din • gi ṇa tom* = a seven-pulse unit
- *ta din • gi • ṇa • tom* = an eight-pulse unit
- *ta • din • gi • ṇa • tom* = a nine-pulse unit

Although the five-syllable rendering can be considered *ta din gi ṇa tom*’s default, the unit maintains its integrity throughout these expansions.³⁹ The ability to expand and contract *ta din gi ṇa tom* without weakening its identity exemplifies how a solkaṭṭu phrase can take precedence over its associated numeric value.

**Variations and Innovations**

In addition to the above expansions, variations such as *ta din • gi ṇa • tom* in place of *ta • din • gi ṇa tom* are not uncommon.⁴⁰ Suresh suggests these types of manipulations are a recent innovation. “((ta din gi ṇa tom)[0](ta din • gi ṇa • tom)[0](ta din • • gi ṇa • • tom)) was not there fifty years back. People like Ramnad Krishnan, Palghat Raghu, Lalgudi Jayaraman, then Ramani started playing them” (pers. comm. 05/19/08). According to Suresh, performing a mōrā with statements of five, seven, and nine using these *ta din gi ṇa tom* structures marks a musician as “a very strong mathematical person” (ibid.). In contrast, playing or reciting ((ta din gi ṇa tom)[0](ta • din • gi ṇa tom)[0](ta • din • ta din gi ṇa tom) is, in his opinion, “very traditional, old, and obsolete” (ibid.).

Though Suresh seems to devalue the conventional rendering, he does not abandon it. Instead, Suresh complicates this simple juxtaposition of old and new by

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³⁹ An alternative method of expanding *ta din gi ṇa tom* is to add a solkaṭṭu prefix. For example, a seven-syllable unit is often recited as *ta ka ta din gi ṇa tom* and a nine as *ta ka di ku ta din gi ṇa tom*.

⁴⁰ A further innovation only increases the gap after *din* to expand the phrase. In this model, the seven-pulse unit is recited as *ta din • • gi ṇa tom*. 
raising the issue of aesthetics. And, in typical fashion, he does this by invoking the omnipotent voice of his guru. T.V. Gopalakrishnan, notes Suresh, “would not approve” of *ta din • gi • ṇa • tom* and related expansions.

Even today he would say, “what is this? You twist a very beautiful chick. You twist its neck and call it a different word. *ta din gi ṇa tom* is beautiful. You add a feather to it and say *dum • ta din gi ṇa tom, ta ka ta din gi ṇa tom*. Why do you want to cut it and call it by a different name?” (pers. comm. 05/19/08)

This viewpoint not withstanding, such variations are firmly entrenched in common practice. In addition, *ta din gi ṇa tom* can be varied by altering its density. It is commonly converted to *ta di ta kṭ tom*, in which the fourth syllable is doubled, or the common double time unit *kṭ tk tr kṭ tom*.

**A Class Unto Itself**

The phrasal cohesiveness of *ta din gi ṇa tom* at different durations helps explains its widespread use and value in kaṇakku. According to Cormack, “TDGNTm can be considered the most important formula in the building of rhythmic compositions” (1992:127). More specifically, writes Sankaran, “The family commonly known as *Ta din gi na tom* patterns figure most prominently in the creation of *moras* and *korvais* (cadential forms), as well as in many dance compositions known as *tirmanams*” (2010:6). The prevalence of *ta din gi ṇa tom* in kaṇakku has led many, including Sankaran, to categorize an entire body of cadential structures under the rubric of *ta din gi ṇa tom* mōrā-s.41 The cohesiveness and

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41 In these cadences, which Sankaran classifies as “type B” mōrā-s, “*Ta din gi na tom’s* and their varieties usually appear in three-fold repetitions without pauses” (2010:40). Sankaran’s demarcation of *ta din gi ṇa tom* mōrā-s reflects a widespread distinction made by percussionists. There are, however, many examples of mōrā-s comprising solely *ta din gi ṇa tom* syllables—with pauses—in the kaṇjātak repertoire. Moreover, in mōrā-s played without pauses, there is always the possibility of adding them
flexibility of ta din gi ṇa tom differentiates it from basic counting solkaṭṭu and allows for its widespread and varied use in rhythmic design.

Conclusions

While this chapter’s initial investigation of the linguistic makeup of solkaṭṭu puts it in communication with broader discourses on music solfege, the subsequent analysis of solkaṭṭu in rhythmic functioning sets it apart from other syllable systems. My use of solkaṭṭu to describe, analyze, and demonstrate South Indian models in the foregoing highlights its multiple-functionality: solkaṭṭu serves as both the (conceptual) medium and (musical) message for rhythm play in the South Indian arts. Importantly, solkaṭṭu is also the mechanism with which these processes are carried out. The extensive range and detail of the this chapter’s investigation of form and function reflects (and supports) my central positioning of solkaṭṭu in contemporary rhythmic practice and provides a practical structure for the upcoming consideration of specific solkaṭṭu applications. Moreover, the parallels to solkaṭṭu’s historic use highlighted throughout this chapter will resonate even more deeply as solkaṭṭu is considered in the syllabically rich fields of drumming and dance in the next.

in variations. Such structural flexibility, which is a hallmark of South Indian rhythmic practice, led Nelson to consider Sankaran’s type B mōrā-s as having a gap of zero. By including the potential for a gap in his formula, Nelson’s theory becomes applicable to practically all mōrā structures. (For more on the development of Nelson’s mōrā concept, see app.1).
If you start listing off the possibilities there is no end to it.

–V. Suresh

Chapter 5
Solkaṭṭu in Drumming and Dance

Introduction
In this chapter, I ground my earlier analysis of solkaṭṭu conceptualization, forms, and functioning in the particulars of drumming and dance. In these densely syllabic contexts solkaṭṭu use is pervasive and diverse, yet often seems hidden in plain sight. For percussionists, the inter-domain analogic bond between solkaṭṭu and drumming means that language about speech—and speech in the form of solkaṭṭu—is constantly applied to drumming. Likewise, dancers and naṭṭuvanar-s effortlessly communicate footwork and movements according to dance solkaṭṭu (aḍavu-s) analogically mapped onto movement. By homing in on how solkaṭṭu is perceived and deployed among percussionists and in dance, I demonstrate central ways in which the (incredible) specificity of South Indian rhythm is determined through this (surprisingly) fluid syllable system. My analysis of these solkaṭṭu applications is informed by my collaborators’ reflections as well as my own experiences as a student, performer, and researcher. Even though the musicians, dancers, and choreographers I consulted with all constantly use solkaṭṭu—on multiple levels and for various functions—it is rarely a subject of explicit discussion or analysis. As such, what follows reflects the dialogic process through which ideas and (sometimes tentative) conclusions were revealed.

Personal communication (02/05/08)
**Strokes and Syllables**

**Mṛdaṅgam Solkaṭṭu: The Status Quo**

While solkaṭṭu is a much broader part of rhythmic practice than the common “drum syllable” moniker implies, it is, nevertheless, of overwhelming importance in drumming. And among the varied percussion practices of the South Indian arts, solkaṭṭu related to mṛdaṅgam is considered standard. This is not surprising given the elevated position of mṛdaṅgam in South Indian music culture (past and present), its leading role in karnāṭak concerts, its centrality in bharatanatyam, and the fact that “players of [other karnāṭak percussion] instruments usually begin as mridangam students and change at some later time” (Nelson 1999:149).

For drummers, mṛdaṅgam solkaṭṭu is inextricably linked to the conceptualization, communication, and performance of their art. The connection between strokes and syllables is forged early on and runs deep. An anecdote from Nelson’s interview with Murthy emphasizes this point. Asked, “When you think about the mṛdaṅgam, what do you listen to inside; the mṛdaṅgam? or the syllables?” Murthy replied, “The syllables.” His granddaughter, Hemlata, then remarked, “Even when he is sleeping he will be telling (solkaṭṭu)” (Nelson 1991 vol.2:43). Likewise, mṛdaṅgam vidvan Tiruvarur Bhaktavatsalam told me, “when I am sleeping, more kōrvai-s come in my mind. I wake up and immediately I say a kōrvai” (pers. comm. 02/04/09). How does solkaṭṭu come to occupy such an intimate place that it permeates drummers’ dreams of their art? The traditional training paradigm is critical. From a drummer’s first lesson, solkaṭṭu and drum strokes are bound together. “After a
particular stage,” notes Suresh, “the distinction between solkaṭṭu and the strokes is nullified, or narrows down and vanishes” (pers. comm. 02/05/08).

In the following sections, I consider three basic relationships between solkaṭṭu and mṛdaṅgam strokes. The first, and most literal, is also the shortest lived. Introduced in the early lessons, this one-to-one association between strokes and syllables shapes drummers’ basic orientation to mṛdaṅgam material. The other two relationships—one in which fixed solkaṭṭu phrases are matched with specific fingering patterns, and the other in which solkaṭṭu and fingerings are conditionally paired—soon become prevalent in pedagogy and performance. By disentangling strokes and syllables in these cases I am able to point out the subtlety of their interactions. In addition, by exploring these three correspondences in mṛdaṅgam playing, I set the stage for subsequent considerations of solkaṭṭu applications in other spaces of South Indian rhythm.

**One-to-One: “what we play is what we say; what we say is what we play.”**

Leaving aside the ceremonial pillayār paḍam, mṛdaṅgam students begin practical training with four syllables and strokes.¹ In chapter one I explored the historical location and cultural significance of ta di tom num, known as the śrama vāhanī, or ādi śābda—“original syllables.” Here, I focus on a particular aspect of the śrama vāhanī clearly laid out in the saṅgītaśāstra: namely, the direct, one-to-one

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¹ The pillayār paḍam is devoted to Ganesh, the elephant-headed god of auspicious beginnings. Because it is a relatively complex piece, the lesson is most often viewed as a ceremonial benediction to the new student’s musical career rather than as a pedagogical tool. Mṛdaṅgam artist, Umayalpuram Mali (who includes a version of the pillayār paḍam on his album Jack Wood (2006)) suggests that the lesson used to have a functional role. “A hundred years back,” he notes, “that was a long lesson and the students would take four to five moths to pick up that lesson. And the master will see that if he tackles and bears that lesson, if he grabs that. And so, [because of the difficulty] there were a lot of drop outs” (pers. comm. 02/03/09).
correspondence between these solkaṭṭu and their prescribed percussive realizations.

Contemporary mṛdaṅgam training follows this paradigm throughout the first series of lesson, in which each of the four solkaṭṭu is matched to a particular stroke.

In the first lesson series, the śrama vāhanī syllables and strokes are introduced singly, then in multiples, and then with filler patterns in between. Whenever ta is recited during these lessons, the student plays a closed stroke on the toppi (ษ); di is played as a dry three (or four) finger valantalai stroke (3); tom, as an open bass tone on the toppi (ţi); and num as a resonant stroke on the outer skin of the valantalai (n). In this way the solkaṭṭu serves as stroke mnemonics for the beginner.

Drummers also consider these syllables and strokes as aural equivalents. In percussionist N. Govindarajan’s words:

When you play tom, it is exactly tom that you hear. If you play ta, exactly what you hear is ta. […] And if you play num, it is num. So it is not just naming the syllables blindly, but according to the sounds they produce. (pers. comm. 01/30/08)

At this point in training a clear onomatopoetic relationship accompanies the mnemonic function of the solkaṭṭu.

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2 Transcriptions of the introductory ta di tom num series can be found in numerous mṛdaṅgam manuals as well as academic works on mṛdaṅgam, including: Brown 1965; Hartenberger 1974; and Sankaran 1994.

3 Although the śrama vāhanī have one basic recited form, there are a few different fingering versions on mṛdaṅgam. For example, in the Pudukkottai school tom is played as a combination stroke with two hands rather than the more common single toppi note (Guruvayoor Dorai pers. comm. 02/12/09). In addition to a two-handed tom, Andhra trained Satish Kumar plays ta and di on opposite heads. In this unusual version, the pattern begins on the valantalai instead of the toppi (pers. comm. 02/22/09). Whatever the fingering assigned to the śrama vāhanī, the one-to-one correspondence between strokes and syllables is maintained throughout the primary series of lessons.

4 Brown’s detailed analysis of the sonic/phonetic qualities of these strokes and syllables remains a powerful and compelling statement of their onomatopoetic connection (1965:92–95).

5 Govindarajan’s conflation of syllables and strokes in the last sentence of this quote reflects the intimacy of the stroke–syllable connection. In addition, it raises the question: do these solkaṭṭu serve as onomatopoeias for drumming? Or do the strokes act as a surrogate language for the spoken syllables? (For more on this, see p.7 n.3.)
The subsequent filler patterns (modern versions of the eka-sara-ṭākanī patterns that appeared at least as early as the SR),⁶ are recited with combinations of ki ṭa and ta ka. The first pair is played with the damped valantalai strokes 3 1, and the second as ķ 3 on the toppi and valantalai. Like the śrama vāhanī, these syllable–stroke correspondences are maintained throughout the beginning exercises. The unique relation between spoken and played syllables is weakened, however, when ki and ka are played as the same, or as a very similar stroke on the valantalai.⁷ With the addition of an eight-pulse suffix phrase at the next stage of instruction, the one-to-one linear relationship becomes the anomaly. Nevertheless, the impact of the strict pairing of strokes and syllables at the very beginning of a drummer’s formation creates a deep and lasting impression.

**Position Syllables**

T.R. Harihara Sharma (1904–1981) developed a pedagogical system in which the concurrence of solkaṭṭu and strokes introduced with the śrama vāhanī and filler patterns are maintained into later lessons. According to his son, well-known ghaṭam and konakkol artist T.H. Subash Chandran, Sharma “fixed seven words on the mṛdaṅgam” (pers. comm. 02/19/08). Here, “fixed” implies a strict one-to-one pairing of syllables and mṛdaṅgam strokes. In addition to the śrama vāhanī and filler solkaṭṭu, Sharma adds cha and dit (ibid.). Teachers in Sharma’s lineage use the fixed syllables

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⁶ See p.77
⁷ Although Brown differentiates ki and ka in this context (the former being a two finger damped stroke and the latter, a four finger damped stroke) he later notes that the pattern can be played with identical strokes for these two solkaṭṭu (1965:133, 136). Sankaran, however, draws no distinction between the strokes for ki and ka (nor di) in the introductory series (1994:100, pers. comm. 04/17/04). Likewise, Govindarajan notes “di, ki, and ka have the same positions” (pers. comm. 01/30/08). The latter approaches to these strokes and syllables correspond with my own learning experience where ki and ka signified the same drum stroke at this point in the lessons.
to indicate mṛdaṅgam fingering with far greater exactitude than typical solkaṭṭu. As S. Karthick, a highly sought after ghaṭam artist trained in this lineage, describes it: “In the school I come from, of course, what we play is what we say; what we say is what we play” (pers. comm. 02/10/08).

A widely known example of Sharma’s position solkaṭṭu is used for the common eight-stroke pattern, 1 ḍ a ḍ 3 1 ḍ 3. Instead of the typical solkaṭṭu phrases recited with this fingering (see below), Sharma’s system uses ṭa ta cha ta ki ṭa ta ka. As a one-to-one pairing of solkaṭṭu and strokes, this solkaṭṭu is meant to convey “exactly what we play on the instrument” (Karthick pers. comm. 02/10/08). cha—indicating one of two closely related valantalai strokes, cāpu or arai cāpu (half cāpu)—is especially notable as it only appears in Sharma’s system.

The use of positional solkaṭṭu like ṭa ta cha ta ki ṭa ta ka is essentially confined to Sharma’s lineage. And within that school, it is purely pedagogical and further limited to the early stages of training (Karthick pers. comm. 02/10/08). Fixing solkaṭṭu and strokes in a one-to-one relationship, as Sharma’s system does, prioritizes the latter. This has the advantage of removing doubts about what stroke pattern a teacher is communicating through solkaṭṭu and, thereby, streamlining teaching. However, as Karthick readily admits, the position solkaṭṭu “may not be musical to the ear” (ibid.). Therefore, in all but basic pedagogical settings, position-derived syllables remain.

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8 Nevertheless, the overlap of between ki and ka, already noted in the filler pattern, ki ṭa ta ka, remains.
9 The unvoiced affricate, cha, may be both onomatopoetic of the bright and resonant tones, with particularly high mixtures of partials, heard in the drum strokes and an abbreviation of the stroke name, cāpu. When followed by an unarticulated pulse both cāpu and arai cāpu are more typically recited using lan • gu, as in ta lan • gu, where the gu can be played by various strokes.
are replaced by typical solkaṭṭu phrases. Instead of reciting solkaṭṭu corresponding to exact strokes, notes Murthy, “we speak what sounds beautiful” (in Nelson 1991 vol.2:33).

**Non-Linear Correspondences: “what we play and what we say may be slightly different.”**

In typical mṛdaṅgam pedagogy, a divergence between strokes and syllables signals the transition from the śrama vāhanī into more modern materials. The impetus for this change is the same eight-stroke pattern considered above, \(1 \overset{\times}{a} \overset{\times}{3} 1 \overset{\times}{3}\).

Rather than Sharma’s positional phrase, the fingering is recited as *di ku ta ka ta ri ki ō* or *ta ka ta ri ki ō ta ka*. Although both are widely used in contemporary solkaṭṭu, and sometimes by the same player, *di ku ta ka ta ri ki ō* is considered part of the Pudukkottai lineage, while *ta ka ta ri ki ō ta ka* is associated with the Tanjore school. In both, the phrase is introduced as a suffix to the *ki ō ta ka* filler strokes.

While the contours of South Indian mṛdaṅgam genealogies are clear and well publicized, the implications of lineage in South Indian percussion are somewhat murky. Different schools claim unique fingerings, patterns, playing techniques, compositions, compositional and accompaniment approaches, performance practices, and, most relevant here, distinct solkaṭṭu. However, borrowing and experimentation among mṛdaṅgam players is widespread, especially of late, to the point where some

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10 The final two syllables of this phrase are often recited as *gi ḍu*, especially at higher tempos, and the first is sometimes pronounced with a dental [t] in place of [d], producing a sharper attack. Though discernible, both substitutions fall within the wide parameters of acceptable pronunciation.

11 Personal testimonies, mṛdaṅgam manuals, biographies, press accounts, and numerous online resources contain mṛdaṅgam lineages (e.g., see N. Scott Robinson, [http://www.nscottrobinson.com/southindiaperc.php](http://www.nscottrobinson.com/southindiaperc.php), for an especially detailed listing of South Indian percussionists with short biographies and P.B. Ramesh, [http://mirudangam.tripod.com/gs_tree.html](http://mirudangam.tripod.com/gs_tree.html), for a well-crafted guru-śiṣya chart).
suggest clearly distinct schools are no longer entirely discernible. Though recent advances in technology, access, and travel, may have accelerated the trend towards mixing, experts such as Sankaran note, “there has always been some give and take” (pers. comm. 02/24/09).12 A detailed study of issues related to lineage, while a valuable contribution to the literature, is outside the present scope. Nevertheless, the common recognition of two main percussion lineages—namely, the Tanjore and Pudukkottai schools, exemplified by Palghat Mani Iyer and Palani Subramania Pillai, respectively—has certain implications for solkaṭṭu use that will be taken up as they arise. This initial split is one such instance.13

Nelson suggests that, “the minute you put di ku ta ta ri gi ḍu at the end of [the śrama vāhanī], you’re in a style now” (pers. comm. 04/29/14). Here, style dictates one solkaṭṭu pattern rather than another on the basis of tradition, aesthetics, and fluency (see ex.37).

Example 37: Pudukkottai vs. Tanjore solkaṭṭu

<table>
<thead>
<tr>
<th>Fingering:</th>
<th>1</th>
<th>̃</th>
<th>a</th>
<th>̃</th>
<th>3</th>
<th>1</th>
<th>̃</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pudukkottai solkaṭṭu:</td>
<td>di</td>
<td>ku</td>
<td>ta</td>
<td>ka</td>
<td>ta</td>
<td>ri</td>
<td>ki</td>
<td>ṭa</td>
</tr>
<tr>
<td>Tanjore solkaṭṭu:</td>
<td>ta</td>
<td>ka</td>
<td>ta</td>
<td>ri</td>
<td>ki</td>
<td>ṭa</td>
<td>ta</td>
<td>ka</td>
</tr>
</tbody>
</table>

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12 Sankaran himself provides a prime example of such give and take. Widely recognized as Palani’s premier disciple, Sankaran notes, “in the Palani school, in the Pudukkottai school, it should be said as di ku ta ka ta ri gi ḍu.” And yet, Sankaran prefers the Tanjore form of the eight-syllable phrase, “for the fluency” (pers. comm. 02/24/09). It should be noted, however, that Sankaran’s initial training was under his cousin, Puvalu A. Venkataraman, who was trained in both styles. Sankaran began using di ku ta ka ta ri ki ṭa only after becoming Palani’s student. Therefore, while Sankaran sees this choice as one of aesthetics and ease of recitation (ibid.), he can also claim consistency with his early training.

13 Although solkaṭṭu variations occur in other important mṛdaṅgam lineages, I focus on the Tanjore and Pudukkottai schools because of their prominence in the practice of, and rhetoric on, South Indian percussion.
As the above comparison clearly shows, the two phrases have just one syllable in common (and in the same position), namely ta, coinciding with arai cāpu. Out of the fourteen remaining syllables, only a single consonant and vowel overlap while the rest are quite distinct. Comparing these two patterns highlights the diversity with which solkaṭṭu and strokes can be matched.

In the context of training (within a particular lineage) students are first introduced to one or the other of these phrases. The solkaṭṭu–stroke relationship within each version is, therefore, germane to understanding the departure from the one-to-one paradigm. Individually, the closed toppi stroke first introduced as ta becomes ku, ka, and ki in the Pudukkottai version and ka and ri (along with the original ta) in the Tanjore solkaṭṭu. The 1-stroke, introduced as ṭa in the filler patterns becomes di and ri (Pudukkottai) or ta (and ṭa, in Tanjore style). The 3 stroke that was ki is recited as ta and ṭa (Pudukkottai) or ki (and ka, Tanjore). And finally, as noted above, the new stroke, arai cāpu, is recited as ta in both. Divergences from the established filler patterns—ki ṭa for 3 1, ta ka for ĺ 3, and their combination as ki ṭa ta ka—are found in both versions. ta ka, the first solkaṭṭu in the Tanjore solkaṭṭu, corresponds to 1 ĺ rather than ĺ 3. In the Pudukkottai version, ta ri ki ṭa replaces ki ṭa ta ka for 3 1 ĺ 3. In both cases different solkaṭṭu refer to previously established stroke patterns and vice versa.

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14 Cāpu may also be used here.
15 Though Suresh suggests that these four-syllable phrases are considered lineage markers by many—ta ri ki ṭa corresponding to the Pudukkottai school and ki ṭa ta ka to the Tanjore school—he has heard mṛdangam players from the Tanjore school using both versions. Such variability, he speculates, may come from lineage influences beyond the two main schools (pers. comm. 02/05/08).
At this point in training, the one-to-one relationships established in the śrama vāhanī/filler patterns no longer apply. Solkaṭṭu and strokes now occupy Brown’s “two sound systems” (1965:280): one following the logic of vocal production, the other, that of drumming. This concept helps explain why changes in solkaṭṭu related to tempo or syntax need not be reflected in drumming. And, alternatively, why consistent solkaṭṭu may be applied to various fingering patterns.

Fixed Phrases
Although an exact and durable correspondence between individual syllables and strokes is generally lacking in mṛdaṅgam playing, a number of spoken and played patterns are consistently connected. The eight syllables of di ku ta ka ta ri ki ṭa, for example, are not individually linked—by precedent or sonority—to these eight drum strokes in a way that one could uniquely derive the correct fingering from them. Yet mṛdaṅgam players trained in the Pudukkottai lineage will play 1 x a x 3 1 x 3 for that solkaṭṭu and recite di ku ta ka ta ri ki ṭa when vocalizing said stroke pattern. These two eight-pulse units exist as parallel, analogous musical gestures.

A number of other solkaṭṭu units have similarly fixed mṛdaṅgam realizations. For example, the common phrase, ta lan • gu is almost always played as x a • 3. In this pattern, arai cāpu (and sometimes cāpu or, more rarely, n) plus an unarticulated pulse is paired with the unique solkaṭṭu, lan •. A stricter relationship exists between ki ṭa ta ka ta ri ki ṭa tom • and the fingering x 3 1 x a x 3 1 ō •. Taken atomically, the solkaṭṭu-to-stroke correspondences of these nine syllables (plus an unarticulated pulse) cannot be easily rationalized. The muted toppi stroke x, for example, is recited as ki, ka, and ri; 3 is ṭa and ki; 1 is both ṭa and ta; arai cāpu is also recited as another
**ta.** Only the syllable **tom** has a unique stroke, the open bass note introduced in the first lesson. Despite these internal discrepancies, the solkaṭṭu phrase is decidedly fixed to the fingering pattern.

**Mṛdaṅgam ta din gi ṇa tom**

Besides adhering to the śrama vāhanī paradigm, the **tom • in ki ṭa ta ka ta ri ki ṭa tom •** corresponds to the final syllable of **ta din gi ṇa tom.** The ten-pulse pattern, **ki ṭa ta ka ta ri ki ṭa tom •**, is the most well known of a number of dense (double time) phrases often substituted for the five-syllable phrase.\(^\text{16}\) Given the pervasiveness of **ta din gi ṇa tom** in kaṇṇakku, in naṭṭuvangam recitation, in song lyrics, and in the general imagination about drumming, it should not be surprising that the phrase is central to drumming. And because of the high usage associated with this high profile, it is also unsurprising **ta din gi ṇa tom** has a fixed fingering. Unlike many fixed solkaṭṭu phrases, however, **ta din gi ṇa tom** has exceedingly close sonic ties to its mṛdaṅgam realization. While the fingering for **ta din gi ṇa tom** is not strictly positional, at least according to Sharma’s system, it is related to the śrama vāhanī.\(^\text{17}\)

**ta din gi ṇa tom** is typically played as \(\text{̄}3 1 3 0.\)\(^\text{18}\) The percussive attack and volume of the initial syllable, **ta**, is heard in the sharp sound of the unison, damped

\(^\text{16}\) Other filled-out substitutions, also easily identified by their final syllable, include: **ta • di • ta • ki ṭa tom •, ta • di • ta ri ki ṭa tom •, ta ri ki ṭa ta ri ki ṭa tom •, and num • gi ḍu ta ri gi ḍu tom •.\(^\text{17}\) According to Govindarajan, Sharma’s positional solkaṭṭu for the five-syllable phrase is **ki ṭa di num dum** (pers. comm. 01/30/08).\(^\text{18}\) The valantalai strokes take advantage of the split-hand playing technique, in which the middle, ring, and pinky fingers strike in counterbalance to the index finger. The final **tom**, played on the toppi, provides a clear finish to the phrase while freeing the other hand for an immediate return to the valantalai. In addition to the common practice of leaving off the initial damped toppi stroke, \(\text{̄}\), other fingerings also exist. Nelson, for example, has shown me a dance version of **ta din gi ṇa tom** played as
strokes on both drumheads. Though articulated with both hands, this initial ta is nevertheless reminiscent of the initial śrama vāhanī. The second stroke, matched to din (or often, di), is played with the index finger in the center of the spot and produces a unique popping sound. Contrasted with its neighbors, it creates a darker sonic palate in line with the lowered intonation produced by [d]. Its position in the sequence parallels di in the śrama vāhanī. The third syllable, gi, is played as a three- (or at times two-) finger damped stroke on the spot. The clear attack of this stroke reflects the rising intonation produced by the IP of [i]. It is also a heteronym of ki, the first of the filler solkaṭṭu played with the same stroke. The stroke for ṇa, played on the outer skin of the valantalai, has a resonance reflective of the nasal consonant and matches the fourth śrama vāhanī. Finally, tom, played identically to the open bass-stroke on the toppi from the first series, provides closure to the phrase. Its timbre is a close match to the depth and prolongation of the solkaṭṭu syllable. That all the śrama vāhanī, plus a stroke/syllable from the first extension of that series, are either represented or referred to in this unit further strengthens the stroke to syllable association of ta din gi ṇa tom. These adherences also make drummed versions of ta din gi ṇa tom eminently recognizable.

The alternating-hand fingering of this version supports the speed and volume often necessary in dance accompaniment.

19 At times, especially in slower tempos, this syllable is played as the open tone, dim. The sound is produced as an un-damped stroke on the valantalai, played either with (three or) four fingers, or the index finger alone, striking the edge of the black spot. Although the tone of dim is generally considered to be a half step above (or major seventh below) the tonic, some acoustic researchers have suggested that dim itself is the fundamental (see Rossing 1982; Ramakrishna 1954). According to Thomas D. Rossing and W. Arnold Sykes, “this implies that the pitch produced by the other strokes is that of the second harmonic rather than the fundamental” (1982:64).
Although *ta din gi ṇa tom* may be more sonically matched to its mṛḍaṅgam realization than other solkaṭṭu with fixed patterns, it is similarly linked to specific fingerings. As with other fixed phrases, the process of identification between spoken and played patterns is bi-directional. Solkaṭṭu phrases can serve as mnemonics for specific fingering patterns, and a played pattern may be perceived as specific syllables. With fixed phrases, connections are made on the unit, rather than pulse level. Yet for the drummer, and experienced listener, the consistent paring of solkaṭṭu phrases and stroke patterns creates an intimate and durable link between the two.

**Conditional Pairings**

Along with fixed phrases come a number of conditional pairings in which solkaṭṭu units and stroke patterns demonstrate decidedly non-linear relationships. This regularly occurs with extremely dense drumming. According to mṛḍaṅgam artist Satish Kumar, when the mṛḍaṅgam note-rate is fast, “it’s very, very different; very, very difficult. If you say the solkaṭṭu how you are playing, you can’t say it fast [enough]. And if you play the [strokes] you are reciting, you cannot frame the beauty of the instrument” (pers. comm. 02/22/09). If one is called upon to recite drumming that is too fast to say, simpler solkaṭṭu is substituted as an analogue. Otherwise, notes Karthick, “in that tempo, if the mind says that you can play, you’ll play: only the mind should say” (pers. comm. 02/10/08).

When strokes and syllables are moving at the same speed, conditional pairings are still common. Consider *ta • di •*, which is a standard two-syllable kōrvai opening. This solkaṭṭu can be played in a number of ways, depending on the context. For example, if it is followed by the stroke 3, as in, *ta • di • ta ka di na* (where *ta ka di*
na is played as 3 ō ōo 3) it is usually played as 3 • 1 •. Here, the 3 1 3 sequence, going from ta • di • to the subsequent ta, takes advantage of the split-hand playing technique on the valantalai. However, when followed by 3 on the toppi—i.e., ta • di • ta lan • gu—it is likely to be 3 • 3 •, emphasizing the attack of the 3 stroke for both syllables. This, however, is far from a fixed rule; the variability of these pairings further emphasizes their conditionality.

In addition to changing between compositions, conditional pairings may be adjusted within a single piece. For example, the 3 • 1 • valantalai fingering for ta • di • is used in the first line of the following körvai:

Example 38: körvai opening line

\[
\begin{align*}
\text{ta} & \quad \text{di} & \quad \text{ta} \quad \text{ka} \quad \text{di} \quad \text{na} \quad \text{tam} & \quad \text{ta} & \quad \text{din} & \quad \text{gi} \quad \text{ṇa} \quad \text{tom} \\
\text{3} & \quad \text{1} & \quad 3 & \quad ō & \quad ōo & \quad 3 & \quad ōn & \quad \text{1} & \quad 3 & \quad n & \quad ō
\end{align*}
\]

In the next iteration of the line, the first two pulses are left off (see ex.39):

Example 39: körvai second line

\[
\begin{align*}
\text{di} & \quad \text{ta} & \quad \text{ka} & \quad \text{di} & \quad \text{na} & \quad \text{tam} & \quad \text{ta} & \quad \text{din} & \quad \text{gi} & \quad \text{ṇa} & \quad \text{tom} \\
3 & \quad 3 & \quad ō & \quad ōo & \quad 3 & \quad ōn & \quad \text{1} & \quad 3 & \quad n & \quad ō
\end{align*}
\]

Instead of di being played as 31, as it was in the first line, it is realized as 3. Not only does this flow more easily from the preceding n on the valantalai (again following the logic of the split-hand technique), it also clearly marks the opening of the second line by relying on the sharper attack of the 3 stroke versus the duller timbre of the 1.

Although common to mṛdaṅgam composition, the syllables ta and di appear throughout the more general body of counting solkaṭṭu. Because such syllables represents rhythmic action in numerous forms, it is, perhaps, unsurprising to see a

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20 A unison 3 (on the toppi) may be added to both strokes for emphasis.
phrase drawn from them linked to multiple fingerings. Other counting phrases, including ta ka di mi ta ka jo ṇu, ta ka di mi ta ki ṭa, and ta ki ṭa, have no designated fingerings. Instead, their mṛdaṅgam realizations are entirely dependent on the context in which they are deployed.

In some cases, however, solkaṭṭu phrases with exceedingly strong ties to mṛdaṅgam sounds are also subject to conditional adjustments. The phrase gu gu na na, for example, is typically played as ō ō n n. Both the solkaṭṭu and fingering, according to mṛdaṅgam vidvan and Palani disciple, Dorai, are specific to the Pudukkottai style (pers. comm. 02/12/09). This is especially true for the first two open bass notes recited as gu gu. “In the other [i.e., Tanjore] style,” Dorai notes, “they are not having the double dum starting words. […] That is our own school’s specialty” (ibid.). In this phrase, the muted attack of the voiced velar [g] and the lowered intonation of [u] make gu gu an especially choice sonic pairing to the open bass strokes, ō ō. Likewise, the following nasal alveolar solkaṭṭu, na, with the high ID of its vowel, is conventionally paired with the resonant valantalai stroke, n. This fingering, played on opposite heads and covering much of the instrument’s sonic range, beautifully captures the contrast between the solkaṭṭu gu and na.

And yet, in an 80-pulse kōrvai Nelson learned from Ranganathan, who was Palani’s first disciple, the solkaṭṭu–stroke designation of this specialty phrase is inconsistent. The solkaṭṭu unit appears in two five-syllable variations, gu gu na ku ku and gu gu na na ku. If the phrases were played according to the Pudukkottai model, they would both begin with two open toppi strokes, Dorai’s “double dum.” However,
only the second fingering, ō ō n n ŭ for gu gu na na ku, matches that expectation.

The first confounds it. Instead of ō ō, it begins with 1 ŭ.

This discrepancy can be explained, in part, by context. In the basic khaṇḍa

gati rendering of this kōrvai, gu gu na ku ku falls on beat three and gu gu na na ku

on beat five (see ex.40):

Example 40: 80-pulse Palani kōrvai, lines 1 and 2 (khaṇḍa gati)

|ta • ta jem •|jem • ta ri ta|gu gu na ku ku|ta • di • •|
|3 • 3 ōō •|ōō • 3 1 3|1 ŭ n ō ō|3 • 1 • •

|gu gu na na ku|din • din • gu|di ku na ku ku|ta • di • •|
|ō ō n n ŭ|d • d • ŭ|1 ŭ n ō ō|3 • 1 • •

The double ō of the second phrase comes after a two-pulse pause in beat four. This setting corresponds to Dorai’s statement on the Pudukkottai placement of gu gu, played as ō ō, at the beginning of a phrase. In contrast, the 1 stroke beginning the phrase on beat three, where the solkaṭṭu and fingering diverge, flows directly from the 3 1 3 strokes ending the previous beat.

While this local context supports the alternate fingering for gu gu na ku ku, a deeper analysis of the overall stroke pattern offers more insight into the stroke–
syllable coordination. The fingering 1 ŭ n ō ō of beat three into 3 • 1 • • (ta • di • •) of beat four acts as an antecedent for the same fingering in beats seven and eight (see ex.41).

Example 41: antecedent consequence fingering in beats 3–4 and 7–8

|ta • ta jem •|jem • ta ri ta|gu gu na ku ku|ta • di • •|
|3 • 3 ōō •|ōō • 3 1 3|1 ŭ n ō ō|3 • 1 • •

|gu gu na na ku|din • din • gu|di ku na ku ku|ta • di • •|
|ō ō n n ŭ|d • d • ŭ|1 ŭ n ō ō|3 • 1 • •
In addition, the solkaṭṭu phrasing adds another layer of interest. gu gu na ku ku of beat three is closely connected to gu gu na na ku in beat five and is then restated (in part, i.e. di ku na ku ku) in beat seven (seen ex.42).

Example 42: solkaṭṭu theme

```
|ta • ta jem • |jem • ta ri ta |gu gu na ku ku |ta • di • *
|3 • 3 ōo • |ōo • 3 1 3 |1 x n ō ō |3 • 1 • *
|gu gu na na ku |din • din • gu |di ku na ku ku |ta • di • *
|ō ō n n x |d • d • x |3 x 1 ō ō |3 • 1 • *
```

These three solkaṭṭu units create a theme beyond the fingering—gu gu na ku ku to gu gu na na ku to di ku na ku ku (each followed by a five-pulse phrase emphasizing pulses one and three).²¹ Coming after the relatively spacious |ta • ta jem • |jem • ta ri ta of the first two beats, the conditional matching of solkaṭṭu and fingerings allows for such added musical interest.

**Fluidity Between Strokes and Syllables (in Kaṇakku)**

As the preceding example demonstrates, by avoiding restrictive pairings artists can express compositions in both solkaṭṭu and drum strokes without one medium obstructing the other. The fluid relationship between them is also central to navigating complex kaṇakku structures. To demonstrate, I recall Nelson’s pedagogical approach to the first four phrases of a gopucca yati section in another Palani körvai (see ex.43).

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²¹ The next five beats of the composition play with phrases from the first ten pulses (without returning to gu, na, or ku) before finishing with a mōrā comprising three statements of ta din gi ṇa tom with gaps of zero.
The syllables and strokes of opening line indicate a 3, 3, 2, 2, 2, 3 pulse-structure. However, the subsequent reductions by increments of two conflict with the two groups of \textit{tan ta ku} (played as \textit{ö\textbackslash{n} 2 ō}) beginning the line. As a result, the performer must make a challenging transition from the final \textit{gu} of the first line to \textit{ku} in line two. Not only is it unexpected vocally, because \textit{ku} is the third syllable of an obvious unit, it is awkward to play. To account for the latter, the fingering must be adjusted. Instead of playing \textit{tan • gu} as \textit{ö\textbackslash{n} • ō} at the end of line one, it becomes \textit{ö\textbackslash{n} • 3}. The substitution of 3 for ō avoids a confusing double bass tone connecting the two lines. Thereafter, \textit{gu} is played in more typical fashion, as ō.

When I was struggling to perform this passage on mṛdaṅgam, Nelson suggested reciting (and thinking) \textit{ta ta ki ṭa ta ka} instead of \textit{tan ta ku tan ta ku}. This alternate solkaṭṭu has the advantage of being easily reduced by units of two. With this change the first four lines become:
Example 44: 80-pulse Palani körvai excerpt (alternate solkaṭṭu)

\[
\begin{align*}
\text{ta} & \quad \text{ta} \quad \text{ki} \quad \text{ṭa} \quad \text{ta} \quad \text{ka} \quad \text{din} \quad \text{•} \quad \text{din} \quad \text{•} \quad \text{ta} \quad \text{•} \quad \text{tan} \quad \text{•} \quad \text{gu} \\
\text{ki} & \quad \text{ṭa} \quad \text{ta} \quad \text{ka} \quad \text{din} \quad \text{•} \quad \text{din} \quad \text{•} \quad \text{ta} \quad \text{•} \quad \text{tan} \quad \text{•} \quad \text{gu} \\
\text{ta} & \quad \text{ka} \quad \text{din} \quad \text{•} \quad \text{din} \quad \text{•} \quad \text{ta} \quad \text{•} \quad \text{tan} \quad \text{•} \quad \text{gu} \\
\text{din} & \quad \text{•} \quad \text{din} \quad \text{•} \quad \text{ta} \quad \text{•} \quad \text{tan} \quad \text{•} \quad \text{gu}
\end{align*}
\]

Now the opening of each line forms a coherent structure: a six pulse unit, \text{ta ta ki ūta} in the first is followed by the four-pulse \text{ki ūta ta ka} in the second, and then the two-pulse \text{ta ka} in the third. Keeping this version in mind helps in reducing the first six strokes (which are fingered as two groups of three) by increments of two. In essence, the alternative phrase acts as conceptual counting solkaṭṭu—not tied to the fingering—aiding in the performance of this tricky passage.

\text{ta ta ki ūta ka} also proves easier to recite at faster tempos. This is achieved through coherent phrase reductions and by avoiding slow solkaṭṭu such as \text{tan}, with its sustaining terminal consonant [n] and \text{ku}, which has the high ID vowel [u]. Speed becomes a challenge to the original fingering as well. Therefore, Nelson also offered an alternative fingering for the first six strokes. Instead of \text{ōn 2 ō ōn 2 ō}, \text{ta ta ki ūta ta ka} is played as \text{3 1 ū3 3 ū} (pers. comm. 04/24/12). Not only is this fingering faster, it can easily be divided according to the kaṇakkku of the körvai, thereby matching Nelson’s alternate solkaṭṭu.\textsuperscript{22}

The progression from the original solkaṭṭu and strokes, to the alternative solkaṭṭu used to clarify kaṇakkku and aid in performance, and finally to matching fingerings for the new solkaṭṭu demonstrates the intricacy with which strokes and

\textsuperscript{22} Discussing his conception of this fingering, Nelson told me “I was thinking of it as four plus two” (pers. comm. 04/24/12). Interestingly, this contrasts with a reading of the solkaṭṭu as \text{ta ta} plus \text{ki ūta ta ka}, two plus four, thereby bringing another possible divergence between strokes and syllables to light.
syllables relate and how that relationship can be exploited in pedagogy, for analysis (such as this one), and in performance. In the first and final stages, the solkaṭṭu serve as aesthetically appropriate renderings of the composition, flowing in parallel to the drumming pattern. In the intermediate stage, when the strokes and syllables diverge, solkaṭṭu fulfills its role as the conceptual medium enabling drumming performance.

**Solkaṭṭu and Other Percussion**

The fluidity between solkaṭṭu and mṛdaṅgam strokes has broad implications for drumming. Not only do specific phrases refer to a variety of mṛdaṅgam fingerings and sounds (and vice versa), the same solkaṭṭu are shared among players of other percussion instruments. The variety of percussion heard on the karṇāṭak stage is coordinated according to this common, mṛdaṅgam-related solkaṭṭu. Sometimes this is quite explicit. Suresh, for example, describes how he and his colleagues communicate compositional ideas through solkaṭṭu. “Casually we discuss it; one says ‘I have composed a koraippu like that,’ then this guy suggests something else. Suddenly we decide, ‘Let’s play this this evening.’” Such conversations, which are likely to take place during travel, are “all in solkaṭṭu, you don’t play with the instruments” (pers. comm. 02/05/08). That rhythmic action among instruments with starkly different playing techniques, timbres, and sonorities is seamlessly communicated and conceptualized according to a (mostly) standard solkaṭṭu (and system) is consistent with the larger South Indian context. As Suresh notes, “when you say solkaṭṭu, the instrument reference gets less and less important. It’s the solkaṭṭu which is the basic and common thing that is applied to all instruments” (ibid.).
In contemporary practice, the so-called *upa pakkavādyam* (Skt. “secondary percussion instruments”)\(^{23}\) comprise ghaṭam, kanjira, morsing, and more rarely, konakkol.\(^{24}\) Economic pressures on organizers, along with the downplaying/downsizing of percussion in the aesthetics of “classical” music, have made concerts with large percussion ensembles a rarity (see ch.2). As such, many karnāṭak concerts take place with mṛdaṅgam as the sole rhythmic accompaniment. When other percussion is included, a single addition is most common. Many artists I spoke with expressed nostalgia for the days of the “full bench,” in which the entire ensemble was present, the level of rhythmic play and invention was exceedingly high, and the tani would last an hour or more. In these recollections, konakkol is often placed in the leadership role (see pp.203–06).

When another percussionist is present, the mṛdaṅgam player leads in both song accompaniment and the tani āvartanam. During accompaniment sections, mṛdaṅgam dictates when the ensemble percussionists play as well as the density and style of their accompaniment. A successful ghaṭam or kanjira player, for example, must compliment the mṛdaṅgam player’s approach to musical accompaniment while also supporting the main (melodic) artist. Mṛdaṅgam similarly organizes the development of the tani, implementing speed and gati changes, structuring the

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\(^{23}\) Although the term *upa pakkavādyam* is commonly used to describe the role of the supporting family of percussion, some of the artists I have spoken with find it pejorative. As such, I will limit my use of it here.

\(^{24}\) On occasion, instruments associated with other traditions, such as tablā, dholak, tavil, and cēṇṭa, or exotic instruments such as *jalatarāṅg* (bowls tuned with water), are added to the percussion lineup. Nevertheless, with the exception of nāgasvaram and tavil (which are sporadically staged in a concert rather than temple format), appearances of these percussion instruments are usually limited to non-conventional settings such as the all-percussion *tāḷa vādyava kacheri*. 
sections, koraippu, pharan-s, the perīya (“big”) mōrā, and final kōrvai. The other percussionists are expected to play appropriate (and shorter) turns complementing the aesthetics, and many aspects of the kaṇakkku, set out by the mṛdaṅgam artist.

Meeting these demands requires a great deal of skill. Artists must grasp what the lead drummer is playing, anticipate what comes next, and immediately respond. Given the penchant for unison playing in both melody and rhythm, the room for error is often quite slim. To be successful, notes Karthick, “they need to know the mṛdaṅgam technique as well as the mṛdaṅgam syllables” (pers. comm. 02/10/08). In other words, they must know the mṛdaṅgam strokes, the solkaṭṭu they convey, and the guiding rhythmic theory. Moreover, these percussionists need a large working knowledge of particular mṛdaṅgam players’ accompaniment styles, compositions, and approaches to rhythmic development.25

**Common Solkaṭṭu, Common Pedagogy**

Because the large majority of kanjira, ghaṭam, and morsing artists first learned mṛdaṅgam, translating mṛdaṅgam fingerings into solkaṭṭu phrasing comes naturally. As ghaṭam vidvan Suresh, who began his training on mṛdaṅgam with Harihara Sharma, told me, “when I listen to mṛdaṅgam ta din din na, that’s how it goes in my ear: ta din din na. It’s not num din din num” (pers. comm. 02/05/08). Though num din din num is a closer representation of the stroke positions, Suresh’s ear is tuned to hear this pattern according to the aesthetically appropriate solkaṭṭu rendering.

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25 By constantly performing with mṛdaṅgam artists from different training backgrounds, percussionists gain a distinct perspective on the practical implications of lineages. Their professional lives hinge on their awareness and adaptability to different mṛdaṅgam settings. As such, notes Karthick, “the styles are well kept by the kanjira-ghaṭam-morsing artists” (pers. comm. 02/10/08).
Hearing mṛdaṅgam this way, players of other percussion locate it in the same conceptual-syllabic medium with which they hear their own instruments. Even those rare karṇāṭak percussionists who train exclusively on instruments other than mṛdaṅgam have learned according to the same paradigm. In that way, notes Satish Kumar, “we try to bring everything under one roof” (pers. comm. 02/22/09). Karthick emphasizes this when he notes, “for me, right from ta di tom num is ghaṭam” (pers. comm. 02/10/08). This declaration of independence from mṛdaṅgam technique simultaneously pledges Karthick to the traditional training scheme beginning with the śrāma vāhanī.

Common solkaṭṭu phrasing and a well-defined training system—in which playing technique (as strokes) has a flexible relationship to material and theory (as solkaṭṭu recited with tāla)—enable widespread cross-instrumental training and communication among percussionists.\(^\text{26}\) It also supports the variety of percussion instruments present in contemporary karṇāṭak practice. Such multiplicity, based on the vocalization of syllabic patterns, is not new to South Indian music. It is seen throughout the treatises and in sampradāya. In the South Indian context, notes Ramanathan, “there’s never been a controversy when new instruments come. […] The whole community of karṇāṭak musicians and lovers filters out the timbre and listens only to the music; it doesn’t question the instruments and [their] timbre” (pers. comm. 02/18/08). Even today, educators are applying the solkaṭṭu training system to

\(^{26}\) This is similar to the melodic system in which singers and instrumentalists can be trained by one-another because of their allegiance to an overarching, vocal-based aesthetic.
instruments with radically distinct sounds and techniques not-traditionally associated with kannāṭak music.²⁷

Specialized Syllables

Despite sharing a body of solkaṭṭu rooted in a common pedagogy, “each instrument,” as Sundaram notes, “has its own language” (pers. comm. 12/12/08). Certain distinct syllables and phrases are uniquely associated with different instruments, according to their sonic peculiarities as well as differences in fingerings and playing techniques. Some of these solkaṭṭu are highly idiosyncratic, being the product of an individual player’s imagination, while others are codified by tradition. In the following sections, I present three examples of instrument-specific solkaṭṭu associated with tavil, ghāṭam, and morsing. Although a full accounting of specialized percussion solkaṭṭu will have to wait for future research, these examples demonstrate three very distinct instrument-to-solkaṭṭu relationships and their place in the broader scheme.

Tavil

Tavil is, in many ways, a separate tradition from mṛdaṅgam and the other kannāṭak percussion instruments.²⁸ Unlike the varied kannāṭak percussion performed

²⁷ For example, while talking to the renowned kannāṭak musician T.V. Gopalakrishnan (TVG) in his Chennai-based music academy, I overheard a lesson on “drums” taking place in an adjacent studio. I had previously seen such drum set sample pads, played with sticks while sitting on the floor, used in a tālā vādyā kacheri. Until that moment, however, I had not considered how one was trained in “drums.” When asked, TVG assured me that “it is the same, beginning with ta di tom num” (pers. comm. 03/20/08). In a similar vein, Indian percussionist Ganesh Anandan (2004) designed a training method for the large bodhran (frame drum) explicitly following traditional mṛdaṅgam pedagogy. For more on the application of the solkaṭṭu system to non-Indian instruments and pedagogies, see pp.234–45.

²⁸ According to Peterson and Soneji, the reformation project of the early 20th century located the periya mēḷam (which is the main setting for tavil) and the bharatanatyam cinna mēḷam as the “most important ‘other’ against which the classical was constructed. […] An initial shift was towards the demotion of the music—both the repertoire and the performance—of the periya mēḷam performers from the status
in ensembles, this intense and loud barrel drum is traditionally the only percussion accompaniment to nāgasvaram. In this setting, players have developed unique performance practices and complex kanakku, which often goes well beyond that of mṛdaṅgam players. Nevertheless, tavil players’ training follows a very similar trajectory to mṛdaṅgam and the other karṇāṭak percussion, with solkaṭṭu playing similar roles. Syllables indicate strokes, and are central to the conceptualization, composition, and communication of rhythmic materials. Moreover, there has been significant crossover between mṛdaṅgam and tavil, most notably in the latter’s influence on the Pudukkottai lineage.

Tavil players begin with the same śrama vāhanī—ta di tom num—and introductory sequence of doublings and filler strokes described earlier (Santhakumar pers. comm. 04/26/08). However, solkaṭṭu including ku, kun, and kum, along with p´ (in the combination p´ lan • gu) are quickly introduced to account for stick and thimble sounds that are unique to tavil. Patterns indicative of fingerings use onomatopoetic syllables, such as these, along with more typical solkaṭṭu. Whereas for mṛdaṅgam, more complex stroke-syllable relationships soon eclipse the one-to-one correlation implied by onomatopoeia, in tavil playing this relationship persists.

Sundaram spells out this “remarkable” distinction by noting, “all the syllables for

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29 Tāḷa is audibly kept with a pair of small cymbals in periyā mēḷam performances. This purely time-keeping function, however, fundamentally differentiates it from other South Indian percussion accompaniment.

30 The founder of the school, Pudukkottai Mamundia Pillai, who is credited with bringing kanjira to the karṇāṭak stage, was a disciple of tavil vidvan Tirugokarnam Mariappa Pillai. The most notable player in subsequent generations of the Pudukkottai school, Palani Subramania Pillai, was also taught by a tavil player: his father, Palani Muthia Pillai, who began his career on the temple drum before turning to mṛdaṅgam.
Tavil are sounded only in the same place, as taught during the early practicing sessions, even where they are executed in any phrase and even at an incredible speed” (1996c:7–8).

The impact of tavil-specific syllables results in solkaṭṭu that, as Karthick suggests, “sounds very tavil-ish” (pers. comm. 02/10/08). Because it is so deeply referential to tavil fingerings and playing techniques, some karṇāṭak percussionists I spoke with find this solkaṭṭu difficult to decipher, thereby deepening the divide. Nevertheless, tavil artist Santhakumar claims, “the solkaṭṭu-s are all the same, only the fingering is different” (pers. comm. 04/26/08). This sameness, though, refers to underlying structures and processes—which Nelson has called “the conceptual analytic layer”—shared between the two traditions (pers. comm. 11/02/04). In this layer, ta ka ta ki ṭa, ta din gi ṇa tom, ta di ki ṭa tom, and (the five-syllable tavil phrase) ta di ki ṭa kum are all the same.

Ghaṭam

In contrast to tavil, ghaṭam is definitively within the karṇāṭak family of percussion and (in that context) is almost always played in conjunction with mṛdaṅgam. In fact, a number of ghaṭam artists have succeeded by applying mṛdaṅgam fingering (and their associated solkaṭṭu) directly to the clay pot. Others have developed speed, precision, and acoustic beauty using what Karthick classifies as, “authentic ghaṭam fingerings” (pers. comm. 02/10/08). These fingerings take advantage of the shape, construction, and playing possibilities of the instrument. Such players can, for example, produce bass tones with the base of either hand and on the

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31 See Sundaram (1996b) for a detailed history of ghaṭam and ghaṭam artists.
mouth of the instrument. Likewise, with split-hand patterning, alternating 1 and 3 strokes from both hands, they easily execute extremely note-dense passages.\textsuperscript{32}

Exclusive ghaṭam fingerings, like other rhythmic materials, are conceptualized and communicated through solkaṭṭu. As with tavil, certain strokes are called by unique syllables: i.e., the 1 that alternates between hands can be called ti, and the bass tone produced over the mouth of the instrument, gum (Karthick pers. comm. 02/10/08).

Ghaṭam players also design special solkaṭṭu phrasing to account for patterns using exclusive fingerings. Suresh, for example, recites patterns beginning with double bass using gu μu, as in gu mu ta na or gu mu ta ka (pers. comm. 01/21/09). For alternating split-hand 1s and 3s, Karthick recites ti ki ṭa ka (pers. comm. 02/10/08), while Suresh uses ti ri ki ṭa (pers. comm. 04/07/08). Although their phrases differ, reflecting the idiosyncratic nature of ghaṭam solkaṭṭu, both incorporate ti. The sharp dental consonant and high IP, low ID vowel combine to produce a staccato syllable reminiscent of the metallic sound of the 1 stroke on the clay idiophone. As with tavil solkaṭṭu, the onomatopoetic elements in this phrasing give it a “ghaṭam-ish” flavor.

Because ghaṭam players (unlike tavil players) must constantly coordinate their playing with mṛdaṅgam, they inevitably connect their fingerings to standard mṛdaṅgam solkaṭṭu. Executing mṛdaṅgam-related phrases with ghaṭam fingerings is natural, although the aesthetics of the instrument—with little sustain and the possibility of extremely rapid phrasing— influences exactly how common phrases

\textsuperscript{32} This particular technique, explains Karthick, is “very special for ghaṭam because of the use of [the second index] finger alone. That makes it very easy for paying faster phrases on ghaṭam” (pers. comm. 02/10/08).
will be played. While in one context ghaṭam artists will articulate their phrasing using ghaṭam solkaṭṭu, they seamlessly switch to more general syllables when needed.

**Morsing**

As part of the karṇāṭak family of percussion, morsing artists also draw from the shared body of solkaṭṭu. Here, however, the vocal artifact plays a more prominent role. As morsing vidvan, Srirangam Kannan told me, when playing morsing “I’m reciting all the syllables, […] but you cannot hear this. Because it is coming out of the instrument, you can hear only the morsing sound” (pers. comm. 12/14/08). As a product of recitation and plucking, articulations on morsing are necessarily slower than on mṛdaṅgam, not to mention ghaṭam. The resulting sonorous patterns, emphasizing the śruti of the instrument, reside much closer to the solkaṭṭu phrasing underlying rhythmic performance than to solkaṭṭu’s percussive analogues.

Even though the solkaṭṭu recitation is silent during morsing, artists such as Kannan are fully cognizant of the syllables they are using. Because of the location and playing technique of the instrument, this vocabulary is modified from mṛdaṅgam solkaṭṭu. For example, Kannan recites the solkaṭṭu phrase ta • dit • ta ka di na din • ta • tam • • • as ṭa • di • ta ka di gi di • ṭa • ṭa • • • when morsing (pers. comm. 12/14/08). With the change to retroflex consonants, he moves the pronunciation back in the vocal cavity and away from the instrument. At the same time, the labial [m] and

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33 In some cases, a ghaṭam player will chose a denser or alternate version because, as Suresh notes, “If I exactly repeat this on ghaṭam, it won’t be aesthetic” (pers. comm. 01/21/09).
34 The same type of switching occurs among the other karṇāṭak percussives. For example, a kanjira player who has no special stroke for cāpu or aria cāpu will nevertheless recite ta lan • gu while playing the analogous strokes pattern.
35 For a history of the jaw harp in India, see Bhimachar (1996).
extending nasal [n] are no longer necessary (or possible) as the instrument provides sustain. Similar transformations take place throughout his repertoire. “Everything,” says Kannan, “I will convert in this fashion” (ibid.). Everything being the recited solkaṭṭu repertoire, otherwise known as konakkol, “because,” adds Kannan, “morsing is based on konakkol. […] I also say the konakkol” (pers. comm. 12/27/08).

**Konakkol**

Some musicians and authors use the term “konakkol” to describe recited solkaṭṭu across a range of contexts: solkaṭṭu spoken in lessons, syllables vocalized with tāḷa to work out phrasing, the casual sharing of compositions among percussionists, silent solkaṭṭu articulations with morsing, and solkaṭṭu recited aloud as performance all qualify. Here, I reserve the term only for the last of these. By focusing on konakkol as performance practice, I avoid some of the more confusing overlap taking place in discourses on solkaṭṭu. Furthermore, this stance allows me to analyze konakkol as one of solkaṭṭu’s many facets. Nevertheless, the visibility of konakkol, as performance practice, requires the following detailed contextualization.

Sundaram traces the etymology of konakkol to the Tamil words *konippu* (“orally reciting the rhythm syllables”) and *kol* (“presentation”), defining it as “presenting the rhythmic syllables orally” (1996a:36). The modern form of konakkol emerged on the karṇāṭak stage in the early 20th century as a reimagining of naṭṭuvangam (dance recitation) combined with drumming solkaṭṭu. Although konakkol is rarely performed in contemporary karṇāṭak concerts it has a high profile.

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36 This is not a radical delineation as many others also limit konakkol to performed solkaṭṭu. The flexibility of South Indian terminology affords such leeway (not to mention the fact that my teacher also follows this model, making my usage comfortably within sampradāya).
in India. Konakkol is heard in the ubiquitous film music, television soundtracks, percussion concerts, and collaborative (or “fusion”) musics. It also frequently appears as a topic in academic and popular writings on Indian music and is increasingly practiced overseas. This has led to an influx of foreigners studying konakkol in India, further increasing its visibility.

The attraction of konakkol varies according to the setting. The speed and clarity of this vocal percussion is often dazzling, as witnessed in Ayyangar’s florid accounting of a performance by “Konakkol” Pakkiria Pillai:

> It was a paroxysm of tense excitement one moment and a solemn, awe inspiring trance the next moment for a whole audience, when the late Konakol Pakiri bore his listeners aloft on a magic carpet, a torrential flood of the most intricate rhythm reeled off with the speed of a lightning spanning the spacious firmament. (1978:284)

In addition to its beauty, the orality of konakkol holds a deep appeal in the Indian context. Rasika K. Krishnamurthy sums this up from his perspective as an informed listener. “Konakkol is to mṛdaṅgam,” he says, “as the human voice is to a flute or a violin or a vīṇā. Instruments have their place, they are charming in their own way, but the human voice beats them” (pers. comm. 01/26/09).

In addition to being the prime medium of for music, the human voice “beats” mṛdaṅgam because it simultaneously conveys the performance (as konakkol) and construction (in solkaṭṭu structures) of South Indian rhythm. Whereas drummed (or danced) compositions may appear opaque to many listeners, konakkol quite literally spells out rhythmic phrasing, structures, and compositions. The draw of clarity and

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37 Lisa Young (1998) and Raphaëlle Brochet (2010), for example, both wrote Master’s Theses on konakkol (pp.18–19). Young is currently finishing a dissertation on the subject.
beauty in these voiced rhythm syllables leads to periodic public laments on the decline of konakkol in kānṭāk music, along with appeals for its reintroduction. These often-passionate odes to konakkol tend to share two legitimating narratives: (1) they connect konakkol to the ancient history and mythology of Indian music and dance; (2) they recall an earlier era of kānṭāk music in which konakkol took center stage. The former can come across as hyperbolic when, for example, authors conjecture konakkol was practiced in the Indus Valley Civilisation. But if konakkol is understood broadly, as all recited solkaṭṭu, Sundaram’s conclusion, that “we may rest assured that Konakol took its birth, simultaneously, with the appearance of dance and other percussive instruments in our land,” may not be so far fetched (1995:67).

While the ancient history of konakkol is conjectural, its more recent ascendant era is well known. More specifically, reflections on the “full bench” accompanying singer Kanchipuram Naina Pillai (1889–1934) portray percussion-heavy and laya-focused concerts taking place in the first decades of the twentieth century. In this format, konakkol vidvan Mannargudi Pakkiria Pillai (1867–1937), also known as Konakkol Pakkiria Pillai, is credited with elevating the art of reciting syllables to the concert stage. His eminence as a konakkol artist—“dreaded by every musician of his

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38 For examples, see Lalitha and Nandi 2012; Venkatakrishnan 2009; and Sundaram 1995.
39 For example, see Hartigan (1986:1236) and Lalitha and Nandi (2012:38).
40 According to *Sruti* magazine staff, “the term ‘full bench’ is used to describe the court when it is convened with all the judges taking part in it” (1984:24). In this analogy, Naina Pillai serves as the Honorary Magistrate presiding over the court of percussionists. Along with violin, his accompaniment usually comprised mṛdaṅgam, kanjira, ghāṭam, dholak, morsing, konakkol, and sometimes the gettu vadyam (a struck chordophone) (Venkataraman 1984:17).
41 Reports of Pakkiria Pillai’s birth date vary by approximately a decade, between 1857 and 1867. Because of his familiarity with the temple traditions in which Pakkiria Pillai was raised, I follow the latter date proposed by B.M. Sundaram (1995). Before turning to konakkol, Pakkiria Pillai first trained as a naṭṭuvanar and then on tavil (Sundaram 1996a:37) and, in some accounts, on mṛdaṅgam (Mahadevan 1994:27).
times, by virtue of his incomparable mastery in the art and precision of laya” (Sundaram 1996a:37)—was symbolically displayed by his prominent seating in Naina Pillai’s ensemble: stage left, between the violin and the audience. From this position, Pakkiri Pillai put konakkol “in the first and foremost seat and place among percussives” (Sundaram 1995:66). Although no recordings of his konakkol are available, Pakkiri Pillai’s outstanding laya skills were attested to in press and eyewitness accounts, and were carried forward by his son Vaidyalingam Pillai (1900–1974).

**Contemporary Konakkol**

Konakkol has two key features differentiating it from typical (mṛdaṅgam-related) solkaṭṭu: namely, intonation and syllable choice. Both are highly subjective and vary from artist to artist. With regard to intonation, the scholars and musicians I consulted all agree that konakkol should be recited in the śruti of the performance and with the addition of vocal modulations. These modulations are, in Subash Chandran’s words, “life-giving” (pers. comm. 02/19/08). A deeper bass tone, especially with stand-alone syllables such as tom •, and approximations of gumiki are commonly heard. See Brochet (2010), for a detailed analysis of konakkol intonation among contemporary performers.

The other factor differentiating konakkol from the larger body of solkaṭṭu is syllable choice. Sundaram proposes, “Konakkol has its own language.” And he laments, “All the konakkol players today, they have not listened to the original konakkol. So whatever they render on the mṛdaṅgam or ghaṭam or any other percussive instrument, they bring it out orally” (pers. comm. 12/12/08). Instead of
reciting drum-specific solkaṭṭu and calling it konakkol, he suggests, “the same
syllables be transposed to konakkol language” (ibid.). Dorai adds that the konakkol of
Pakkiria and Vaidyalingam Pillai conforms to neither the Pudukkottai nor Tanjore
style. Though it includes “a lot of mṛdaṅgam solkaṭṭu […], there are also some other
different type of words they used to use” (pers. comm. 02/12/09). In current practice,
the dance syllable jum is considered appropriate for konakkol. Some suggest tay,
another dance syllable, can be used, while others insist it should not. I once heard
Trichy Thayumananavan include the highly unconventional syllables ha ri and ha nu
man in a konakkol performance (12/27/08). Though players may differ on the exact
makeup of konakkol language, all agree with Suresh that when choosing what to
recite for konakkol, “you should go beyond […] in search of something which is
aesthetic, which is beautiful” (pers. comm. 02/27/08).

Karṇāṭak Aspersions
Konakkol’s karṇāṭak moment, when Pakkiria Pillai was presiding, occurred
when the concert format and aesthetic were being hotly debated (see ch.2). In the end,
writes Subramanian, Naina Pillai’s laya-heavy approach “was not necessarily seen as
the answer for articulating a new aesthetic. By the 1930s, it was clear that, for an
important section of the audience, the thrill of the full bench and the rhythm-
dominated concert were no longer as compelling” (Subramanian 2008:40). During the
Madras Music Academy inaugural 1928 concert, even Naina Pillai had to leave the
full bench at home and perform with only violin and mṛdaṅgam accompaniment

42 Coming in the perīya mōṟa, these variations gave Thayumanavan the opportunity to inject Vishnu’s
other name, Hari, and that of the monkey god, Hanuman, into his recitation. Commenting on this,
Dorai joked, “he can at least say the good word while doing the konakkol—why not? But that’s not the
original syllable” (pers. comm. 02/12/09).
In subsequent decades, konakkol receded from karnāṭak prominence. In contrast to the deep lineages of iconic players noted among the other percussives, “this art may […] be classified as a rare one, since, there were and are only few masters” (Sundaram 1996a:37).

The general decline in secondary percussion, especially of the more exotic variety, has led to a dearth of contemporary players who exclusively identify as konakkol artists: Thayumanavan and his student V.V.S. Manian were the only full-time exponents I was able to interview during my fieldwork. And even they came to konakkol from mṛdaṅgam and kanjira, respectively. In India, Suresh suggests,

> There is nobody who can develop himself as an exclusive konakkol artist. […] As a mṛdaṅgam learner, as a mṛdaṅgam student, I’m taught konakkol along with mṛdaṅgam. The syllables or solkaṭṭu are taught on a day-to-day basis, on a class-to-class basis, everyday almost. (pers. comm. 02/05/08)

While all percussionists work extensively with solkaṭṭu, beginning with the first lessons and continuing throughout their careers, even those known for their konakkol skills almost never perform it in karnāṭak contexts. Instead, they do konakkol on special occasions, such as all-percussion tāḷa vādyā concerts, lecture demonstrations, and in fusion projects.

This reticence is due to the lack of demand coupled with an undercurrent of negativity towards konakkol in the contemporary karnāṭak scene. One leading academic expressed the opinion that konakkol is, “aesthetically, an unfortunate development that has occurred in Karnatak music” (pers. comm. 10/01/06). This

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43 Murthy, for example is widely respected for his konakkol though he rarely performs it. Likewise, Subash Chandran has developed a reputation as a konakkol artist, but mainly performs overseas, sticking to ghaṭam in India (pers. comm. 02/19/08).
viewpoint is reflected in many performers’ comments. For example, a top ghaṭam player told me that someone performing konakolk on stage usually “turns out to be a nuisance” (pers. comm. 02/05/08). The same musician recounted a concert that was interrupted when the konakolk player tried to accompany the melodic soloist. The main artist stopped playing and complained: “It’s as if somebody doesn’t like my playing and is disturbing me with his talk. Ask him to stop now” (pers. comm. 02/13/08). Another senior mṛdaṅgam artist downplayed attempts at konakolk, suggested that over his long career, “I haven’t heard any konakolk artists at all” (pers. comm. 04/23/08). In this environment, it is not surprising that many artists with highly developed konakolk skills, such as Satish Kumar, will avoid doing it during a concert. “I don’t like to get into controversy. If [a percussionist] starts performing konakolk,” he says, “you cannot see him again in the next concert” (pers. comm. 02/22/09).

**Bharatanatyam**

The centrality of solkaṭṭu to rhythmic production in music is amplified, or at least made more visible, in bharatanatyam. During nṛtta—the non-representational, rhythmically driven aspect of dance—six distinct rhythmic dimensions are, at times, identifiable. The most obvious feature, with regard to solkaṭṭu, is the naṭṭuvanar’s syllable recitation. Unlike konakolk, which Sundaram (1995) described as a “vanishing art,” naṭṭuvangam solkaṭṭu is vividly displayed in bharatanatyam. In addition to reciting, the naṭṭuvanar simultaneously plays patterns on tāḷam cymbals
that align with the dancer’s movements.\(^{44}\) The dancer’s footwork and movements are coordinated through a body of solkaṭṭu known as aḍavu-s. The mṛdaṅgam player adds another layer of solkaṭṭu, in the form of stroke patterns, which more freely comment on, support, reinforce, and generally aim to enhance the effect of the dancer’s movements and the overall musical performance. These four rhythmic streams—mṛdaṅgam, aḍavu-s, tāḷam, and naṭṭuvangam—are realized within the rhythmic field of tāḷa. Likewise, sāhityam sung during dance conforms to the syllabic organization of tāḷa.\(^{45}\) Moreover, many songs used in the dance repertoire include solkaṭṭu as melodically set text.\(^{46}\) Coming in an array of rhythmic modalities, these “simultaneous performance activities” are, as Jon Higgins suggests, “all intimately related, yet to some extent also individually self-sufficient” (1987:117).

**Aḍavu**

The building blocks of nṛtta are instilled through aḍavu-s. The combination of body movements and solkaṭṭu comprising aḍavu-s are taught via a pedagogical sequence systematized by the Tanjore Quartet (Higgins 1993:5). The first four basic *taṭṭadavu* (“strike” or “stamp steps”), for example, comprise full-foot strikes coordinated with the syllables *tey* and *ya*. This series is performed in the half seated (*arai mandi*) position. In the first taṭṭadavu, alternating feet strike with *tey*, while the

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\(^{44}\) Moreover, the traditional naṭṭuvanar—who was both teacher and choreographer—would also sing, control the tempo of the dance, and conduct the orchestra in performance (Gaston 1996:109–10). However, notes Gaston, “today the skills to perform *nattuvangam* and conduct dance recitals have been acquired by many musicians (vocalists, percussionists and others). Because many of these new *nattuvanars* do not teach dance, the word *nattuvanar* may now be used for a specialist who only conducts Bharata Natyam recitals” (ibid.:110).

\(^{45}\) While sāhityam is often suspended during nṛtta, there are times (and/or styles) in which melodic lines and naṭṭuvangam solkaṭṭu overlap. One notable instance is the continuous singing of Tiruppuṭuṭṭu text with naṭṭuvangam during *alarippu* in Balasaraswati’s family style.

\(^{46}\) *Tillana, sabdam*, Tiruppuṭṭuṭṭu, and *kaṭṭuṭvam* are among these items.
foot is raised on ya and on the unarticulated pause in the phrase tey ya tey •. As with most aḍavu-s, the movements and solkaṭṭu of this taṭṭaḍavu are performed in three speeds achieved through two doublings (i.e., as a trikāla). As the dancer progresses through subsequent aḍavu-s and series, movement patterns become more complex as hand and arm gestures, head and neck movements, eye movements, steps, and body positions are varied. In tandem, new solkaṭṭu are added and syllable sequences are rearranged to coordinate each aḍavu. Phrases such as tey yum tat ta tey yum ta ha, tey ha tey hi, dit tey ta ha, and tey • di di tey • are common.\footnote{47 Many dancers I spoke with identify ta din gi ṇa tom as a “tiruṇaṭṭum” aḍavu because it often appears at the end of a jati (a rhythmic composition for dance) as part of a cadential mōrā. Nevertheless, the steps for ta din gi ṇa tom are understood more literally as the basic aḍavu phrase, tey • di di tey.} Many aḍavu solkaṭṭu are only heard in dance contexts. “Nobody,” as Sankaran notes, “uses [the] tey syllable for mṛdaṅgam, ghaṭam, or kanjira. It’s a footstep” (pers. comm. 02/24/09). Likewise, the many aḍavu syllables starting with [h], the doubled di as in (di di tey), the syllable ya, and the clearly articulated terminal dental [t] in dit and tat are almost entirely absent from mṛdaṅgam and counting solkaṭṭu.

The connection between dance movements and aḍavu solkaṭṭu is, in many ways, analogous to the stroke–syllable relationship forged on mṛdaṅgam.\footnote{48 This is reflected in the correspondence between Murthy’s language describing how “the hand speaks” in drumming (see p.129) and a Tami adage about dance, which roughly translates: “The feet should articulate/recite the syllables of the rhythm!” (Kalyanasundaram Pillai in Saranyan 2008).} Like mṛdaṅgam solkaṭṭu, the movement–syllable relationship is often non-linear. That is, one step may be called by different solkaṭṭu and vice versa. For example, tey ya tey • in taṭṭaḍavu-one signals alternating feet and in taṭṭaḍavu-two, double strikes on each side (right and left). Moreover, tey corresponds to a jump on the balls of the feet.
(with associated body movements) in the aḍavu tey ha tey hi. Syllables also often change when a movement is performed in the reverse body orientation. Higgins, for example, observes “the dependable alternation between ‘TA’ and ‘TE’, ‘DIT’ and ‘TAT’, as a standard feature of dance solkattu vocabulary. This corresponds,” he notes, “usually directly, with symmetrically opposed dance movements to right and left” (1987:111). Nevertheless, the consistent use of aḍavu solkaṭṭu throughout training, and the consistency of that training, makes these syllables an effective medium for conceptualizing and communicating aḍavu movements. As bharatanatyam and kuchipudi exponent, Amrita Lahiri, told me, “when I speak to other dancers, I keep speaking about tey ha tey hi and ta tey tey ta. So then in my mind [the aḍavu-s] are like that” (pers. comm. 03/16/09).

In addition to aḍavu-s, dancers also draw on counting solkaṭṭu to conceive and coordinate the timing of their movements. For example, the common footwork known as taṭṭumettu, which consists of continuous steps and heel strikes in any one of the five gati-s, is often taught and recited using basic solkaṭṭu units such as ta ka di mi, ta ki ṭa, and ta ka di mi ta ki ṭa. Likewise, when jumps and longer stretches of time need to be reckoned, dancers call on counting solkaṭṭu to maintain their precision. A transcription of a one-cycle section of nṛtta (in khaṇḍa ṇka ṭaḷa), transcribed for me by dancer Sakshi Kumar, reveals a typical mixing of counting solkaṭṭu and aḍavu-s (see ex.45):

Example 45: aḍavu transcription
ta ki ṭa ta ki ṭa ta ki ṭa ta ki ṭa tey • ha • tey • hi •
Here, four groups of three syllables, coordinating four leaps, are followed by the aḍavu, tey ha tey hi, at half speed. The counting solkaṭṭu give the dancer a foothold in the syllabic time flow of the tāḷa, thereby ensuring the correct temporal placement of the leaps. And just as musicians count pauses in solkaṭṭu, so too do dancers. As kuchipudi dancer, Chitra Kalyandurg, notes, “there are sometimes when you’re thinking syllables without movement. If there’s a kārvai of ta ka, you use that; it’s important to count the gaps, then it makes you precise” (pers. comm. 12/10/08).

**Naṭṭuvangam**

Precision is heard in the unison sounding of steps (amplified in performance by ankle bells (Tamil “salaṅgai”)) and the naṭṭuvanar’s tāḷam playing. This pair of heavy cymbals—measuring approximately two and three inches in diameter—is usually made of brass and iron and produces open and closed sounds plus variations. The naṭṭuvanar uses tāḷam to guide and reinforce the dancer’s aḍavu-s and other gestures, including eye, neck, shoulder and hand movements. Although tāḷam and aḍavu-s overwhelmingly mirror one another, there are times when the naṭṭuvanar plays embellishing rhythmic statements on the hand cymbals (Rao 1998:37). When there is no nṛtta (or abhinaya) being performed, the cymbals are used to audibly mark tāḷa.

During dance instruction, the naṭṭuvanar often recites aḍavu solkaṭṭu while playing tāḷam patterns with a wooden stick and block (known as taṭṭu-kal). After this initial stage, however, the naṭṭuvanar will accompany many composed nṛtta

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49 “Unlike the cymbals which engage both hands,” notes Gaston, “the tattu-kal leaves one hand free to demonstrate the arm and hand positions (hastas/mudras) while the other continues to beat the rhythm. This is essential during a dance class” (1996:114).
sections, or jati-s, with specialized solkaṭṭu recitations designed for aesthetic beauty. Jati syllables comprise a much more varied and vibrant body than aḍavu solkaṭṭu. In natṭuvangam, mṛdaṅgam and counting syllables, aḍavu solkaṭṭu, as well as konakkol phrases are heard along with dance-specific syllables, including jem, jum, jey, kun, ta ni, ku ta, ha ta, ge du dim, dr gu du, di ri gu da, and di gi di gi.

Some of the syllables, phrases, and compositions used today were handed down through sampradāya, “in theory from the Tanjavur Quartet” (Krishnan pers. comm. 02/17/07). While sampradāya conveys tradition, it is never static. Evolution in syllable sounds happen, as natṭuvanar Mosalikanti Kishore notes, “according to the dance, according to the language, and according to the place, the region the natṭuvanar-s have come from” (pers. comm.02/06/09). Some artists also look outside sampradāya for inspiration in their dance solkaṭṭu. Venerated dance master, C.V. Chandrasekhar, for example, has incorporated syllables from ancient texts—such as ki ni ki ni and ha—into his natṭuvangam (pers. comm. 03/23/08). By taking lexical Sanskrit words from the saṅgītaśāstra as dance syllables, he reinforces the textuality of bharatanatyam while, in his words, “trying to give sense to the otherwise nonsensical or dry syllables” (ibid.).

50 In the dance context, the term jati refers to a nṛtta composition consisting of natṭuvangam recitation, tāḷam, and aḍavu-s organized in tāḷa. At times jati is used as a shorthand descriptor for the recitation alone. Some use the term “tirumaṇum” to signify the entire composition (or just the syllables). Here, I follow the majority of the dancers I collaborated with by limiting the meaning of tirumaṇum to the final mōrā in a jati and use the (somewhat redundant) term “tirumaṇum-mōrā” to describe this cadence.

51 According to Chandrasekhar, “kinikini” is the name of a bell used in the early dance texts (pers. comm. 03/22/08). Likewise, he has taken the Sanskrit word tadit, meaning “lightning,” and made it into the solkaṭṭu, ta dit, for sections of dance related to a storm (Ramanathan pers. comm. 02/12/08).
With the exception of nṛtta performed without solkaṭṭu accompaniment, compositions are sonically organized and identified by their naṭṭuvangam recitation. Some form of the standard phrase, ta lan • gu ta di ku ta ka ta din gi ṇa tom • (known asucerippu), signals the impending start of a jati. Although, as Kishore notes, “the dancer has nothing to do with ta lan • gu ta ka di ku ta ka ta din gi ṇa tom •,” performers (and audiences) hear it as a prelude to the forthcoming movement sequence (pers. comm. 03/02/09). After that, a brilliant layer of solkaṭṭu accompanies, comments on, compliments, encourages, challenges, and as a whole, aurally supports the dancer’s movements. Dance scholar and naṭṭuvanar, Hari Krishnan has eloquently described jati-s as “gems placed throughout the compositions” (pers. comm. 02/17/07).

The relationship between the recited jati and a dancer’s movements (as aḍavu-s heard in footwork and tāḷam) can prove complex. Naṭṭuvangam syllables usually fill in spaces unarticulated in the dancer’s steps, thereby making it denser than the corresponding aḍavu-s. “For us,” says Kishore, “adding extra syllables is just flavor.” It is acceptable, “as long as it is not disturbing the actual structure of the jati” (pers. comm. 03/02/09). As an example, consider the naṭṭuvangam recitation for this typical 24-pulse tirumaṇum-mōrā (see ex.46):

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52 When nṛtta is performed without naṭṭuvangam recitation the dancer relies solely on the tāḷam cymbals and their own internal reckoning of the aḍavu-s. Rao differentiates these compositions from jati-s with solkaṭṭu by designating them “kOrvai.” While noting that, “there is no major difference with respect to the type of nRtta” performed in either circumstance, she suggests that the use of trikāla is limited to nṛtta with solkaṭṭu (1998:24).
53 (Nelson pers. comm. 10/11/14)
Example 46: 24-pulse tirumaṇum–mōrā (basic naṭṭuvangam)
(ta din gi ṇa tom •)[0]
(ta ka ta din gi ṇa tom •)[0]
(ta ka di ku ta din gi ṇa tom •)||

The same construct is regularly recited using ki ṭa ta ka ta ri ki ṭa tom • as a double-time substitution for ta din gi ṇa tom (see ex.47):

Example 47: 24-pulse tirumaṇum–mōrā (denser naṭṭuvangam)
(kṭ tk tr kṭ tom •)[0]
(ta • kṭ tk tr kṭ tom •)[0]
(ta ka di ku kṭ tk tr kṭ tom •)||

Both naṭṭuvangam versions reflect the expanding structure of the corresponding aḍavu sequence (see ex.48):

Example 48: 24-pulse tirumaṇum–mōrā (aḍavu–solkaṭṭu)
(tey • di di tey •)[0]
(tey • tey • di di tey •)[0]
(tey • tey • tey • di di tey •)||

In contrast to this straightforward correspondence, in which the recited solkaṭṭu is denser but follows the same shape as the footwork, naṭṭuvanar-s also create excitement by contrasting their utterances with concurrent aḍavu-s/tāḷam. When tāḷam and syllables contrast, the naṭṭuvanar simultaneously embodies two distinct rhythmic voices. Kishore speculates that the close interaction of percussionists and naṭṭuvanar-s in hereditary music and dance families fostered rhythmic invention and the “dual role of making the jati in one line and doing something else in the second line.” This, “dual channel,” he notes, is unique to bharatanatyam. “If you see any other style of [Indian] dance, you will not have that” (pers. comm. 03/02/09).

A naṭṭuvanar may, for example, recite the above tirumaṇum-mōrā in gopucca yati (from long to short phrases) while playing the aḍavu-s/tāḷam in srotovaha yati. Or,
the jati recitation may develop contrasting rhythmic structures to those danced as aḍavu-s. For example, consider the following 64-pulse section of a jati composed by dancer Mythili Prakash:

Example 49: jati transcription of solkaṭṭu (showing tāla divisions by Prakash)

| ta ni • gu | ta • ta ni • gu dr gd | ta • ta ni |
| • gu dr gd | ta • ta • ta ni • gu | jo ṇu ta ka |
| ta • • jo | ṇu ta ta • ta • • di | mi ta ta • |
| ta • ta • • ki ṭa ka | dr gd | ta • ta lan • gu |

In this section, her naṭṭuvangam solkaṭṭu creates an expanding motif based on the initial ta ni • gu ta • phrase. After expanding it from six, to eight, and then to ten-pulses, the progression is suddenly interrupted by another expanding phrase based on jo ṇu ta ka ta • •. Prakash could have choreographed her movements to follow the structure of the syllables, stepping in sync with the solkaṭṭu phrasing. But, as she says, “for some reason that’s not how it came to me” (pers. comm. 01/24/09). Instead, Prakash choreographed her steps as follows:

Example 50: aḍavu steps

| • • x • | • • x • | • • x • | • • x • |
| • • x • | • • x • | x x x • |
| x • • • | • • x • | x • • • | • • x • |
| x • • • | • • • • | x x x • | x • x • |

While the naṭṭuvangam is developing the first motif, Prakash is stepping on the upbeats, thereby creating a steady contrast to the recited expansion. Prakash then draws attention to the second theme (after 28-pulses) by moving in unison with jo ṇu ta ka ta • •. Thereafter, the danced aḍavu-s and naṭṭuvangam solkaṭṭu reinforce one another. By sometimes contrasting and other times joining the naṭṭuvangam solkaṭṭu, dancers such as Prakash add momentum and excitement to their jati-s.
While Prakash believes dance syllables, “previously did not coincide with mṛdaṅgam sollu-s at all,” she shares the widespread perception of a growing overlap (pers. comm. 01/24/09). Prakash ascribes the increased presence of drum syllables to the decline of traditional naṭṭuvanar-s. In the absence of professional dance masters capable of composing jati-s, many dancers have turned to mṛdaṅgam players to fill that role. As a result, suggests Chandrasekhar, “now there’s a lot of intermingling of mṛdaṅgam syllables, konakkol syllables into dance […]. Now it’s like mixing up everything” (pers. comm. 03/22/08). Beyond the mṛdaṅga-fication of dance syllables resulting from increased influence of mṛdaṅgam players, this change in practice results in far greater uniformity of rhythmic design across music and dance.

**Mṛdaṅgam for Dance**

Outside of nṛtta, mṛdaṅgam playing in dance (and its relation to solkaṭṭu) is not dissimilar to what is found in karṇāṭak music. By and large, dance drummers adhere to the same rhythmic forms and structures prevalent in karṇāṭak music, the most obvious being the mōrā-s they play at the end of sections and songs. As with the concert percussionist, the dance drummer is not responsible for marking the meter in their phrasing because other musicians, and possibly audience members, are keeping tāḷa. Moreover, in dance the naṭṭuvanar often reinforces tāḷa with clearly audible cymbal playing. As in music, tāḷa keeping by others leaves the drummer free to comment, in their playing, on melodic developments. And, unique to dance, to accentuate and support the unfolding drama of abhinaya.⁵⁴

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⁵⁴ In my observations, however, most contemporary dance drummers play much more conservatively, with relation to tāḷa, than their counterparts in karṇāṭak music. Ranganathan, a top tier karṇāṭak
The context of large-scale rhythmic design in dance drumming, however, diverges significantly from the concert format in ways that have implications for solkaṭṭu. Dance drummers do not perform a tani āvartanam or other solo section in contemporary bharatanatyam. Rather than creating and orchestrating large-scale forms in performance, dance drummers accompany them. During nṛtta, mṛdaṅgam fits in with the dancer’s aḍavu-s, the tāḷam playing, and the naṭṭuvangam solkaṭṭu—not to mention the underlying tāḷa and song structure. As dance drummer Hari Babu describes it: “sometimes we support the dancer, sometimes we support the naṭṭuvanar—but we never miss the beat” (pers. comm. 03/02/09). This support comes through the drummers’ articulations of jati structures.

Naṭṭuvangam solkaṭṭu, aḍavu-s, and the rhythmic designs of nṛtta are pre-composed and basically fixed for jati-s. In contrast, the drummer is free to interact, embellish, and otherwise play with the concurrent rhythmic dimensions. Because naṭṭuvangam solkaṭṭu and aḍavu-s often reveal different aspects of a jati’s kaṇṇakku, the dance drummer pays close attention to the underlying structures. And because professional dance drummers must quickly learn numerous jati-s, with limited

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According to Nelson, when Ranganathan played for dance he experimented in ways he would not for kaṇṭṭak music. For example, Nelson has recounted Ranganathan playing 16-pulse catusra phrases in (14-pulse) miśra cāpu tāḷa. While purists might consider this type of rhythmic play (which goes well outside of the five traditional gati-s) as “against the truth, against belief, […] against virtue” (pers. comm. 04/17/08), Ranganathan took license because, as he lightheartedly told Nelson, “in dance, nobody is listening to the drumming” (Nelson pers. comm.).

According to Knight, “in traditional practice, at least into the 1920s, dance performances would begin with a composed section of drumming called melaprapti, sometimes accompanied by melodic instruments. It was short and called attention to the beginning of the performance […], but Kandappa felt it unsuitable for the concert stage. Another concert practice that has disappeared, and was disappearing when Bala started to perform, was the inclusion of a drum solo after the varnam. Kandappa choose not to follow the practice” (2010:72).
rehearsals, many rely on numeric transcriptions of kaṇākku (Hari Babu pers. comm. 03/02/09). A naṭṭuvanar, for example, may choose any of an array of six-pulse phrases—such as *ta din • gi ṭa tom, kṭ tr kṭ tom •*, *ta ri ṭa ta ka*, or *ta ki ṭa ta ki ṭa*—to accompany a dancer performing *tey • di di tey •*. Yet, for the drummer, “ultimately it is six” (Kishore pers. comm. 03/02/09). Not only is this a highly efficient method for notating jati-s, it leaves the drummer free to invent phrasing on the spot and according to their own aesthetics. Nevertheless, phrasing abstracted to numbers (for ease and efficiency) is inevitably realized as mṛdaṅgam strokes conceptualized according to mṛdaṅgam solkaṭtu.⁵⁶

**Conclusions**

The solkaṭtu applications highlighted in the preceding sections emphasize the flexibility, diversity, and pervasiveness of this syllable system. The naṭṭuvanar, dancer, and dance drummer, for example, all interpret and respond to multiple, simultaneous syllabic streams during nṛta. Each performer has a unique perspective, and imperative, with regard to the solkaṭtu. While (ideally) all are perfectly synchronized, they nevertheless diverge from one another in density, medium, and at times, in underlying structures. This divergence creates, what Rao calls, “a gripping quality” for the dance. Concert percussionists, as a single class of performers, have a more unified involvement with solkaṭtu. Nevertheless, solkaṭtu varies according to instruments and serves a range of roles in a single musician’s life. Syllables are at the heart of each player’s general rhythmic conceptualization, communications, as well as

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⁵⁶ This style of notating jati-s follows an approach made popular by M.N. Hariharan, a musician dubbed by one dance drummer as, “the James Bond of rhythm” (pers. comm. 03/02/09). For a detailed look at his numeric approach to composing, notating, and analyzing kaṇākku, see Hariharan (2004).
the specifics of their performance. Moreover, the conceptual analogy between strokes and syllables, like that of dance steps and syllables, is so deeply ingrained as to often disappear. Such intimacy allows the detail and complexity of South Indian rhythmic practice to be seamlessly shared, and precisely applied, throughout drumming and dance.
Conclusions

A fledgling mṛdaṅgam player’s struggles to coax a sharp and resonant num from her drum are quite distinct from a karṇāṭak vocalist’s use of counting solkaṭṭu to calculate cadences. Mannargudi Pakkiria Pillai’s konakkol, which “bore his listeners aloft on a magic carpet” (Ayyangar 1978:284), differs dramatically from the syllables Sudhākalaśa used to describe tāla structures in his 14th century treatise. The solkaṭṭu sung as flowing melodic lyrics in a tillana seems worlds away from my endlessly patient teacher’s insistence that a fingering pattern I keep fumbling is simply “ta ta ki ṭa ta ka.” These few examples reflect the diversity of solkaṭṭu demonstrated throughout this study. It is a diversity that shatters limiting characterizations while simultaneously making a coherent and comprehensive narrative of solkaṭṭu elusive. As I have clearly demonstrated, there is no single “art of solkaṭṭu” to talk about. Rather there are multiple aspects to rhythm and timing being conveyed through multiple systems, all via solkaṭṭu.

As dissimilar as solkaṭṭu iterations may appear—in form, function, and aesthetics—they emerge from a common source. Rowell calls this source “a central core of musical understanding” (1999:17), which has been sustained over two millennia through the oral-written matrix of sampradāya and saṅgītaśāstra. Within this core, solkaṭṭu—as humanly voiced syllables—has been key to temporal and rhythmic activity. The extent of its demonstrated continuities makes solkaṭṭu truly worthy of the sobriquet, “the imperishable.”
While solkaṭṭu may endure, the forms, functions, and actions in which it is used have constantly evolved. It is my contention that it is in this evolution—in the diversity of the flow of South Indian arts—that the essence of solkaṭṭu is revealed. As a key element in an embodied rhythmic system, solkaṭṭu must be, and is, dynamic. It is conceptual; and it is a fully musical utterance translatable (via analogy) to any of the multiple rhythm streams encoded in syllabic form. In building a theory for solkaṭṭu based on local forms, combined with approaches borrowed from the cognitive sciences, I have constructed a broad container to account for solkaṭṭu’s multivalence. The lack of consistency in some of the discourses noted in the final chapters reflects, to some extent, the tenor of the reimagining of the arts in which solkaṭṭu (along with percussion and rhythm play) was subverted. Perhaps more centrally, diverse views on solkaṭṭu signal the breadth, fluidity, and often intimacy, with which it is used. Solkaṭṭu is so widespread—as a foundational schema—that it is “only tacitly known and not explicitly cognized by members of a community” (Shore 1996:366); and solkaṭṭu is so central to individual conceptualizations that—like other intra-domain analogies—it is “easily overlooked” (Perlman 2004:33).

**Future Research**

Although the model of solkaṭṭu presented here corresponds to its broad usage, this is far from the last word. While I have filled in some spaces, others are noticeably empty. For example, I have not attempted a full indexing of solkaṭṭu syllables in all, or even in one, of its modalities. While relevant, I leave this task—which is daunting given the variety and idiosyncratic nature of solkaṭṭu—to future research. Likewise, a complete consideration of syllable differences across drumming and dance lineages.
remains undone, as does a survey of solkaṭṭu in song lyrics. The latter would prove especially valuable by providing an alternate viewpoint on the sampradāya of solkaṭṭu.

Further research into the longer history of solkaṭṭu may also be beneficial. Although I point to a few Tamil sources, I have not focused on solkaṭṭu in ancient texts outside the primary Sanskrit treatises considered in chapter one. Even though the outsized influence of the saṅgītaśāstra on regional discourses, and the challenges in transmitting written solkaṭṭu (and subsequent normalization that may result), suggest concurrence rather than dissention, a survey of solkaṭṭu in early non-Sanskrit texts would be a valuable addition to the literature. Besides the early Tamil works that are closest to the traditions considered here, Ter Ellingson’s (1980) foray into ancient syllables in Buddhist ritual might serve as inspiration for an alternate approach to widening the scope on this research (see p.7 n.3).

Finally, while I attempted to clarify the historical narrative of solkaṭṭu by drawing attention to recent formulations of art music and dance in southern India, my focus on the very genres prioritized in the reformation is admittedly narrow. While many aspects of the rich body of solkaṭṭu used in kaṇṭṭak music and bharatanatyam can be generalized to other systems, this study does not fully account for solkaṭṭu’s meanings and uses in numerous other contemporary traditions.1 Addressing solkaṭṭu in and among the variety of South Indian music and dance contexts, as well as a

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1 Rolf Groesbeck’s extensive and detailed work with Kerala temple drummers (2003, 1999, 1995) and Paige’s study of Tamil “folk” drumming in the naiyāṇṭi mēḻam (2009) are important contributions to a larger discussion of solkaṭṭu in South India’s performing arts. While both have insightfully addressed syllable use in their respective drumming traditions, further study of the significance and roles of solkaṭṭu within and across other genres are needed.
detailed investigation of solkaṭṭu in non-Indian spaces (touched on in the epilogue),
will have to wait for future research.
Epilogue  
Solkaṭṭu Circulations

Introduction
Like most musics and techniques, solkaṭṭu travels. And compared to other syllable systems focused on rhythm, it travels exceedingly well. Solkaṭṭu’s modern transnational circulations (especially to North America) began in earnest in the mid-20th century when Indian and western artists and scholars turned their attention to the study of karṇāṭak rhythm. Since then, solkaṭṭu has steadily been incorporated into pedagogies, compositions, and performance practices by an array of artists and educators working outside of India, and in some cases, outside the context of South Indian arts. Even before solkaṭṭu became a fascination for western musicians and scholars, it was reaching vast audiences beyond karṇāṭak music and dance through the most popular of Indian arts: film. Given the extent of solkaṭṭu’s circulations, it can be safely stated that quantitatively, only a small fraction of people exposed to solkaṭṭu encounter it through the “classical” arts discussed above.

In this epilogue, I follow solkaṭṭu to three major stops on its journey: film music, non-karṇāṭak performance/composition, and pedagogy. Syllable use within each of these spaces varies dramatically; sometimes it is close to the South Indian model found in art music and dance, at other times, the connections appear tenuous. Rather than a comprehensive accounting of the variety of solkaṭṭu appearing beyond traditional Indian performing arts, I focus on a handful of case studies in these three arenas that demonstrate continuities with the source materials as well as important, and often transformative, differences. Even in this brief encounter with non-karṇāṭak
solkaṭṭu, what becomes clear is that the flexibility and durability sustaining solkaṭṭu throughout its long history in India continue to inhabit the syllables as they are applied in new musical, geographic, and conceptual spaces.

**I. A Tamil Film Song: “Raa Raa”**

**The Scene**

In the opulent setting of King Vettayan’s 19th century court, the beautiful Chandramukhi and her dance partner, Gunasekaran, unwittingly reveal their hidden passion for one another as they perform a love song meant for the king. Seeing that his courtesan’s affections lie elsewhere, the king brings the song to a sudden halt—with solkaṭṭu. Tossing his robe aside, Vettayan proudly reels off a string of syllables (featuring the śrama vāhanī, shown in red):

\[
\text{ta} \bullet \bullet \bullet \text{ta ri gi ḍu di} \bullet \bullet \bullet \text{ta ri gi ḍu tom} \bullet \bullet \bullet \text{ta ri gi ḍu num} \bullet \bullet \bullet \text{ta ri gi ḍu} ||
\]

The couple responds by dancing the sequence as aḍavu-s. The king then presses them, doubling ta di tom and num in the phrase:

\[
\text{ta} \bullet \text{ta} \bullet \text{ta ri gi ḍu di} \bullet \text{di} \bullet \text{ta ri gi ḍu tom} \bullet \text{tom} \bullet \text{ta ri gi ḍu num} \bullet \text{num} \bullet \text{ta ri gi ḍu} ||
\]

After they again respond in dance, the king rushes forward. The momentum builds as the dancers now move in unison to his syllables. First, Vettayan compresses the śrama vāhanī phrase into four, 3-pulse units:

\[
\text{ta} \bullet \text{ki} \bullet \text{ṭa} \bullet \text{di} \bullet \text{ki} \bullet \text{ṭa} \bullet \text{tom} \bullet \text{ki} \bullet \text{ṭa} \bullet \text{num} \bullet \text{ki} \bullet \text{ṭa} •
\]

Then, a double time flourish:

\[
\text{ta ka ta ri ki ṭa ta ka} ||
\]

---

1 Song details: film, Chandramukhi (2005); director, P. Vasu; music director, Vidayasgar; rāga, srotasvini; tāla, ādi; female vocalist, Binni Krishna Kumar; male vocalist, Tippu; solkaṭṭu, V.V.S. Manian.
Finally, the mōrā:

\[(ta \cdot di \cdot ta lan \cdot gu)\text{tom} \cdot \cdot \cdot (ta \cdot di \cdot ta lan \cdot gu)\text{tom} \cdot \cdot \cdot (ta ka di \cdot ta lan \cdot gu)\]

As the rhythmic tension moves towards its final resolution at the end of the mōrā there is a sudden flash, then the scraping sound of a blade unsheathed. In unison with the final tom (landing on the downbeat of the next cycle), Vettayan cleanly slices off the lover’s head.

As the head drops, Chandramukhi leaps in horror, time freezes. While she floats in midair the king softly (and menacingly) chants a mid-tempo groove, **ta lan • gu ta ka jum • ta din • ta na ka jum**, over and over while circling the still-standing corpse. Gunasekaran’s headless body stumbles about, as if compelled to follow the king’s evil naṭṭuvangam. When Vettayan stops chanting, the body crumbles. With a sickening “thwack,” the king punts Gunasekaran’s head directly into the camera, and from the audience’s perspective, into our laps.

The Context

With over a thousand features released annually, India leads the world in film production.\(^2\) While markets for Indian films span the globe, the biggest is at home. Among the elements that make Indian cinema unique, that “*all commercial movies*
are musicals” (Dickey 1993:58) is, arguably, the most prominent. The four to six major song sequences in most films often comprise stunning set pieces, dramatic changes in location, vivid cinematography, and the introduction of large choruses of singers and dancers. Although integral, these songs are not limited to their original cinematic settings. Rather, film songs are widely distributed and dominate India’s music markets. As Getter and Balasubrahmaniyan report, “of all music genres in India, film songs of any language possess the largest audience and are the most geographically and culturally widespread” (2008:117). Given the appetite of Indian, South Asian, and global markets for these songs, it is safe to surmise that of all solkaṭṭu use, its appearances in film songs have, far and away, the widest reach.

Early Tamil film songs were heavily influenced by art music and dance. Before playback singing was introduced in the 1940s, stars had to be talented singers and many were trained in karṇāṭak music and bharatanatyam. Moving forward, films

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3 A non-musical genre of filmmaking, known as New Indian Cinema, Art Film, or Parallel Cinema, emerged in late 1970s as “a second or alternative national cinema for urban elites and the educated middle classes” (Mohan 1994:33). These films eschew the fantasy and melodrama of popular movies (which are integral to music and dance numbers) in favor of neorealism often focused on social and political issues.

4 Through such artifices, film songs create an alternative space freed from the constraints of the narrative. Much of what occurs in this space serves as “conventionalized substitutes for love-making” (Barnouw and Krishnaswamy 1980:155). This substitution is in response to state censorship, which has only recently, and with a great deal of resistance, allowed for on-screen kissing. An unintended result of this censorship has been the development of an extremely luxurious cinematic language deployed in song sequences. As Lalitha Gopalan argues, “any Indianness we attribute to these cinemas lies in the various ways censorship regulations of the Indian state shape and influence cinematic representations” (2000:217).

5 Film songs have multiple channels of distribution and visibility. They are often pre-released to attract an audience for the film. After a theatre run, film songs are distributed on DVDs, VCDs, audio CDs, and cassettes. They are heard in films and music videos aired on satellite and cable TV, they are distributed in ever growing numbers online, and are the subject of extensive print and electronic media attention.

6 As cinema was developing over the first half of the 20th century “acting and dancing in films were opportunities that opened up for the traditional community” whose livelihood was being curtailed by
with perennially popular themes of gods, kings, court culture, and courtesans have easily blended music and dance with “classical” elements into their narratives. Much of the solkaṭṭu used in film is introduced in relation to these common themes. Depictions of courtesans in Indian film are widespread enough that some scholars refer to a “courtesan film genre” (Chakravarty 1993:269). In Tamil film, with its intimate relation to local politics, representations of court and temple dancers cannot be understood without reference to anti-devadāśī narratives promoted by pro-Dravidian factions in the lead up to Independence (see p.104).\footnote{The mid-century rise of a popular pro-Dravidian movement was integrally tied to Tamil cinema. Movies provided a vast and uncontested platform for the movement to air its political messages and a crucial space for imagining a unified Tamil consciousness. Actor, turned-three-term-Chief Minister, M.G. Ramachandran (MGR, 1917–1987), personifies the interaction of politics and film. Before being elected, MGR acted in over one hundred and thirty movies from the 1930s through the 1970s, becoming a star of unprecedented proportions. During the 1950s and 60s, as “injections of political spice [in film] became very popular” (Dickey 1993:55), MGR’s work became overtly political in support of the newly formed, pro-Dravidian, Dravida Munnetra Kazhagam (DMK). An intensive overlap between film and politics preceded MGR and continued after his death, most notably in the person of Jayalalitha (b. 1948). Currently serving her fourth term at Tamil Nadu’s Chief Minister, Jayalalitha also came to politics after an extremely successful career in South Indian film.}

Analysis
As is the case for most celluloid courtesans, the interpretation of the devadāśī character in Chandramukhi\footnote{Reflecting the strong intertextuality often present in Indian film, “Chandramukhi” is a name borrowed from the courtesan in the famous Bengali romance novel, Devdas (1917), by Sarat Chandra Chattopadhyay. The character in the film adaptation of Devdas (1935) became the cinematic archetype for the prostitute-with-a-heart-of-gold (Chakravarthy 1993:269). Devdas has been remade over a dozen times in numerous Indian languages, the most noted being the 1955 Hindi version directed by Bimal Roy. Chandramukhi, a remake of the Malayalam film Manichitrathazhu (1993), has also been dubbed into numerous languages.} (2005) is informed by (and reinforces) stereotypes solidified during the dance reformation. The denouement of the film is triggered during the solkaṭṭu section in the song “Raa Raa” (described above). The song is anti-devadāśī activism and legislation (Knight 2010:68). Perhaps the most renowned musical artist to have performed in film was M.S. Subbulakshmi (1916–2004), who was, herself, the daughter of a devadāśī. While starring in relatively few films, Subbulakshmi achieved nationwide fame for her leading role in Meera (1945) before going on to lead one of the most illustrious musical careers in India’s modern history.
signaled by the sound of salaṅgai (ankle bells)—a clear audio marker of the devadāsī. This is followed by a cycle of solo mṛdaṅgam then joined by vīnā, flute, and synth pads. Balasubrahmanian considers film songs borrowing sounds from art music and dance as “classical” film songs (pers. comm. 12/04/06). Through the particularly southern instrumentation, language, and devadāsī imaging, “Raa Raa” clearly brands itself as a South Indian (rather than North Indian) version of the “classical.” When the dancer—the devadāsī Chandramukhi (possessing Ganga)—enters, she performs aḍavu-s timed to solo mṛdaṅgam passages, thereby making the bharatanatyam references explicit.

In the complex narrative tied together during “Raa Raa” the scene flashes between a disheveled Ganga (dancing, wildly possessed, in the narrative present) and the beautiful Chandramukhi (performing smoothly choreographed movements in the past). By the time the fateful solkaṭṭu exchange occurs, Chandramukhi has full possession of Ganga and the scene is firmly situated in King Vettayan’s 19th century court. The syllables featured in this section, ta, di, tom, and num, are the ancient śrama vāhanī handed down among percussionists over centuries of sampradāya and present for almost a millennium in the saṅgītaśāstra. Calling on them, as markers of ancient-ness, reinforces the scene’s temporal location in the past. Moreover, the śrama vāhanī are common to various barrel drumming traditions found across India (Brown 1965:105). Their use here would seem to ensure that the solkaṭṭu has the widest possible recognition. That the short piece is clearly in the common ādi tāla,

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9 He also suggests that the use of elements drawn from karnāṭak music and bharatanatyam significantly raises a Music Director’s prestige among general audience members (pers. comm. 12/04/06).
follows an exceedingly simple structure, and ends with a mōrā that fits Anilkumar’s characterization of a “government arudi” (i.e., one so obvious that “the people understand” (pers. comm. 12/06/08, see p.159 n.32)) makes it all the more accessible.

Although these archetypical passages may be both old and familiar to audiences, their presentation falls outside the norms of the dance style purportedly being depicted. Instead of flowing smoothly from sāhityam to the jati and back, as would be the case in a dance performance, the song comes to a grinding halt before the solkaṭṭu sequence begins. To meet cinematic imperatives, the solkaṭṭu acts as a coda to the song. Likewise, the tāḷa keeping of Rajinikanth (playing the king) is flamboyant rather than functional. Perhaps most importantly (for this analysis), the solkaṭṭu itself is out of character with the proposed setting. Instead of typical naṭṭuvangam syllables, this section comprises mṛdaṅgam and konakkol solkaṭṭu. Furthermore, it is recited according to konakkol rather than naṭṭuvangam intonation and aesthetics. As Manian, the recording artist, told me, the section used in the film “is actually a full lesson” for percussion, rather than a dance jati. According to Manian, the music director, Vidayasgar, called him and said, “you do whatever you want in your style, I will take whatever I want in my movie.” Because he is a konakkol artist, it is not surprising this piece, in his style, “elaborates like konakkol” (Manian pers. comm. 05/03/08).

Though not aesthetically consistent with dance recitation, the solkaṭṭu is presented as naṭṭuvangam. The “dance master” (King Vettayan) conducts the dancers’ movements via syllables: at first in a call and response fashion, then in unison.
However, in addition to conducting, this solkaṭṭu is meant as a challenge. In the context of Tamil film depictions of courtesan culture, the conflict between the King/naṭṭuvanar and the devadāsī can be read as a conflation of three elements in the anti-nautch movement (see pp.104–11). First, women were portrayed as disempowered victims in devadāsī–patron relations. In Chandramukhi, the patron is literally the king whose jealousy plays out in murder. Second, reformers capitalized on a gendered split between female dancers and their male accompanists and naṭṭuvanar-s in the hereditary communities leading up to the Devadāsī Act. Likewise, the new class of dancers who succeeded the devadāsī-s was (at times) in conflict with traditional naṭṭuvanar-s. The confrontation between the dancers and the “naṭṭuvanar” in the film makes this division explicit. Finally, when Rajinikanth (playing both Vettayan and an American trained psychiatrist), together with a priest, ultimately exorcize Chandramukhi’s ghost, the realms of science, government, and religion (depicted through these male characters) win out over the wildly possessed (and sexualized) female devadāsī character. Here, we find expression (and resolution) of the overriding discomfort the reformers found in the matriarchal, matrilineal, and matrifocal devadāsī communities.

Although the solkaṭṭu composition in “Raa Raa” is consistent with the norms of kaṇakku, its cinematic use meets the dramatic requirements of film rather than the aesthetics of music or bharatanatym. In the process, alternate meanings appear and take center stage. Many of these, such as solkaṭṭu being a medium for confrontation, are not uncommon in film. The female antagonist in “Minsara Poovae” (A.R.
Rahman) from *Padayappa* (1999), for example, squares off against the lead in another dancer–naṭṭuvanar battle; this one, however, ends in a kiss rather than a beheading. Or consider the fight scene from *Parutheveeran* (Sultan 2007), which is accompanied by drumming and solkaṭṭu. In this case, the famous Music Director, A.R. Rahman asked Manian “to render […] very fast konakkol for the fighting sequence” (Manian pers. comm. 05/03/08). As the sole musical accompaniment, solkaṭṭu and drumming are explicitly tied to the on-screen violence. Without reference to music or dance, this solkaṭṭu is stripped of its “classical” connotations and, instead, functions more uniquely as vocal percussion augmenting the drumming-based fight soundtrack.

II. Non-Karṇāṭak Performance/Composition

When solkaṭṭu is intertwined with narrative, visual, and musical constructs in Indian film, it conveys meanings beyond those found in its originating contexts. A similar process takes place when solkaṭṭu arrives on other musical shores. The range of solkaṭṭu heard in “world music” styles, Indian “fusion,” Indo-jazz, electronic dance music, New Age, and a surprisingly long list of other genres (including hip-hop flamenco and klezmer) is impressive.

At one end of the spectrum, solkaṭṭu goes almost completely unmarked as Indian. As an example, consider the Vaseline® commercial (2006) featuring Sheila Chandra reciting solkaṭṭu drawn from konakkol, naṭṭuvangam, and other syllables.

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10 Or perhaps solkaṭṭu in film can be viewed as a vivid echo of the multivalent syllable use seen in ancient Sanskrit theatre (see ch.1).
11 See Karnataka College of Percussion’s konakkol on “Tantas Flores” by the Spanish band, Ojos de Brujo (2009), and clarinetist, Jon Petter, doing konakkol with Klezmer Klub (https://www.youtube.com/watch?v=wbFN9txT1AI).
12 Similar to her well-known syllabic collages, “Speaking in Tongues” (1992, 1994), in this piece Chandra consciously avoids kaṇakku, yet conveys South Indian structures that are inherently bound in
Timothy D. Taylor suggests that in advertising’s version of world music, “there is almost always a soaring female vocalise singing nonsense syllables or more recognizable oohs and ahs” (Taylor 2000:162). His descriptions of this “faux world music” (ibid.:176) fit Chandra’s solo vocal track (accompanying a choreography of disembodied hands) like a glove.

At the other end of the spectrum, solkaṭṭu operates in a familiar environment (often in conjunction with other South Indian musical practices and models) but is modified by context and intent. Trichy Sankaran’s “Catch 21” (2002) exemplifies how such non-traditional solkaṭṭu applications forge new connections and expand associated meanings.

**Konakkol Groove: “Catch 21”**

Ingrid T. Monson, in “Riffs, Repetition, and Theories of Globalization,” considers “the way repetitive musical devices contribute to an understanding of global musical circulation” (1999:32). She is specifically “interested in the way riffs, repetition, and their composite grooves circulate within and between genres and what they can tell us about what Mark Slobin would call diasporic intercultures (1992:44)” (ibid.). On the surface, the solkaṭṭu-based riffs, repetitions, and grooves comprising

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13 According to Taylor, such “music isn’t really ‘world music’ in the music-industry sense, that is, music made by people from outside the West, but it is nonetheless music that signifies world music” (2000:174). Drumming, end-blown flutes, and other “exotic” instruments are commonly heard. Solo female vocals (and/or children’s choruses) with “untexted vocal lines” are used to create a non-threatening, exoticized Other (ibid.:162,163). Chandra’s performance in the Vaseline® commercial wonderfully represents Taylor’s paradigm: her syllables can stand in for both drumming and the female vocal line. In addition, her beginning hu • uh, and ending, ahhhh are recognizable where the solkattu may not be to most viewers.

14 An earlier version of this composition, commissioned in 1993 by New Music Concerts in Toronto, includes an array of percussion in place of the konakkol grooves and extensive improvisations featured in the later piece. 

“Catch 21” differ dramatically from those in the African diaspora that are Monson’s focus. Yet, they serve very similar musical functions. More importantly, these musical gestures mark connections made by Sankaran between solkaṭṭu’s many Indian uses and its re-contextualization in hybridized musical spaces.

Aside from a short melodic interlude, “Catch 21” comprises two konakkol lines and a clapped ostinato based on the (by now familiar) 21-beat Tiruppugazh tāḷa of “Kadimodi” (see p.145 ex.16).\(^{15}\) Although the ostinato reflects the division of the cycle derived from the chandam syllables of the Tiruppugazh (i.e., $3 + 3 + 5 + 10$), the chandam and sounded kriyā/konakkol do not share a one-to-one correspondence. The kriyā (and matching konakkol) follow typical performance practice for rendering this tāḷa: two cycles of tiśra cāpu tāḷa are followed by one cycle of khaṇḍa cāpu tāḷa and one cycle of khaṇḍa āka tāḷa.

The piece opens with the sounded kriyā and (perfectly matched) konakkol pattern recited in unison (see ex.51):\(^{16}\)

**Example 51: kriyā and konakkol from “Catch 21”**

Kriyā:

<table>
<thead>
<tr>
<th>X</th>
<th>X •</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X •</td>
</tr>
<tr>
<td>X</td>
<td>X X •</td>
</tr>
</tbody>
</table>

Konakkol:

<table>
<thead>
<tr>
<th>ta to</th>
<th>ta to</th>
</tr>
</thead>
<tbody>
<tr>
<td>ta • ta to •</td>
<td>ta • din • gi • ṇa • to</td>
</tr>
</tbody>
</table>

Sankaran then moves to a konakkol improvisation while Suba Sankaran, his daughter and band mate, recites the line in unison with the clapping for another 39 cycles (0:00–4:17). The combination of the extended repetition of the solkaṭṭu phrase and

\(^{15}\) For a more thorough treatment of this piece, extending beyond solkaṭṭu use, see Dineen (2005:132–40).

\(^{16}\) Comparing the solkaṭṭu in examples 16 and 51 highlights the aural and functional divide between counting solkaṭṭu and konakkol.
the prominent unison clapping, for over four minutes, emphasizes the 21-beat structure. Imprinted in the listener’s mind as konakkol, this groove becomes the piece’s principal and most prominent feature.

In his solkaṭṭu improvisation, Sankaran stays close to the konakkol groove in both syllable choice and structure. Changes in density, syllable placement, and an array of small mōrā-s (mainly confined to the final ten beats and resolving to the following downbeat) create excitement and propulsion. The end of the opening section is marked by a standard kōrvai recited by both konakkol artists in typical karṇāṭak fashion (in unison and three times through).

In the next konakkol section, Suba Sankaran replaces the groove with a double-time phrase: dum • dum • ta di ki ṭa ka dum • dum • ta • • ta di ki ṭa ka. Being half as long as the original, two iterations of the groove fit in one cycle of tāla.

After the new groove (heard as a polyrhythm to the continuing clapped cycle) is established, Sankaran introduces a permutation of the same pattern offset by two pulses, thereby making a round: the titular “catch.”

Through subsequent cycles, kaṇakku is applied to further shorten the groove, create another permutation and round, and, finally, to bring the main konakkol section to a close with a simple 42-pulse mōrā.

“Catch 21” is awash in karṇāṭak elements, yet their combination, processes, and presentation fall far outside the models used in the “classical” South Indian arts.

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17 “Catch” typically refers to a round in which the combination of sung parts creates a humorous composite lyric.

18 Though this mōrā follows karṇāṭak norms, the syllables are highly unusual in their simplicity. The 10-pulse statements are formed solely using ta and unarticulated spaces, (ta ta • ta ta • ta ta • ta), while the gaps comprise a six-pulse tom.
Where the clapped line comes directly from the Tiruppugazh tāḷa, for example, its aural centrality defies kānṭāk aesthetics. Such prominent sonic positioning transforms the kriyā into a foreground percussion ostinato imbued with distinct character by its persistent repetition with matching konakkol. Throughout the piece, the clapped ostinato serves as both the musical timekeeper and as an interactive rhythmic reference for the other parts. As a result, it is akin to West African bell patterns and their many analogues throughout the African diaspora.

Similarly, the solkaṭṭu pattern describing the kriyā would simply serve as a pedagogical aid for learning the metric structure of tāḷa in a kānṭāk context. Here, this solkaṭṭu takes center stage as the vocalized groove. Its relationship to the other konakkol line is another clear divergence from Indian practice. In the Indian model, multiple percussionists typically follow a single line of linear phrasing, playing either sequentially or in unison. In “Catch 21” the two konakkol parts interlock and diverge from one another, and the clapped ostinato, to create polyrhythmic tension and release.

In reference to rhythmic play in African diaspora musics, Monson describes how repeating parts of varying periodicities are layered together to generate an interlocking texture (continuous groove-defining elements, or Locke’s ‘time’ [1987: 16–36]) which then serves as a stage over which various kinds of interplay (call and response) and improvisational inspiration can take place. (1999:36–44)

Although the grooves, riffs, and patterns in this case are clearly Indian, the processes Monson describes above seamlessly apply to the rhythmic play in “Catch 21.”

As the premier representative of the Pudukkottai lineage, a stalwart of the kānṭāk tradition, and winner of numerous awards (most notably, the coveted
Sangita Kalanidi in 2012), Sankaran is widely recognized as one of the greatest mṛdaṅgam vidvan-s of his times. And while Sankaran is a self-described “traditionalist” with regard to South Indian music (pers. comm. 04/17/04), his innovative uses of solkaṭṭu (and the Tiruppugazh tāla) in “Catch 21” are hardly surprising. Since 1971, when Sankaran was invited by Higgins to create a South Indian music program at York University, he has been collaborating with top-tier artists from a wide range of musical traditions as well as composing pieces integrating karnāṭak approaches with non-Indian styles and instrumentation. Among other influences, in “Catch 21” Sankaran drew on his interest in African rhythms, and especially his long-term association with Ghanaian master drummer, Abraham Adzenyah (pers. comm. 02/24/09). While “Catch 21” stands out among his works for the prominence given to konakkol, his non-karnāṭak use of it as a groove, in permutations, and in repetitions reflects Sankaran’s self-positioning on the frontiers of musical (and geographic) boundaries.

III. Pedagogy

As in performance and composition, pedagogies outside traditional South Indian performing arts vary widely in their incorporation of solkaṭṭu. In some cases, the intention behind solkaṭṭu use goes beyond music training. More commonly, solkaṭṭu is used in three (often-overlapping) ways: (1) with a focus on specific instruments, (2) as a means of teaching general rhythm skills, and (3) as part of a

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19 For example, Manian innovatively uses solkaṭṭu to teach tirukkural verses to elementary school children. The tirukkural, credited to the ancient Tamil philosopher-poet, Thiruvalluvar, comprise 1330 verses describing ethical conduct. Young students in Tamil schools are often required to chant and memorize blocks of these verses. Manian has introduced konakkol phrases as mnemonics, matched to the stress and timing of the Tamil syllables, for 108 tirukkural (pers. comm. 05/03/08).
South Indian arts curriculum. Because pedagogy is central in solkaṭṭu’s circulations, I consider all three of these models below: the first two, in brief, and the third with more detail.

**Instrument-Specific Solkaṭṭu**

Solkaṭṭu used in instrument-specific applications appears with varying connections to Indian models. It can, for example, be used translate karṇāṭak rhythmic materials to new instruments following a syllable–stroke paradigm similar to that of karṇāṭak percussives (see “Solkaṭṭu and Other Percussion” in ch.5). Hartenberger, in “Mrdangam Manual” (1974), provides a template by translating mṛdaṅgam lessons to orchestral toms, matching sonic properties of the solkaṭṭu (and mṛdaṅgam sounds) to western drums. Ganesh Anandan (2004) takes the same approach in frame drum pedagogy, albeit on a far smaller scale. In both cases, mṛdaṅgam-solkaṭṭu is the primary medium of rhythmic communication.

In his exhaustive tome, “Blood Drum Spirit” (1986), Hartigan uses solkaṭṭu to more loosely adapt karṇāṭak constructs to drumset. Instead of a direct translation of Indian practice, Hartigan applies solkaṭṭu phrasing and ideas to drumset “in a manner consistent with the African American tradition” (1986:1236). This results in a diffuse relationship between strokes and syllables, little attention to sonic pairing, and a preponderance of counting- rather than mṛdaṅgam-solkaṭṭu. Moving even further from the South Indian model, percussionist Malcolm Lim (2005) describes the 40

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20 For analysis of Anandan’s adaptations of mṛdaṅgam pedagogy to frame drum, see Dineen (2005:118–29).
22 Hartigan’s approach is consistent with more recent, high profile efforts at using solkaṭṭu with drumset by Lockett (2008) and, less prominently, by Sunny Jain (2009). For analysis of Lockett’s approach (as seen in his earlier works), see Dineen (2005:110–18).
PAS (Percussive Arts Society) International Drum Rudiments in syllables. Like other highly westernized solkaṭṭu appropriations, Lim exclusively uses counting-solkaṭṭu, arranged in basic phrases, to convey notated rhythmic structures.23

**General Rhythm Training**

Sankaran’s early and persistent efforts to provide solkaṭṭu-based training to musicians—playing any instrument in any genre—exemplify solkaṭṭu used as general rhythm training. In his pedagogy, Sankaran incorporates western modes of expression, at times including staff notation, to more easily communicate Indian-based concepts to western audiences.24 Numerous publications, including articles in trade journals and method books, similarly situate solkaṭṭu as a means for developing high-level rhythmic skills.25 Percussion luminaries Jamey Haddad, Glen Velez, and John Bergamo (1940–2013) have played individually notable roles in introducing solkaṭṭu to generations of musicians at their respective institutions in the US, in clinics around the world, and through private lessons.26 All three are known for their frame drumming skills, and have indelibly marked frame drumming with solkaṭṭu.27 Their

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23 Lim’s choice of counting-solkaṭṭu, which are often used to convey structure rather than timbre in the kaṇṭṭak context, is highly appropriate for snare drumming with its relatively homogenous sonic character. It is notable that the internal syllabic organization of the counting units, even in this clearly non-kaṇṭṭak context, make Lim’s phrases musical, memorable, and, thereby, effective for his pedagogical snare drum application. Exceptions to Lim’s use of counting syllables occur when he (perhaps unwittingly) adheres to the kaṇṭṭak convention of introducing instrument-specific solkaṭṭu for certain strokes with unique sonic properties (see p.198). These syllables include tra and cha for flams, and trra and sha for the double drag.

24 For detailed analysis of Sankaran’s solkaṭṭu-based rhythm pedagogy, see Dineen (2005:64–70).
25 For examples and analysis see Dineen (2005:72–101).
26 For more on Velez’ work with solkaṭṭu, see Dineen (2005:140–46).
27 Solkaṭṭu is prominent in online materials about frame drumming, in educational videos and publications, and in courses and workshops. As frame drumming has emerged as a recognizable specialty, solkaṭṭu has become part of its communal holdings. Although this community comprises practitioners from multiple nations and musical traditions, they often share techniques, information, and camaraderie with others in this “composite” affinity group.
efforts with solkaṭṭu have not been limited to specific instruments, but focus more broadly on developing students’ rhythmic abilities.\textsuperscript{28}

**South Indian Focus**

Compared to the already-mentioned pedagogical approaches, solkaṭṭu used in North American institutions teaching South Indian rhythm is most pervasive and influential. Unlike the Indian model, in which solkaṭṭu is integrated in music or dance study, here it is typically taught on its own. This innovation allows for intensive immersion in kaṇṇāṭak rhythm without the difficulty of learning (very technique-intensive) instruments or performance practice. In Ethnomusicology, Music Theory, and Performance courses offered in the US and Canada, solkaṭṭu is commonly used to teach kaṇṇāṭak rhythmic concepts to college and university students.

Many of the educators teaching solkaṭṭu can trace their lineage to early generations of musicians and scholars who brought South Indian music and dance into long-term affiliations with North American institutions. Of the music programs in North American higher education where solkaṭṭu is taught in the context of the South Indian arts, Wesleyan University’s stands out for its consistency and longevity, scholarship, and the unique historical location of its main artistic lineage (established there by T. Ranganathan and T. Viswanathan).\textsuperscript{29}

\textsuperscript{28} The solmization system known as “takadimi” (Hoffman, Pelto, and White, 1996) has recently made inroads into college-level rhythm training. I mention it here because the system shares a name with the common four-pulse unit and may be perceived as a type of solkaṭṭu-based rhythm training. Besides taking advantage of the euphony and ease of articulation found in a few simple solkaṭṭu phrases, the organization and syllable use in “takadimi” are devoid of Indian elements. It can best be described as a beat-oriented system for use with staff notation, akin to Kodály or Gordon syllables.

\textsuperscript{29} That the venerated line of Viṇṇā Dhanammal, marginalized in 20\textsuperscript{th} century reinventions of the South Indian “classical” arts in India, has been sustained, and, indeed, thrives from a base in US higher education is one of the more visible and significant consequences of scholarship based on learning from culture bearers. As Subramanian notes, “This important intervention continues to contest the
In the current iteration of Wesleyan’s program, Nelson designs his solkaṭṭu pedagogy to meet the needs of his students while adhering to South Indian models.\(^{30}\) The first series of exercises in Nelson’s solkaṭṭu pedagogy, for example, are designed specifically to introduce American students to basic South Indian practices (such as reciting while keeping tāḷa) and concepts (like doublings and permutations).\(^{31}\) After this series, Nelson begins teaching material that is eventually compiled into a piece for an end-of-semester performance—much in the way a mṛdaṅgam student is taught material following the tani āvartanam paradigm. Conspicuously absent here, and in most solkaṭṭu pedagogy in the US, are the śrama vāhanī. This traditional introductory series, while important for developing strength and dexterity on mṛdaṅgam, introducing stroke-syllable relations, and connecting a drummer to the long history of sampradāya, offers little pedagogical benefit when solely recited as solkaṭṭu.\(^{32}\)

Although Nelson foregoes the śrama vāhanī series with solkaṭṭu students, he introduces a significant number of mṛdaṅgam syllables in his solkaṭṭu pedagogy as he moves from the beginning exercises into more traditional compositions. Because his extensive body of materials are drawn from the Pudukkottai lineage, and funneled through his experience as a mṛdaṅgam artist, Nelson teaches kaṇakku and sarvalaghu notion of the classical as set out by the state and its votaries within and without its borders” (2006:178). For a detailed history of Wesleyan’s Karnāṭak music program see Getter’s MA thesis, “Saraswati’s Journey” (1999).

\(^{30}\) Nelson follows Ramnad Raghavan in holding the post initiated by Ranganathan in 1961. Under Nelson’s tenure, the artist-in-residence position has been expanded to Adjunct Assistant Professor. For details and analysis of Nelson’s solkaṭṭu pedagogy at Wesleyan, see Nelson (2008) and Dineen (2005:58–64).

\(^{31}\) Interestingly, Nelson created this series with material he learned from jazz drummer, Ed Soph (Nelson pers. comm. 02/11/04). And yet, its format, presentation, and intention are in accord with Karnāṭak practice and effectively convey rhythm fundamentals underlying the South Indian system.

\(^{32}\) Moreover, the śrama vāhanī series is typically introduced without tāḷa, thereby decreasing its pedagogical value in rhythm training.
using the mix of konakkol- and mṛdaṅgam-solkaṭṭu common to drummers in that tradition. Nelson contrasts his approach to solkaṭṭu pedagogy with the traditional model of rote learning common to mṛdaṅgam training: “We work differently here. I give you the principles and you fill out the details” (pers. comm. 04/03/05). By focusing on principles, processes, and approaches, Nelson enables his students—who lack the luxury of a lengthy apprenticeship—to rapidly engage with karṇāṭak rhythmic design (and more easily adapt what they learn to other musical contexts).

Nelson’s pedagogical orientation reflects the attention to developing practical rhythm theory, in the context of performance, fostered for over a half century in Wesleyan’s South Indian music program.

**Re-Circulation**

During the December 2000 music season, Nelson gave a lecture on one of Viswanathan’s koraippu-s at the University of Madras. “What I presented to them,” recounts Nelson, “was essentially my analysis of this koraippu he played and I talked about the underlying logic of it” (pers. comm. 02/11/04). Those in attendance were both convinced by Nelson’s analysis and somewhat stunned. “Apparently,” he notes, “that’s just not done there, or hasn’t been done there […] First of all, drummers don’t talk about it like that, and second, they don’t come to the University and talk about it

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33 Lacking a similar background, solkaṭṭu teachers in many US institutions have a more limited body of syllables available to them. Moreover, second or third generation teachers without recourse to performance opportunities may lack the means for generating and manipulating syllable structures, or rendering them in aesthetically appropriate solkaṭṭu. Over time, such deficiencies may result in a dramatic reduction in solkaṭṭu diversity heard in North American educational settings.

34 In India, as Nelson describes it, “you’re given a mōrā or kōrvai, then immediately a bunch of variations, so you learn the transformations at the same time as the original. Over time you learn to generalize the transformations to other mōrā-s and kōrvai-s, applying the underlying logic to other situations” (pers. comm. 04/03/05).
like that” (ibid.). Over the succeeding 14 years, academic circulations have continued to take place. Indian drummers and scholars have increased their academic focus on rhythm while Nelson and others trained in North America continue to interact with their Indian colleagues to develop and refine South Indian rhythm analysis. My intervention in this dissertation, however limited, is both an attempt at furthering this initiative and an example of the continuous movement of solkaṭṭu across musical, conceptual, geographic, and temporal borders.
References:


Bor, Joep. 2007. “Mamia, Ammani and other \textit{Bayaderes}: European Portrayal of India’s Temple Dancers.” In \textit{Music and Orientalism in the British Empire, 1780s to 1940s: Portrayal of the East}, edited by Martin Clayton and Bennett Zon, 39–70. Hampshire; Burlington: Ashgate.


**Discography:**


**Instructional Videos:**


**Filmography:**


*Padayappa*. 1999. dir. K.S. Ravikumar

*Parutheveeran*. 2007. dir. Ameer Sultan
Appendix I: Mōrā (according to Nelson)

Mōrā is the most prominent kaṇakku design in South Indian music and dance. Drummers play mōrā-s as transitions and endings, in solo playing and accompaniment, and use them to highlight particular aspects of songs. Dancers and naṭṭuvanar-s similarly use the mōrā structure (called by different names) to mark cadential points in nṛtta. Singers and melodic instrumentalists also use mōrā-s to conclude passages in svara kalpana. In addition, the final section of any kōrva, whether it is drummed, danced, performed melodically, or recited, is a mōrā. Mōrā-s come in myriad shapes and sizes. They may be less that one beat in length or span multiple tāla cycles. Their structures may be evident or intricately hidden in deceptive designs. In all cases, mōrā-s serve as cadences by building tension with the tāla and then releasing that tension as they resolve.

Nelson first articulated a formula capable of describing and analyzing the overwhelming majority of mōrā-s in his dissertation (1991 vol.1:44–64). His formula describes the basic mōrā as three phrases separated by two gaps: i.e., (statement)[gap](statement)[gap](statement). According to this formula, the three statements are one syllable or longer and are equal or in arithmetic proportion to one another. The two gaps—of equal length—may be zero or greater, with articulated and/or unarticulated syllables. In addition, Nelson classifies more complex mōrā-s as compound, enfolded, or unfolding (ibid.:53–61). The parenthesis and brackets not only signal the nature of each element in a mōrā, they also provide a visual template highlighting the potentiality of the form. Artists explore this potential to produce
designs in which multiple level and layers intertwine, unwind, and overlap in fractal-like sequences and shapes.

Nelson’s model contrasts earlier (and many later) attempts to describe and analyze the mōrā, which were (and continue to be) muddied by misreading the nature of the gaps and the resolution syllable (see Nelson 1991 vol.1:44–46). Nelson developed his insights into mōrā structure over an extended collaboration with his teachers and colleagues and in the wake of groundbreaking scholarship on South Indian drumming. As such, Nelson’s comprehensive mōrā formula can be considered the “crowning [of] a thought process that had taken nearly three decades to complete” (Falkenau 2003:7).

Like many terms, the word mōrā carries different meanings for different people. Some performance traditions reserve mōrā for the long cadential form immediately preceding the final kōrvai in a tani āvartanam: the periya mōrā. These practitioners often use arudi instead of mōrā to describe the ubiquitous cadence. In my training, arudi refers specifically to a small mōrā played after a kōrvai or dance jati. (It is also the secondary resolution point in the tāla cycle after eḍuppu, where the drummer’s arudi cadence resolves.) In addition, some differentiate mōrā-s comprising solely ta din gi ṇa tom syllables (see p.173 n.41). The diversity of terminology associated with the mōrā, while sometimes frustrating to scholars, reflects the diversity and vibrancy of this living musical tradition.
Appendix II: Arachalur Musical Notation Inscription (4th c.)

Original Inscription (Mahadevan 2003:524)  Tracing (ibid.:440)

Transliteration (ibid.:442)

\[
\begin{align*}
  &ta \ tai \ tā \ tai \ ta \\
  &tai \ tā \ tē \ tā \ tai \\
  &tā \ tē \ tai \ tē \ tā \\
  &tai \ tā \ [t]ē \ tā \ tai \\
  &ta \ tai \ tā \ tai \ ta 
\end{align*}
\]

As Iravatham Mahadevan describes it, the four syllables of the inscription—ta, tā, tē, and tai—are “arranged symmetrically in columns and rows, to read alike from either end, horizontally as well as vertically.” (2003:617). These inscriptions, he notes, “comprise syllables uttered in music accompanying dance” (ibid.:618).
Appendix III: Ādi Tāḷa Displacement Exercise (version 1)
Appendix IV: Ādi Tāla Displacement Exercise (version 2)

**Stage 1**

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<th>X</th>
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</thead>
<tbody>
<tr>
<td>ta ka di mi</td>
<td>ta ka jo ñu</td>
<td>ta ka di mi</td>
<td>ta ka jo ñu</td>
<td>ta ka di mi</td>
<td>ta ka jo ñu</td>
<td>ta ka di mi</td>
<td>ta ka ta ki</td>
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<tr>
<td>źa ta ka di</td>
<td>mi ta ka jo ñu ta ka di</td>
<td>mi ta ka jo ñu ta ka di</td>
<td>mi ta ka jo ñu ta ka di</td>
<td>mi ta ka jo ñu ta ka di</td>
<td>mi ta ka ta</td>
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<tr>
<td>ki źa ta ka</td>
<td>di mi ta ka jo ñu ta ka di mi ta ka jo ñu ta ka di mi ta ka jo ñu ta ka di mi ta ka</td>
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<tr>
<td>ta ki źa ta</td>
<td>ka di mi ta</td>
<td>źa jo ñu ta ka di mi ta</td>
<td>źa jo ñu ta ka di mi ta</td>
<td>źa jo ñu ta ka di mi ta</td>
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**Stage 2**

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<tr>
<td>ta * ka * di * mi</td>
<td>ta * ka * jo * ñu</td>
<td>ta * ka * di * mi</td>
<td>ta * ka * ta ka ta ki</td>
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<td>3</td>
<td>4</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>źa ta ka * di * mi</td>
<td>* ta * ka * jo * ñu</td>
<td>* ta * ka * di * mi</td>
<td>* ta * ka * ta ka ta</td>
<td></td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>ki źa ta * ka * di * mi</td>
<td>* mi * ta * ka * jo * ñu * ta * ka * di * mi</td>
<td>* mi * ta * ka * ta ka</td>
<td></td>
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<td>3</td>
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<td>X</td>
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<td>X</td>
<td>O</td>
</tr>
<tr>
<td>ta ki źa ta * ka * di * mi * ta * ka * jo * ñu * ta * ka * di * mi * ta</td>
<td>ka ta ki źa</td>
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Appendix IV: Ādi Tāḷa Displacement Exercise (version 2) (cont.)

Stage 3

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Appendix V: Ādi Tāḷa Displacement Exercise (version 3)

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