

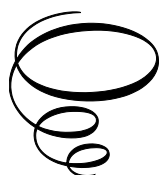
Statistical Approach to Style Characterization of the Trinity of Carnatic Music

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By

P.S.N. Murthy

**Cambridge
Scholars
Publishing**



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This book first published 2025

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

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ISBN: 978-1-0364-5275-9

ISBN (Ebook): 978-1-0364-5276-6

This book is dedicated to:

My adored father Late Pariti Surya Subrahmanyam and my mother Late. Annapoorna, for their love and affection for me and inculcating the pursuit of knowledge in me for which my gratitude cannot be expressed in words.

Kalapraveena, Kalapropoorna Late Dr. Manchala Jagannadha Rao garu (Guruji of author) who was responsible for developing a critical interest in the author in musicological studies.

Violin Vadyasamrat, Pumbhava Saraswathi, Nada Brahma, Padmabhushan Sangeetha Kalanidhi Late M.S. Gopalakrishnan, the greatest violinist India has so far produced an all-time great violinist the world has ever produced and 'Violinist of Humanity' (in the parlance of Sri. Bimalendu Mukherjee), whose perfection and versatility were not only adored by the author but also created an abiding fascination and interest in the author in classical music beyond expression.

Gayaka Sarvabhauma, Kalaprapoorna, Pubhava Saraswathi, Padmavibhushan Sangeetja Kalanidhi Dr. Magalampalli Balamurali Krihshna, an embodiment of both perfection and versatility, as author's deep admiration for this genius in no uncertain means helped in infusing interest in classical music in the author.

Endaro Mahanubhavulu, andariki na vandanamulu

Pariti Suryanarayana Murthy – The author

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NADA THE PRIMORDIAL SOUND

Lord Shiva in Soul

*Ātma madhyagatah pranah,
Prānamdha gato dhwnih
Dhwani madhya gato nadah
Nāda madhye sada sivah*

Life force abides in the middle of the Soul; transcendental sound, resides in the middle of life force; primordial sound is encompassed by transactional sound. And at the Centre of the primordial sound, dwells Shiva, the eternally auspicious.

From Swārarnava, ascribed to sage Nārada.

Endless Nada

*Nādabdhe param pāram
Na janathi saraswathee
Majjana bhayadadyā pi
Tumbah vahati vakshasi*

‘Even Goddess Saraswathi knows not the far end of the Nada-ocean. She clings even now to her bosom the (Veena) Gourd for fear of drowning’.

From Chatura Damodara’s Sangeetha Darpanam

FOREWORD

DR. PURNA P. BANGERE
PROFESSOR OF MATHEMATICS
CUM CARNATIC VIOLINIST

I met Dr. P.S.N Murthy more than 15 years ago, and the connection was created through our mutual love for the Indian music legend Shri. M. S. Gopalakrishnan (MSG), who happens to be my guru Shri HKN Murthy's guru. He narrated to me an incident going back to the early 1970's, of his visit to MSG's home. It so happened that during his visit MSG was teaching my teacher! This was a bond that grew further over time. Dr. Murthy shared many stories and anecdotes about the maestro who he holds in highest esteem, both as a man and an artiste. These have been very helpful for the book on MSG, which I have been working on for years.

So, when he told me he is writing a book on music, I was intrigued. He used to call me and narrate various things related to the book over the years. As it came to fruition and I saw a draft, I realized it is a labour of love. The first thing that struck me is the sincere passion and love he has for Indian music in general and Carnatic music in particular. He has brought to bear on it a unique lens from his own background in geology using tools from statistics and probability. As I understand some of it comes as part of his PhD thesis, there are things he borrows from others and he builds on them with his own insights to create a narrative that is very interesting to say the least.

His tremendous love and respect for the great composers of Carnatic music shines forth, and he has undertaken an analysis through the prism of probability considerations. A reader will be impressed by three things among others. They are (i) there is vast data that is available for an endeavour like this. It requires insight to select from this labyrinth a critical subset that is representative of the whole from his perspective. Author has done this admirably (ii) Originality of approach and (iii) Ingenuity of the enterprise.

Considering that I am working on the "Metaraga system: geometry and music", I have a particular sympathy for these kinds of causes to understand music from different perspectives. I think the book has compelling elements that will open a new horizon for further research.

That an Octogenarian has undertaken an endeavour such as this and has seen it through with great determination is an inspiration for the younger people all over.

Finally, I am certain his hero, MSG sir would have been extremely moved at the intense undertaking of his devotee, whose love for music and his particular insights shines forth in this book. I am heartened to now realize that PSN's appreciation of the music of MSG came from not only depths of his heart, but also from the enlightened analysis facilitated by his fine mind.

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FOREWORD

BY A WESTERN CLASSICAL MUSIC PIANIST

Carnatic music, with its rich ornamentation and intricate structures, has been a cornerstone of Indian classical music for centuries. Rooted in tradition yet alive with the potential for innovation, it speaks to the soul in a way that few other forms of music can. Nevertheless, beyond its emotional depth lies a complexity that can be understood differently—through the lens of statistical analysis.

Dr Murthy unveils the hidden patterns, relationships, and structures that shape Carnatic compositions with surgical precision. It offers a fresh perspective on ragas, talas, and the intricate improvisations that define this genre, revealing new insights into the principles governing the interplay between melody and rhythm.

While Carnatic music has always been a subject of deep reverence and study, the introduction of statistical analysis opens up exciting possibilities for both musicians and scholars. Through data-driven methods, we can uncover deeper understandings of how patterns emerge in ragas, the distribution of rhythmic cycles, and the subtle shifts that occur in live performance. It provides a new dimension for appreciating the musical forms of a tradition that has been passed down through generations while also offering new ways to approach the future of this ancient art form.

This book is for those who are drawn to Carnatic music not only for its emotional beauty but also for its intellectual rigour. It is for musicians eager to explore their craft through a quantitative lens and for researchers seeking to bridge the gap between music and mathematics. By combining statistical tools with the rich cultural heritage of Carnatic music, this work opens up a new frontier where music, mathematics, and culture meet.

This book embarks on a fascinating exploration of the intersection between the artistry of Carnatic music and the precision of statistical methods. By applying rigorous analytical tools to one of the most complex and sophisticated musical traditions in the world, Dr Murthy unveils the hidden patterns, relationships, and structures that shape Carnatic compositions with surgical precision. It offers a fresh perspective on ragas, talas, and the intricate improvisations that define this genre, revealing new